

The Implications of Langer's Philosophy of Mind for a Science of Psychology

Joseph R. Royce
University of Alberta

This paper constitutes a two part exposition of Langer's trilogy on *Mind: An Essay on Human Feeling*. Part I, which presents Langer's critique of contemporary psychology, includes the following criticisms: the blind adoption of physics' world view as the model for conducting psychological science, the cultist application of mathematics in psychology, the anthropomorphizing of animal behavior, and the erroneous claim that subhuman primates are capable of using human language. In Part II the following Langer prescriptions for corrective action are presented: develop prescientific, generative ideas about the nature of mind, such as the concept of "feeling"; replace behavioral concepts with mentalistic concepts, such as the concept of mental act; conduct a thorough analysis of the evolution of mind as a basis for distinguishing between animal and human mentality. Langer presents two major criteria for distinguishing between human and animal—the ability to symbolize, and the development of intellectual and moral values in human societies. Langer's trilogy is deemed worthy of extended analysis because it holds the potential of changing the conceptual foundations of psychology.

Although there has been something of a rapprochement between the disciplines of psychology and philosophy during the past two decades, the improvement in interdisciplinary relationships has not led to the development of obvious advances in philosophical psychology. Of course, books and journal articles have been published during this period, including several landmark efforts such as the books by Arnold (1978), Borger and Cioffi (1970), Brown (1974), Chapman and Jones (1980), Royce (1970a), and Weimer (1979). However, much of the output of this period has been released under the banner of philosophy of mind, as exemplified by the *Studies of Philosophical Psychology* series (e.g., see Alexander, 1963; Bennett, 1964; Hamlyn, 1957; Kenny, 1963; MacIntyre, 1958; Melden, 1961; Peters, 1958; and Winch, 1958). The major shortcoming of these studies is their lack of psychological content. Although the conceptual analyses are sharp and penetrating, the theoretical constructs analyzed are typically the ordinary language meanings rather than the more technical meanings which have been provided by the past 100 years of empirical research in modern psychology. Insightful

analyses of psychological concepts are of little value unless they reflect the most scientifically robust findings of the discipline.

Unfortunately, weakness in the substantive findings of a given science is the standard shortcoming of the philosopher. However, there is a recent work by a philosopher of mind which does not suffer from this shortcoming. This is the trilogy on mind which was written by the philosopher Suzanne Langer (1967, 1972, 1982). This work was hailed by the *Philosophic Studies Journal* (see cover of the 1967 book) as an "extremely significant and brilliant work," and Langer was praised as a philosopher whose scholarly range covered most of modern scientific research. In fact, the review went so far as to say that "no contemporary philosopher has combed the literature of the sciences more painstakingly and interpreted it with greater insight." Despite such accolades Langer's *Mind* (1967, 1972, 1982) has made no impact on psychology. Part of the reason for this lack is most certainly due to the fact that her appeal for a mentalistic psychology came at a time when the discipline was already in the midst of making such a paradigm shift in the form of information processing and cognitivism. Thus, she was preaching to the converted. However, developing a viable science of mind is a difficult challenge, a challenge that has not yet been met—so her critique is still relevant. Furthermore, it is highly likely that psychologists have not reacted to Langer's work for the simple reason that they do not know about it. I have taken it upon myself, therefore, to bring her views to the attention of the psychology community by way of this paper.

I propose to present Langer's views in two parts—Part I constitutes an exposition of Langer's critique of contemporary psychology, and Part II presents her prescriptions for corrective action. Her speculations on the nature of mind take her into an exhaustive analysis of the evolution of mind. Her argument is that we must develop a clear picture of animal mentality as a baseline for developing an understanding of human mentation. All of Volume II, which carries the subtitle *The Great Shift*, is devoted to the phylogeny of mind. And her answer to the question of what distinguishes human from animal lies in the human's ability to symbolize. And what is symbolizing? Above all it is image making. But symbolizing for Langer (1942) covers the production of all possible symbolic forms—from its most primitive manifestations in the form of dreams and myths to the more advanced forms of language, mathematics, the arts, and the sciences. Langer proposes the concept of "feeling" as an example of what she means by a "generative idea" concerning the nature of mind. Although this term is never clearly defined, it is used in the very broad sense of "whatever is felt in any way, as sensory stimulus or inward tension, pain, emotion or intent" (Langer, 1967, Vol. I, p. 56). Therefore, she tries to convey her meaning by providing examples:

. . . how a small fright, or startle terminates, how the tensions of boredom increases or gives way to self-entertainment, how day-dreaming weaves in and out of realistic

thought, how the feeling of a place, a time of day, an ordinary situation is built up—these felt events, which compose the fabric of mental life, usually pass unobserved, unrecorded, and therefore essentially unknown to the average person. (1967, Vol. I, p. 57)

The term feeling is meant to refer to the full range of human mentality, covering such relatively simple manifestations as those listed above, and such manifestations of higher cerebral (i.e., brain) functioning as symbolic expression, imagination, propositional thought, religious conception, mathematical abstraction, and moral insight. (1967, Vol. I, p. 32)

Langer's approach is very complex, involving the coalescence of scientific disciplines ranging from biochemistry to anthropology on the one hand, and all the complexities of the evolutionary process on the other hand. Concerning the latter she says, for example, that in evolutionary progression

. . . there are no simple patterns and definite constant directions. The course of progress from lower forms of organization to higher ones is zigzag, and, . . . is sometimes blurred; there are no sharp lines between organic specialization and competence for behavior Most biological processes are, in fact, dialectical; that is to say, they go forward as an interplay of opposed but mutually determined phases. . . . Sometimes they are most apparent in elementary functions, sometimes in very high, superimposed attainments. (1972, Vol. II, p. 15-17)

To add further complexity Langer's trilogy not only involves the full range of sciences, it also includes the major art forms. The reason for this is that she regards artistic forms as the best available manifestations of "feeling." That is, it is the artist who knows

. . . something of how feeling rises, develops, tangles or reverses or breaks or sinks, spent in overt action or buried in secrecy. He is not a psychologist, interested in human motivation and behavior; he simply creates an image of that phase of events which only the organism wherein they occur ever knows. This image, however, serves two purposes in human culture, one individual, one social: it articulates our own life of feeling so that we become conscious of its elements and its intricate and subtle fabric, and it reveals the fact that the basic forms of feeling are common to most people at least within a culture, and often far beyond it, since a great many works do seem expressive and important to almost everyone who judges them by artistic standards. Art is the surest affidavit that feeling, despite its absolute privacy, repeats itself in each individual life. (1967, Vol. I, p. 64)

But assuming the validity of these claims, how are we to extract such insights from art forms, particularly in view of the fact that artistic expression is non-discursive? "The answer," says Langer, "lies in the art symbol, for the symbol is a work, and its elements are analyzable . . . and one way to understand what passages or aspects of feeling are expressed in it is to analyze what the artist has done and for what purpose" (1967, Vol. I, p. 66). This involves getting into the technicalities of art, such as identifying the "idea of human feeling" which the artist has projected via his or her work (1967, Vol. I, p. 121).

It is at this juncture, the non-discursive nature of art combined with its technicalities, where the psychologist is most likely to run into difficulty in comprehending such an endeavor. And Langer's trilogy includes these complications as well as those already mentioned. For example, her technical analyses in the fields of music and painting are just two artistic domains that are beyond my competence. Pratt (1968) complained of similar lacunae of competence in his review of Volume I when he said, "The book is a stunning achievement, a scholarly edifice of intricate detail. But what does it all mean?" (p. 446). While I do not claim to know what it *all* means, I hold the opinion that she is one of the few of the leading philosophers who cares about our discipline to the extent of devoting a large segment of her life to an understanding of psychology's conceptual foundations.

In short, it will take some time before we know what it all means. And all I can claim in this essay is that Langer's treatise has implications for bringing about a change in psychology's conceptual foundations, and that the present analysis constitutes a tentative first step toward uncovering the meaning of her trilogy. We will now move on to her critique.

Langer's Critique of Contemporary Psychology¹

Throughout the history of psychology a small number of psychologists have taken it upon themselves to stand back and size up the "state of the art." In addition to such criticisms as methodolatry and scientism, a recurrent criticism has been that psychology has erroneously tried to emulate physics. Yet, it is obvious that, since physics is the most successful science there is, physics is clearly the science for a young discipline to emulate. However, the typical objection of critics to the practice of blindly emulating physics has been vague and ineffectual. Langer, on the other hand, is more incisive about this. For example, she makes the point that there is no objection to physics' methodology, but that error is likely to occur if the psychologist should also adopt physics' vision of reality "because it is becoming increasingly obvious that it does not fit the forms of life very far above the level of their organic chemistry" (Vol. I, p. xviii). Furthermore, concerning developments in mathematical psychology, Langer points out that mathematization in a field such as psychology is usually premature because it leads to (1) oversimplifications of available data in order to make it amenable to mathematization, and (2) it closes out badly needed original thinking about the nature of

¹Her expository style is more like that of the novelist, especially the writer of mystery tales, than it is like the typical scientific treatise. She rarely follows the procedure of explicitly indicating what she is about to do—she just lets the text flow from one thing to the next, and occasionally tells you in a footnote what she is doing. A good strategy is to read the first few pages of the beginning and ending of a chapter before reading the entire chapter. She does say something about her intentions in this way as well.

the psychological phenomena under investigation. Perhaps the best examples of oversimplification for the sake of mathematization can be found in the work of the mathematical biophysicist Rashevsky (1938, 1947, 1951). He begins with a reasonable point of departure: differential equations based on the rate of neural conduction (Rashevsky, 1938). However, after a series of simplifying assumptions, which are minimal from the mathematical point of view but impossible to grant from an empirical point of view, he ends up with a general theory of social behavior (Rashevsky, 1947, 1951). The mathematics is impressive but the simplifying assumptions are so monumental that it is doubtful that the final product has anything to do with the empirical realities of social behavior. Rashevsky's research is possibly the best example of the inappropriateness of physics as a model because it includes physical concepts as well as physically oriented mathematics (such as calculus). Furthermore, the mathematics looks so powerful says Langer, that it "should make the behavioral sciences rocket to success. Instead of that, it has so far left psychology, sociology, anthropology, and ethical theories just where they were before" (1967, Vol. I, p. 42). She then explains that the reason for the Rashevsky failure is not in the mathematics qua mathematics, but in the concepts borrowed from physics, "which do not lend themselves readily to the expression of psychologically important problems" (1967, Vol. I, p. 43).

And she further explains that the Rashevsky use of mathematics is misconceived because it is "a manifestation of a cultist application of mathematics rather than an application to solve an actual scientific puzzle" (1967, Vol. I, p. 43). I (Royce, 1970b) have also pointed out that mathematical systems that are particularly appropriate for physics are likely to be particularly inappropriate for psychology. The calculus is a case in point. Its first and second derivatives refer to very precise and fine changes over time. Such changes obviously require highly precise measurements. Such precision is possible in physics, but completely impossible at the present time in psychology. Graph theory, topology, and other forms of non-metric approaches exemplify the kind of mathematics that is more likely to be helpful at this stage of psychology's development. When I was a graduate student at the University of Chicago in the late 1940's I sat in on several of the Rashevsky seminars and I had a reaction similar to Langer's. Although I did not have sufficient background in mathematics to follow all the proofs, the autistic disdain for empirical reality came through loud and clear. In fact, I had the distinct impression that Rashevsky actually had no knowledge or interest in the relevant empirical realities. On the other hand, it was apparent that the Rashevsky group had sophisticated command of certain mathematical tools, and that these tools were there to be used come what may. In that intellectual atmosphere it was totally out of order to raise questions concerning the substantive concepts being bandied about. The only acceptable questions from the seminar's participants were those concerning the adequacy of the

mathematical proofs that were presented.

Another example of inappropriate mathematization in psychology is Lewin's so-called application of topology. However, in this case the problem is not oversimplification, as in the case of Rashevsky, but rather, the problem is "word-magic"—the point being that Lewin's concepts do not reflect any of the characteristics necessary for the mathematical aspects of topological thought (Langer, 1967, Vol. I, p. 41). This point, which was brought to the attention of fellow psychologists by Ivan London (1944) when Lewin was still alive, seems to have been totally ignored by the entire psychology community, including Lewin and his followers.

But Langer points out that Lewinian word magic is merely one manifestation of the psychologist's penchant for jargon, which she defines as the use of a special vocabulary for common sense ideas. More accurately, jargon is a language which is more technical-looking than the ideas it serves. She culled the psychological literature and cites the following as examples: "hominid individuals" for "persons," "verbal behavior" instead of "speech," and reference to a "clinical interview" as a "stimulus to verbal behavior" (Langer, 1967, Vol. I, p. 36).

Langer's most exhaustive critique is focused on the domain of animal behavior; in particular, studies which are devoted to "higher mental functions" and to instincts. Concerning the latter she says:

The chief reason why the study of instinct has made so little headway, despite the wealth of empirical data which we owe largely to the patient field work of the ethologists, is the lack of usable basic concepts in terms of which problems could be framed and hypotheses mooted. Its weakness is philosophical; that is why research in its domain falls apart into antagonistic schools (1972, Vol. II, p. 22).

. . . The lack of an adequate theory of instinct means we cannot appreciate what must have happened at that critical line which the homo stock must have crossed, and the highest other animals have not (1972, Vol. II, p. 214).

Furthermore, existing treatments of instinct "have aimed chiefly at deprecating its functions and proving that 'clever' animals have concepts, see causal relations, and make plans of purposive action" (1972, Vol. II, p. 214).

Langer then demonstrates just how pervasive such anthropomorphizing is in the research on animal behavior. Furthermore, these demonstrations are not obscure examples taken from the work of little known investigators. Rather, her analysis is based on the contributions of such leading behavioral biologists and animal psychologists as Altmann, Barends, Eibl-Eibesfeldt, Frings, Hebb, Herrnstein, Hinde, Köhler, Lorenz, Skinner, Thorpe, and Tinbergen. Whereas the "instinctivists" erred by deprecating the significance of species specific behavior, the higher mental process investigators erred by over-rating the extent to which these behaviors are characteristic of subhuman animals. An inventory of the human traits or characteristics which have

been attributed to subhuman animals includes the following² (N.B. the name of the investigator is indicated in parentheses):

Rites and ceremonies (ethologists), symbols (Kroeber), concepts (Köhler), traditions (K.R.L. Hall), superstition (Skinner), sham battles, and tournaments (Eibl-Eibesfeldt), punishment to convert the young (Kummer), principles of exogamy (Koenig), special relations with aunts and uncles (Hinde), and language (R.A. and B.T. Gardner). (Langer, 1972, Vol. II, p. 111)

Langer argues that this kind of anthropomorphizing of animal behavior is rampant in the literature, and that it is due to the fact that investigators of animal behavior are committed to demonstrating that there is a continuum of animal life from the simplest protozoan forms to humans (1972, Vol. II, p. 110-111).

In her analysis Langer tries to follow the opposite approach—namely, to interpret the findings of animal behavior in nonhuman terms. She regards this attitude as critical for the establishment of a baseline for marking the distinction between animal and human mentality. A good case in point is the research on language in animals, especially the claims regarding the use of language in primates. Although many psychologists are of the opinion that the demonstrations by Premack (1970) and the Gardners (Gardner and Gardner, 1969) prove that subhuman primates use language, Langer argues that their linguistic ability is at a subhuman level. The key to this issue lies in whether or not language is responded to as a symbol. Langer refers to the case of Helen Keller as the critical test.

But here is just where we stumble brusquely on the difference between [the ape] Washoe and the speechless human child. The world of speech and conceptual thought did not open for the chimpanzee. She [Helen Keller] subsequently used other words in the same spontaneous way. (1967, Vol. I, p. 212)

In short, human language is a symbolic form (see Langer, 1942, and Cassirer, 1953, 1955, 1957) and non-language is not. Washoe, for example, used words in a simple, literalistic, non-symbolizing way. That is, the language usage of Helen Keller is symbolic and the language usage of Washoe is signfic. In fact, Washoe was not successful until the Gardners dropped their attempts to teach spoken English and switched to sign language. Furthermore, Washoe's subsequent use of sign language does not evolve into conversation—that is, it does not move beyond pointing and naming, which is so characteristic of the use of signs.

²This inventory is not exhaustive; see Langer, 1982, Volume III, for more examples.

On Langer's Prescriptions for Psychology

Langer's major purpose in writing her trilogy is to gain insights concerning the nature of biology and psychology as a basis for a deeper conception of mind. Although she implements this by probing deeply into the biological and psychological literature, her primary *modus operandus* is to look in a direction which most psychologists regard as irrelevant: namely, to the arts. But it is important to remember that she is doing this in a prescientific or philosophic context with the thought of developing generative ideas rather than immediately developing a science, and that she is focused on one generative idea, the notion of feeling, where feeling "includes the sensibility of very low animals and the whole realm of human awareness and thought; the sense of absurdity, the sense of justice, the perception of meaning, as well as emotion and sensation" (1967, Vol. I, p. 55). It must be kept in mind that Langer is providing us with an "image" of mental reality rather than a scientific definition or a model. Her concept of feeling, therefore, covers a vast scope. In fact, her thesis is that "the entire psychological field—including human conception, responsible action, rationality, knowledge—is a vast and branching development of feeling" (1967, Vol. I, p. 23). Images of reality typically cover a vast scope because they "show how something appears," not how it works (N.B. a scientific model shows how something works). Furthermore, Langer came to this insight as a result of her intensive and extensive studies of art. Her point is that artistic products "are images of the forms of feeling and that . . . [the art symbol] sets forth in symbolic projection how vital and emotional and intellectual tensions appear, i.e., how they feel" (1967, Vol. I, p. xviii-xvix). In short, she is saying that the study of art forms constitutes the most important source of the imaginal manifestations of the mind, and is, therefore, a prolegomenon to the scientific study of mind (1967, Vol. I, p. 244).

But how are we to implement this new, strange way of looking at mind? The first step is to eliminate all thing-like concepts such as behavior, and replace them with mentalistic concepts such as the recommended basic unit of analysis, *the act*. But Langer is both evasive and vague about the meaning of this concept. The closest she comes to a definition is when she says the act is "a Gestalt which involves (a) the building up of a tension, followed by (b) the consummation or release of that tension" (1967, Vol. I, p. 268); and as when she says an act "consists of a series of movements coordinated to the carrying out of a plan of action" (1967, Vol. I, p. 265). She also provides examples of acts, such as uttering a word (1967, Vol. I, p. 267): she states that making a telephone call is an act—but that grasping the receiver is not (1967, Vol. I, p. 266). And finally, she makes use of the concepts of *action*, *activities*, and *agent*, which are defined as follows: An action is "the causal pattern or operative principle according to which an organic or inorganic mechanism works"

(1967, Vol. I, p. 304). Activities, such as breathing and heart beat, are "act sequences" (1967, Vol. I, pp. 304-305). Finally, an agent is defined as "a complex of actions [where] all actions that belong to that complex are acts of that agent" (1967, Vol. I, p. 314). The intent is to get away from mere movements and meaningless behavior, that is, to develop a more meaningful basic unit of mentation. She claims to have arrived at the act concept as a result of her exposure to biological and psychological literature. Although she does cite a vast literature, it does *not* include the writings of the act philosophers Brentano or Husserl, both of whom viewed psychology as the science of mental acts. However, it does include the ethological literature, the domain which held the major influence on the development of her concept of act.

Langer then moves on to an extended analysis of evolutionary theory, particularly the evolution of mental acts, which she considers to be of paramount significance because

mental acts . . . prepare very rapid advances in behavior and concomitant growth . . . and such flexibility in mutual adaptation that they shift from one course or one mechanism to another, and build up a whole functional response system, which we refer to as the agent's mentality For in one primate stock, the hominid stock, all the developments of special talents seem to have tended in one direction, which was toward cerebral activity; and at some fateful juncture in the history of that genus, there occurred a shift . . . of a practically unimportant cerebral function that took all related ones along Such was the great shift, the shift from animal to human estate, that initiated the development of mind. (1967, Vol. I, p. 444)

And what brought about this shift? For her rather protracted answer we will have to turn to the next section on the evolution of mind.

The Evolution of Mind

The analysis that follows does not attempt to cover the pre-life evolution of inorganic and organic matter, nor does it deal with plant life. In fact, it is limited to animal life, and it is further limited to those events in natural history which have particular significance for the eventual emergence of mind. With respect to the origin of animal life,

there must have been strong ruling tendencies toward organization, which led to increasing interdependence of actions and eventuated in the formation of biological mechanisms. The most important factor in that process . . . must have been the establishment of rhythms. Rhythmic concatenation is what really holds an organism together from moment to moment; it is a dynamic pattern, i.e., a pattern of events, into which acts and act-like phenomena very readily fall: a sequence wherein the subsiding phase, or cadence, of one act . . . is the uptake for its successor (Langer, 1969, Vol. I, p. 323).

And, following the generally accepted view, the simplest behavioral acts occur in protozoa, then in metazoa. However, metazoa are little more than aggregates of unicellular organisms and, therefore, do not constitute much of an

advance, if any, in the evolution of mind. This is the case because of their transient and pluralistic nature. What happens is that the cells come together momentarily and function as if they constitute an individual, and then they disperse again as a mere aggregate. What simple metazoa show, says Langer, is "how elementary overt action is in animal life, [because] whenever there is even transient individuation there are potential concerted acts of the (metazoic) individual as a whole" (1972, Vol. II, p. 8). However, such primitive acts set the stage for the evolution of the more complex multicellular entities that constitute all the phyla of the animal kingdom. But where does mentality begin? Langer hypothesizes that the first felt (i.e., mental) acts were sensory (1967, Vol. I, pp. 424-425). This occurs in its most primitive form via the tactile modality, and later on, as the other specialized receptors evolve from the epidermis, sensibility occurs via the senses of taste, hearing, and vision. This is followed by further complications of physical acts. Furthermore, she believes putting the focus on acts rather than morphology overcomes certain difficulties, such as accounting for the adaptive value of vestigial organs. She takes this stance because embryological observations indicate that specialized function can frequently occur before the appearance of the relevant underlying structure (1967, Vol. I, p. 401). The point here is that

... a great amount of differentiation and differential growth is neither needed nor promptly suppressed by essential activities in the actualization of a genetic impulse pattern, but tolerated. Organs develop when and where they can As structures take shape, they offer opportunities to vital impulses to express themselves . . . life, growth, and development are essentially opportunistic in their progress. (1967, Vol. I, p. 403)

Thus, these findings point to an impressive malleability in the developmental process. And they also are consistent with a behavioral-act-biochemical basis for change in the evolutionary process. Langer's claim regarding the importance of act is captured in the following:

The causes of evolution lie in the dynamic properties of acts and act engendered activities. From the old, wonderfully versatile gill structure, for instance, all sorts of tissues have arisen in the mammalian and avian orders, in place of the gills that could not develop in their changed situations: not only the glands . . . , but the meatus of the ear instead of the ancient gill slits, jaws and ossicles from the arches, and supporting tissues of the throat from what used to make up various parts of the aquatic breathing apparatus. (1967, Vol. I, p. 408)

And her argument concerning the biochemical basis of change is as follows:

To say that acts are encoded in genes as biochemical patterns, means, of course, that the first, i.e., direct influence of genes must be chemical; and the translation of dynamic phenomena, such as rhythms, into chemical transformation rates as one of the most efficient methods of tracing them back to their genetic determinism. The chemical phases of these basic acts which eventuate in growth, cell movements, embryonic organization, nervous and somatic and behavioral patterns, are of an almost unsurveya-

ble intricacy; one has to isolate the smallest possible complex to track the genetic interactions and finally, . . . guide the synthesis of a single metabolite or effect a single function such as cell respiration. (1967, Vol. I, p. 411-412)

Of course the most important biological changes in the evolution of mind occur in the development of the nervous system, particularly the brain. These changes occurred gradually until the primates appeared, especially the early forms of homo sapien. The point is that the massive growth of the brain did not occur until the emergence of the hominids. On this point she (1972, Vol. II, p. 243) quotes the anthropologist Washburn to the effect "That the first hominids were small brained, newly bipedal, protoaustralopith hominoids, and that what we have always meant by man represents later forms of this group with secondary adaptations in the direction of large brains and modified skeletons of the same form." The development of large brains meant that more and more psychological functions came under central nervous system control; and it is this development that constitutes the most important biological basis for the emergence of mind.

In her view animal mentality is pre-symbolic or instinctive. However, her conception of instinct goes beyond the typical view in that it includes the manifestation of intelligence, which she sees as a matter of implementing the gene-determined behaviors of the species in such a manner that the animal in question avoids personal harm (1972, Vol. II, p. 31). A major point she is trying to make concerning the instinctive behavior of animals is to allow for the manifestation of a high degree of intelligence on the one hand, but to avoid the attribution of human intellectual qualities on the other hand. She is, therefore, adamant in her view that animal mentality is preconceptual. Their use of language, to reiterate, is limited to the sign level—it never becomes symbolic. The symbolic processes take two directions—conceptual meaning, as in the use of concepts, and the imaginal, as in the construction of symbols. The most primitive of the imaginal symbols occurs in dreaming. Although investigators have been able to track down dream fragments of primitive humans, there is no evidence that animals dream. She also claims there is no convincing evidence of the development of concepts in animals. Furthermore, she sees the rise of language as another major development in The Great Shift from animal to human mentality. For language provides humans with enormous amplification of thought, imagination, and communication. The combination of braininess and language allows for the specification of a non-transient, cumulative record via memory. Such a record is what we mean by experience, another characteristic (i.e., historicity) which Langer claims is limited to humans (1972, Vol. II, p. 342).

In addition, this combination—growth of the brain, the emergence of language, and the emergence of symbolizing—eventuates in the development of social structure, which Langer sees as the ultimate criterion for distinguish-

ing between human and animal. For, although there are animal communities, they are

. . . not comparable to human society, for only the latter is based on intellectual and moral values—personal responsibility, standards of justice, honor and loyalty to a social order The rise of a typical way of life as a member of a continuous, recognized society, built upon the ancient and gradual separation of the evolving Hominidae from all the other, differentially evolving primate lines, in its advance constantly epitomizes The Great Shift from beast to human. (1972, Vol. II, p. 355)

But social structures and other cultural forms are not static. Langer's point is that the mind evolved culturally as well as biologically. For example, the primitive mind is heavily committed to myth, which later differentiated into the more specialized symbolic forms of the arts and sciences.

Langer sees the evolution of mind as a direct consequence of the ability to symbolize. Although symbolizing can take non-verbal forms, she argues it was the emergence of speech in early hominids that accelerated and amplified human symbolizing. The earliest manifestations of human symbolizing arose out of the need to affirm one's self and were imaginatively expressed via such forms as the supernatural, ritual, magic, and myth. Why were such wild fantasies taken seriously? Langer attributes it to the novelty of thinking and verbalizing. More precisely, people were

ready to accept not only their own but also any other notion born of any flash of imagination, any suggestion no matter how it was made The production or reception of a thought may have involved no judgment whatever of truth-value The character of reality, which for us today requires some credentials such as an objective perception or trusted information, may originally have belonged to all ideas and may only have acquired a distinctive value with experiences of disillusionment and the gradual discovery of fictitiousness. (1982, Vol. III, p. 21)

The most popular of these fantasies were greatly embellished over the years, and a selected few were extended to cover the great mysteries of life such as humankind's origin and destiny, and eventually emerged as tribal rites and myths (1982, Vol. III, pp. 30-32). During its mythical phase the human mind viewed the world in terms of the magical acts of supernatural agents rather than as natural events. Death, for example, was viewed according to the acts of the supernatural (1982, Vol. III, p. 84). And the problem of accepting death as a natural phenomenon was a particularly difficult one for the primitive mind, requiring centuries before full realization occurred. This was a critical step in the cultural evolution of mind, however, because it led to changes in fundamental values. This value shift occurred because of the need to accept a relatively short life span instead of immortality. And the prospect of a short life span raises the question of what constitutes the good life (1982, Vol. III, pp. 143-146). Furthermore, the issue of the good life gave rise to a variety of moral codes, and religious changes in social structure were also occurring at this

stage, especially because of the rapid rise of cities in various parts of the civilized world. Subsequently charismatic leaders emerged, and they eventually became royalty and established kingdoms, each centering in a city and its surrounding villages (1982, Vol. III, pp. 155-160). Such feudal city-states were the precursors of the modern nation, a unified community of a relatively homogenous people. But, says Langer (1982, Vol. III, p. 205), while the differentiation of myth into custom, tradition, and social institutions constitutes a major manifestation of the evolution of mind, the most profound step in the humanization of mind occurred with the emergence of the arts and sciences. The arts emerged thousands of years ago with primitive humans, but the sciences are only several hundred years old. In fact, says Langer, we are currently in the midst of the Age of Science, and, because of this proximity, it is impossible to predict what will happen next. Langer is convinced, however, that the Age of Science has not yet run its course, and that humankind's future will be affected by it by as much or more than it has been already.

Conclusion

I conclude by addressing the issue of psychology's conceptual foundations. In the name of science psychology's early founders downplayed anything mentalistic in favor of behavioral observables. This led to behaviorism, a positivistic approach which dominated 20th century psychology. Langer is of the opinion that this decision to focus on behavior rather than mind amounted to a denial of psychology's subject matter. Furthermore, it did not lead to a valid scientific psychology. That is, contemporary psychology is a pseudo-science, a discipline which is characterized by misplaced jargon and only the outward appearance of the scientific—rather than a science isomorphic with reality.

Assuming Langer's thesis is correct, what is to be done? Her answer is framed in the context of the history of science. She argues that a discipline of study can only emerge as a science after it goes through a long period of searching for and identifying its "generative ideas." She refers to this developmental phase as a period of "philosophical gestation." She then argues that psychology by-passed this phase by riding into science on the coattails of the more mature sciences. This was accomplished by "imitating" such established sciences as physics—and the result was a pseudo science of behavior rather than an authentic science of mind. She then says that the only way to overcome this sad state of affairs is to turn the clock back and go through the "philosophical gestation" phase. This would mean (1) placing a moratorium on present (pseudo) scientific activities and (2) initiating a thorough conceptual analysis of what is meant by mind. Of course, this is the critical step as it would provide us with generative ideas—the concepts which would constitute the basis for developing an authentic science of psychology, a science of mind.

Langer offers her trilogy as an example of philosophical gestation and such concepts as "mental act" and "feeling" as possible "generative ideas." However, these concepts do not strike a sympathetic chord—in fact, they sound odd. But it must be remembered that Langer has not proposed them as scientific concepts, but rather as pre-scientific, philosophical speculations on the nature of mind. Thus, the discordant note that these concepts evoke serves as a reminder that Langer's prescription is a bitter pill, a pill so bitter that psychologists may not be willing to swallow it. But, to the extent her appeal for mentalism is correct, the bitter pill may have to be swallowed regardless of the psychologist's unwillingness to do so. Perhaps psychologists have been unrealistic in their expectations concerning scientific progress. Most advances in science come very slowly—after false leads, the development of scientific apparatus, overcoming problems of measurement, and conceptual breakthroughs. Perhaps psychology's first 100 years are merely a prolegomenon to the real thing. Perhaps we have had a false start, or we have been in a pre-philosophical gestation period without realizing it.

And if Langer's pill is too bitter, perhaps we can effect a compromise. One such compromise would be to recognize the legitimacy of both endeavors—namely, contemporary, behaviorally oriented investigations and "philosophical speculation." The point is that it just is not possible to turn back the clock as Langer suggests. On the other hand, to the extent that Langer's critique is correct, she should not be ignored. Although it is difficult and perilous, it is possible to rebuild a ship while it is under sail.

Although modern psychology has tried, it has not been successful in its attempts to divorce itself from philosophy. There has been a severe reduction in the number of philosophical investigations in the 20th century, but such inquiry *has* persisted throughout psychology's history. I interpret this as an indication of the need for clarification of psychology's conceptual foundations. Thus, the compromise solution I am recommending would simply give greater weight to an already existing activity.

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