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Meaning in the Making of Art

Self-Inquiry and the Artistic Serial in Art Education Research

Sheila M. Cavanagh

A Thesis

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ABSTRACT

Meaning in the Making of Art

Self-Inquiry and the Artistic Serial in Art Education Research

Sheila M. Cavanagh

The life and work of C.G. Jung provide the models on which this inquiry is based. Jung's long, introspective inquiry into the creative process, based on his rediscovery and exploration of the mandala, has been taken as the practical model for the self-inquiry process; focused, in this case, on the in-depth examination of a personal way of drawing. The Jungian concept of creative transformation, which developed out of insights first gained through his mandala drawings, has been taken as the theoretical model for the art education research process. The research phase of the inquiry, illustrated by the material of Appendix A, explores the conceptual framework for a metatheory of creativity. At this level, the educational implications of the inquiry reflect the metapsychology of Jung, centering on his general concept of meaning. The drawing phase, illustrated by the material of Appendix B, explores the concept of art as a transformative technology. Here, the educational implications of the inquiry reflect the Jungian view of aesthetic education, centering on his concept of self-education for the educator.

All of this requires not only an expanded definition of art education but, more particularly, an expanded definition of the artistic serial, which is the concept central to the thesis. Viewed as an integrated serial process of making and teaching art, the artistic serial here includes not only the new experiences of the inquiry, as a whole, but the drawing and teaching experiences which were its main motivation. The educational significance of the self-inquiry process, it is argued, depends upon the expanded context of meaning this definition allows. In terms of the present inquiry, it is the ongoing experiencing of meaning, in the drawing serial described, that provides this context.

PREFATORY NOTE

The major theoretical writings of C.G. Jung were published between 1912 and 1956. While some of this work began to appear in English translation from the early 1920s, the Bollingen Foundation's publication of The Collected Works of C.G. Jung, in separate volumes, began only in the 1950s. Publication of all twenty volumes was not completed until 1979. Princeton/Bollingen editions, in paperback, are now generally available as well. In the pages that follow, references bearing the designation "CW," and a volume number, indicate the Bollingen source. For example, (CW 15, 1966) refers to Jung's The Spirit in Man, Art, and Literature, published as Volume 15 of the Collected Works, by Bollingen, in 1966. While the paperback edition, published in 1971, is the actual source, only specific references to the text will show this date; e.g., Jung (1971, p. 101). Otherwise, references to this volume of essays will generally be cited as Jung (1966). Reference to a particular essay, however, may show the original date of publication; e.g., Jung (1930), the essay on Richard Wilhelm.

It is for historical reasons that the original date of publication is given preference. Jung's Psychological Types (CW 6, 1971) exemplifies the need for this consideration. First published in the German, in 1921, and available to English readers in the Baynes translation, from 1923, the Bollingen publication of this work did not appear until fifty years after the original, in 1971; the paperback edition, five years later, in 1976. Thus, with the exception of specific references to the text, this work will generally be cited as Jung (1921) or Psychological Types (1921). Reference to the works of other authors will be treated accordingly.

All publication dates, significant to the description of this thesis, will be given with the particulars of publication for each work listed in the reference section.

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INTRODUCTION

> As you see, I have not withheld my personal views, for if I had not told you what Wilhelm meant to me, how would it have been possible for me to speak of him? Wilhelm's life-work is of such immense importance to me because it clarified and confirmed so much that I had been seeking, striving for, thinking, and doing . . . . Indeed I feel myself so very much enriched by him that it seems to me as if I had received more from him than from any other man.
>
> — Carl Jung
> "Richard Wilhelm: In Memoriam" (1930)

This passage expresses, without exaggeration, what the study of Jung's life-work has meant to me. That study is by no means complete; nor, will it end with the present research. For the time being, however, it is enough that I have discovered in the recent literature a group of like-minded thinkers, aestheticians and physicists among them, who are at last granting to Jung the acclaim I have long believed his due. They have encouraged me, just as Wilhelm encouraged Jung, to state my personal views.

Furthermore, since my inquiry is an introspective one, I feel it appropriate to treat the theoretical contributions of Jung, and others who have influenced my thinking, as part of the inquiry experience rather than make them part of a formalized review. To take this approach is not a matter of excluding, or including, theoretical description in any deliberate way. It is rather a matter of allowing the theoretical aspects of the work of Jung, and others, to reveal their significance in a way that

is natural to the self-inquiry process. Such material will be presented, therefore, in the form of personal history because it is, in fact, a vital part of the artistic serial concept I consider essential to my inquiry.

This means that, to be of significance beyond the personal and practical level of my own art experience, my inquiry must be founded on a concept of the artistic serial which is broad enough to encompass not only the history of the drawing process, which is to be the focus of the inquiry, but the history of the art teaching and art education research experiences which are most relevant to it. Altogether, these experiences span a period of some fifteen years and constitute the personal history I am about to describe. Much of this history is already of great significance to me, personally, and defines what I shall call the meaning-context of the artistic serial. As this history continues to unfold, gaining new significance throughout the inquiry process, the meaning-context of the artistic serial will expand accordingly. The implications of my inquiry are, therefore, dependent upon an anticipated expansion of meaning relevant to my work as artist, teacher, and researcher within the given time-frame of the artistic serial, so-defined.

My own art work, continued over the period I describe, has been a consistently reliable source of insight into the art teaching process for me. The serial nature of the drawing process with which I have been so long involved, as well as those elements of it that have merged with the teaching process, have been equally important factors in the development of my artistic serial from the beginning; formal research became a more

dominant factor only recently. In turning now to examine a new phase of development in my drawing serial, I rely upon the intuitive integration of relevant past experience, funded by the research I have done, to deepen my understanding of the creative process. I can find no better model for this undertaking than Jung's introspective study of the mandala form, which he explored through drawing and painting for more than a decade. Jung describes this experience as the most important of his life, for out of it came the essential concepts of his psychology.[8] While the motivation for my inquiry is, like Jung's, based on the need for new insight, it is not my intention to re-explore the mandala in my drawings. But the "image of wholeness," which Jung saw represented in the mandala structure — the quaternity, with its essential fourth element of meaning — is as fundamental to my thesis as it is to Jungian psychology. To emphasize this point, I have organized all material of the thesis on the quaternity and its multiples. I rely on the description Jung gives of his mandala experiences in Memories, Dreams, Reflections (1961). The biographical information that follows is also taken largely from this source.

Jung does not write extensively about art, although he recalls in vivid detail the kinds of creative activities that absorbed so much of his time and interest as a child. These intriguing pastimes, always the product of his own lively imagination, helped to offset some of his boyhood frustrations with church and school. Regarding his "defeats" in the latter, Jung describes how relieved he was to be excused, on medical grounds, from gymnastics classes; while his exemption from drawing

classes, "on the grounds of utter incapacity" to execute the kind of academic copying demanded of him, left a lingering sense of failure, too. Mathematics and religion (with nine parsons in the family) he had somehow to endure. His aversion to dogma developed at a very early age, setting the pattern of his life and work. And the "creative daemon," as he was wont to call it, persisted until it had made of him not only one of the leading pioneers of analytical psychology but one of the foremost thinkers of this century.

It was in the years of professional uncertainty following his theoretical break with Freud, in 1912, — when Jung first began to record his innermost fantasies in pictures and prose — that he came to realize the therapeutic value of art for himself and for some of his "more advanced" patients. The technique Jung would later call "active imagination," based on his belief in the creative potential of the unconscious, thus evolved from the initial phase of his prolonged self-inquiry. The mandala phase, which I emphasize, began only in 1916. The publication in 1912 of Jung's Psychology of the Unconscious, known today as Symbols of Transformation (CW 5, 1956), had made the rift with Freud inevitable. The book which Jung describes as his "psychology of consciousness," published in 1921 under the title Psychological Types (CW 6, 1971), is the direct result of insights he had by this time gained from his mandala studies. This book, in particular, provided the psychological foundation for Herbert Read's Education through Art (1943). Jung's major writings on education have been collected under the title The Development of Personality (CW 17, 1954); his writings on

art, under the title The Spirit in Man, Art, and Literature (CW 15, 1966). Erich Neumann, in his Art and the Creative Unconscious (1959), takes up the theme of the latter two volumes, emphasizing the artistic personality in its later stages of development.

In his one brief essay on the psychology of modern painting, Jung refers to the art of his patients in a way that reveals the importance of the serial concept to his work: "The possibility of understanding comes only from a comparative study of many such pictures (1971, p. 136)." This statement accompanies Jung's observations on the "blue" and "harlequin" periods of Picasso's paintings, which he sees as but one more manifestation of the dark, destructive side of modern art in general. It is on this basis that Jung equates Picasso with Joyce and Nietzsche; and Joyce, with Nietzsche and Freud; all, under the banner of modernism, the Zeitgeist of "creative destruction." Clearly, the 460 works of the Picasso exhibition, which elicited Jung's brief review, were no less overwhelming to him than the 735 pages of Joyce's Ulysses, which drew a much lengthier response. For one thing, Jung's conclusions about modern art appear to have been largely formulated during his three-year struggle with the pages of Joyce's Ulysses, prior to the Picasso retrospective, in Zurich, in 1932. For another, since Jung was for some reason restricted to a "short article" on Picasso, he confidently refers the reader to his just-completed work on Joyce, the "literary brother" of Picasso. In any case, the controversy stirred by the publication of both articles, late in 1932, undoubtedly acted to discourage Jung from further ventures into modernism in the arts.

Jung's essays on Picasso and Joyce, along with his memorials to Freud (1939) and Richard Wilhelm (1930), are to be found in The Spirit in Man, Art, and Literature (CW 15, 1966). In this same volume are two other essays of the period, longer and more general in nature, on the relation of analytical psychology to poetry and literature. What Jung has to say about art and the artist, in psychological terms, is by no means exclusive to the literary arts. Specific references to poetry and literature are used primarily to illustrate the achievement of those artists he distinguishes as visionary. In them, through the great gift of artistic imagination, art rises above the personal — "speaking from the mind and heart of the artist to the mind and heart of mankind." Indeed, by Jungian standards: "Art that is only personal, or predominantly so, truly deserves to be treated as a neurosis (1971, p. 101)." Jung does not apply these standards to the "pictures" of his patients, however; explaining that it is their lack of artistic imagination which makes them generally easier for the psychologist to understand (pp. 136-37). It is the creative imagination — essential to the psychological health and development of every individual — that Jung attempts to activate through art therapy. Jung's approach to his own inner processes, as described in his autobiography, gives us a most remarkable example of his technique of "active imagination" at work. Jung's whole psychology, in fact, describes the creative process. With its emphasis on meaning and order, I believe it has much to offer the art education researcher. Certainly, it has a very direct bearing on my inquiry into "meaning in the making of art."

Jung's legacy to the art education researcher, as I have just implied, goes far beyond the few essays he devoted specifically to art and education. While these are enough to provide us with the orientation we require, we must grasp something of the concepts central to his psychology if we are to appreciate them at all adequately. This is a point soon apparent to the reader of his autobiography, although Jung has stated it even more plainly on at least one other occasion. In thanking Jung for his participation in a series of filmed interviews, in 1957, Richard Evans expressed the hope that viewers of the film would be inspired to read the original works. Jung replied: "Yes. People have to read the books, by golly, in spite of the fact that they are thick (quoted, in Evans, 1976, p. 159)."

In the pages that follow, I shall try to show what the reading of Jung's books has meant to my research. The fact that his books on art and education are actually not all that "thick" no longer concerns me, as it once did.

PART I

THE ARTISTIC SERIAL

With Rodin (the word "unfinished") refers to an outpouring of effort so identified with the act of living that it hates to turn itself off. Why else the thirty-four busts of Clemenceau . . . not spare casts but all different . . . one serial portrait, continuous as Monet's Rouen Cathedrals or Water Lilies. . . . Do all these exertions come under the head of research? They seem more like external motions to rationalize an obsession; and they flow from a conception of art whose end result is not one statue, one artifact, but a stretch of autobiography.

— Leo Steinberg
Other Criteria (1972)

1: Starting Points

Steinberg attaches, to his essay on Rodin, an autobiographical preamble which begins: "I had turned ten when Rilke's Rodin fell into my hands." The first stirrings of a genuine appreciation for Rodin's greatness — revealed to him not so much by the words of the text as by the sepia-toned photographs of the sculptor's art — were to remain a long while "underground," like Rodin's true significance, languishing among the works held by the museums. The impressive collection of Clemenceau busts, which Steinberg discovered in an obscure corner of the Rodin Museum at Meudon, in 1962, is but one example of the reappraisal that was by then well under way. Steinberg, who had been among the earliest to champion the Rodin revival that followed, explains the long period of his neglect: "For while modern art was in the making Rodin seemed irrelevant. And now, forty-five years after his death, it is his relevance that astonishes us as we look again (1972, p. 330)." With only the key words changed, this statement becomes an equally appropriate explanation for modern psychology's slow acceptance of Jung, whose relevance is just now beginning to astonish those of us willing to look again. This is especially true in the case of synchronicity, the "acausal connecting principle" which Jung introduced some fifty-five years ago.

Psychologist Ira Progoff, in Jung, Synchronicity, and Human Destiny

(1973) is one of the few to acknowledge, much less to explain, the far-reaching significance of Jung's theory of synchronicity. As an example of the kind of "meaningful coincidence" which marks the occurrence of a synchronistic event, Progoff tells how a set of books, inadvertently acquired, effectively altered the course of Abraham Lincoln's life. In this story of his frontier beginnings, Lincoln's decision to take up the practice of law is attributed to his discovery of an almost-complete edition of Blackstone's Commentaries, retrieved from an old barrel of odds and ends which a passerby, in need of a dollar, had persuaded him to purchase. That the rest of the story made history, is not the most important point, for as Progoff explains:

> Synchronicity will eventually give us her riches. . . . in unexpected ways and where we least expect to find them. But if, like Lincoln, we are true to the integrity of the moment, there is some reason to believe that the intuition that was Jung's will become a knowledge for all of us (1973, p. 172).

It goes beyond mere coincidence, too, that in 1953, while Steinberg was in New York gathering material for his first major review on Rodin, Progoff was in the Zurich countryside, with Jung, gathering material for his book on the synchronicity principle.

In his autobiography, Memories, Dreams, Reflections (1961), Jung reveals an extraordinary sensitivity to synchronistic events throughout his life. One, of particular significance to his work, occurs just at the end of the introspective period which I have taken as the model for my inquiry. Jung describes how he worked in isolation, following his break with Freud, struggling to clarify the ideas he believed fundamental to his psychology. Typically, he turned to art as a source of insight

into the problems he faced. The principal source for his deeper understanding of the psyche, according to Jung, was the mandala form, which he explored through drawing and painting from 1916. But the last mandala he painted, in 1928, with a golden castle in its center, was for a brief time something of an enigma to him. There was nothing distinctively Chinese about the painting; yet, for him, it had a quality that was undeniably Chinese. Then, by a "strange coincidence," a package arrived. In it was a letter, from Richard Wilhelm, requesting that Jung prepare a commentary on the enclosed manuscript, an ancient Taoist-alchemical treatise called The Secret of the Golden Flower. Jung continues:

> I devoured the manuscript at once, for the text gave me an undreamed-of confirmation of my ideas about the mandala . . . and the center. That was the first event which broke through my isolation. I became aware of an affinity; I could establish ties with something or someone.
>
> In remembrance of this coincidence, this "synchronicity," I wrote underneath the picture which had made so Chinese an impression upon me: "In 1928, when I was painting this picture, showing the golden, well-fortified castle, Richard Wilhelm in Frankfurt sent me the thousand-year-old Chinese text on the yellow castle, the germ of the immortal body (1965, p. 197)."

In 1928, Jung published "On Psychic Energy," the work with which he had been struggling since 1912, and the foundation of his dynamic psychology. This, and the succession of related works that followed, today constitute Volume 8 of the Collected Works, entitled The Structure and Dynamics of the Psyche. "Synchronicity," published only in 1952, was the last to be added.

Jung first used the term synchronicity in his memorial address for Richard Wilhelm, in 1930, but delayed formal presentation on the subject

until the Eranos Conference of 1951. The intervening years were devoted largely to research of the alchemical literature available to him. His Psychology and Alchemy was well into preparation when, early in 1944, he underwent a prolonged, near-death experience. The effect was illuminating, and a highly productive period of work ensued. Primary among the theories Jung advanced, following publication of the work on alchemy in 1944, were: Aion (Researches into the Phenomenology of the Self, 1951); Synchronicity (An Acausal Connecting Principle, 1952); and Mysterium Coniunctionis (An Inquiry into the Separation and Synthesis of Opposites in Alchemy, 1955-6). Alchemy, according to Jung, provided the historical basis essential to his psychology of the unconscious: "The moment I touched bottom, I reached the bounds of scientific understanding, the transcendental, the nature of the archetype per se, concerning which no further scientific statements can be made (1965, p. 221)."

My introduction to Jung's synchronicity principle has some close parallels with the examples given. In December of 1974, my son, home from art school for the holidays, spoke enthusiastically about his discovery of Jung's Man and His Symbols (1964). That much I remember. Exactly what it was in the course of events that prompted him to leave the book behind, I cannot say. But I strongly suspect it was having the book on hand, as much as anything said, that prompted me finally to read it. This book, the only volume of Jung's work prepared especially for the lay reader, is richly illustrated, wide-ranging in scope, and remarkably easy to read. In the keynote chapter, completed just prior to his death in 1961, Jung painstakingly reviews his approach to the

unconscious, emphasizing its vital, compensatory role for modern man. Among the other chapters written by Jung's associates, that of Aniela Jaffé, on modern art and microphotography, and that of Marie-Louise von Franz, on microphysics and synchronicity, were the two of most interest to me at the time. There was, in fact, much in this book that seemed particularly relevant to recent developments in my own art work. Several years of experimental work in close-up photography had brought about this change in my art and had effectively altered my approach to art teaching, as well. With further study of Jungian theory, and as the new work continued to develop, I coined the term microdynamics as a means of describing the art process in which I had become involved. This did not occur until 1980, however, in a first attempt at theoretical description of the process.

In 1972, I had completed a three-dimensional, process art series in which I recognized an affinity with the work of the "new alchemists." Beginning with the concept of food art, I had baked, and boxed ready-for-assembly, the parts of a full-scale bread chair; photographing each stage of the process. Following this, I photographed the disintegration of the assembled bread-chair, exposed to winter weather and the voracious appetites of squirrels, until only the spindly, wooden understructure remained; the spread of mold, cultured on a white (crustless) bread-chair relief, boxed in styrofoam; the growth of grass, seeded around a weathered wood-chair relief, boxed in the same weathered wood. The fourth of the series, a hanging piece made of plastic bread wrappers, significantly, still survives. Decaying, deteriorating things — like

Leonardo's "walls stained with damp," or Constable's "slimy posts" — have fascinated me for as long as I can remember. Such things have become increasingly the focus of my photography and my art over the years.

It was an old sprinkling can found decomposing into the ground of a nearby swamp, which inspired a subsequent series of work in drawing and painting, late in 1972. I had brought the old can and several photographs of it (taken on site) back home with me months before the new work began. Ultimately, it was one of the photo-slides from which I would work to the exclusion of everything else. I needed the complexity of all its background detail to keep the drawing gestures stimulated. Treating each small section of the composition as a detail-study, comparable to the kind of photo-enlargements that illustrate the painter's brushmarks, I quite literally thought of the work as a "million little abstracts." As I began the microdynamic phase of the drawing, the strangest, tiny images kept popping up out of the pencil marks — animalesque, humanesque, grotesque — fleeting apparitions, momentarily exquisite in every detail, that were all too soon lost in the rapidly growing over-all effect.

The complete series consisted of six drawings (30 cm square) and six, larger-scale paintings (ranging from 45 to 90 cm square); each, in different media; and each, with its own special quality, despite the same compositional beginning. What I had thought of as close-focus abstraction, stemming from a penchant for the smallest detail, had suddenly become horror vacui. Was this Pollock and the new alchemy again; or, was it perhaps Grünewald in miniature? The reading of Jung's Man and His Symbols, by 1975, began to yield some of the answers. For example, Aniela Jaffé,

in discussing the work of Pollock, relates the content of his "drip" masterpieces to what the early alchemists perceived as the prima materia and to what we, through modern photography, now perceive as the micro-structures of matter. In her words: "Pure abstraction has . . . in a secret and surprising way become 'naturalistic,' its subject being elements of matter. The 'great abstraction' and the 'great realism' which parted at the beginning of our century have come together again (in Jung, 1964, p. 264)." Jung (1952) ascribes a special kind of foreknowledge to the synchronistic event. I felt something of this in first reading his Man and His Symbols, but more practical interests intervened for awhile.

There is no doubt in my mind that the finding of that old sprinkling can qualifies as a synchronistic event in my life. I sensed this from the moment I spotted it, although it was a long time before I acted upon that feeling. And still longer, before I really began to appreciate its significance for my work. The discovery that this type of can qualifies also on the Freudian list of phallic symbols, both in form and function, was of no more consequence to me than the sudden realization that the "SC," with which I had been marginally indicating "sprinkling can" interests in my reading, also represents my own initials. Neither comes even close to the deeper meaning that my artistic involvement with this particular found-object has come to have for me; nor, I believe, to the full significance that Jung's theory of synchronicity, as the creative principle operative in all individuals, has yet to offer.

Out of the art experiences I have just described, came a renewed energy of immediate benefit to my teaching. With six years of experience

in teaching art, by this time I recognized the pattern: the sense of accomplishment in one's teaching of art appears to grow in direct proportion to the sense of accomplishment in one's own artistic endeavors. This time there was a difference, however, because my art had taken a radically new turn. The questions about that persisted for the most part unanswered, despite my efforts to continue its development. Too often, I began to realize, the photographs or the drawings I produced arose out of the needs and interests of my students more than my own. And too often, the added departmental responsibilities I had acquired encroached upon my extracurricular hours. A formal program of research and studio work seemed the only way to counteract the mounting frustrations. By the end of the fourth year in this situation, I had enrolled in the master's program at Concordia University.

Among the first books acquired for the reading course of this program, were the two to which I have referred from the beginning: Jung's Synchronicity (1952) and Progoff's Jung, Synchronicity, and Human Destiny (1973). The reading of these books was, for me, as enigmatic an experience as Jung's "so-Chinese" mandala had been for him. There was no mention of art in either work; yet, I felt, indeed I knew, that something absolutely fundamental to art was being revealed to me. Neither book was on the list of recommended readings. Many that were listed I have since read, with profit, and these are now included in my bibliography: Read, Langer, Dewey, Arnheim, and Ehrenzweig are among those who contributed substantially to my research of that time. Of these, Read is the only one to acknowledge the value of Jungian psychology for art education.

Following extensive research of various schools of thought, Read (1943) concludes that Jung's Psychological Types (1921) provides the "best working basis" for the classification of artistic types with which he supports his concept of "education through art." (This combined classification will be referred to, elsewhere, as the "Read-Jung Typology.") Thus began a lifelong interest and involvement in Jung's work that, among other things, earned Read appointment to the editorial committee for the Bollingen Foundation's publication of The Collected Works of C.G. Jung. Moreover, in subsequent revisions of his own work, Read continued to reconcile the various theories emanating from each of the authors here mentioned, on the same basis. This is not surprising, since each of them, in their own way, argues the cognitive-developmental value of art.

While Read (1943), admitting an initial hesitancy, nevertheless plunged into the Jungian depths, his compatriot, Anton Ehrenzweig — convinced that the "ordered progress of a complex science like psychoanalysis is not helped by boldly anticipating leaps (1967, p. 195)" — barely tested the Jungian waters. Ostensibly faithful to Freud, Ehrenzweig instead spent the latter part of his life developing his argument for the "unconscious matrix" which is, in fact, the very basis of Jungian psychology. Thus, if we ignore the Freudian overtones, Ehrenzweig's The Hidden Order of Art (1967) reveals the importance of Jungian psychology for art education, in some ways, even more than Read's Education through Art (1943). Read, in the final version of his Art Now, easily discerns the connection between Ehrenzweig's "Gestalt-free matrix of forms" and the Jungian concept of "archetypal form . . . a process of crystallization that

takes place without the intervention of the conscious will (1968, p. 118)."

Ehrenzweig (1967) contributes even more directly to my research in several other ways. First of all, in contrast with the emphasis on child art that has dominated much of the literature, Ehrenzweig addresses the problems of art teaching beyond the elementary level. I find striking parallels between his practical recommendations for art teachers and my own practical approach at the senior high school level, for example. This is most notable in his prescriptions for "teaching spontaneity." Secondly, Ehrenzweig's emphasis on the micro-elements of art, the connection he makes between "unconscious handwriting" and "unconscious scanning," relates very closely to what I have called the microdynamics of art. So closely, in fact, that it was Ehrenzweig's repeated references to syncretistic vision that led me directly to investigate Jung's synchronicity principle more thoroughly. Ehrenzweig acknowledges a place for Jung's "dynamic view" only in the final paragraph of his book: "The creative re-education of the old may well turn out to be of greater clinical significance than we may be ready to concede at present (1967, p. 300)." Ehrenzweig's references to Read have to do with art history, not education. He makes no mention of Dewey, whatsoever.

I have found reflections of Dewey that often go unacknowledged — so thorough has been the absorption of his thought — in much of the art education literature reviewed. Susanne Langer concedes as much in the preface to her Philosophy in a New Key (1942). Although Langer frequently lists Dewey among the scholars to whom she owes the "material" of her thoughts, she is just as often, pointedly, critical of him. Interestingly

enough, in her Philosophical Sketches, of 1962, she makes only positive, if slight, references to both Dewey and Jung. Arnheim, on occasion, makes similar mention of Dewey and Jung; however, in a single essay of 1960 — "Perceptual Analysis of a Symbol of Interaction," he is sharply critical of both (1966, pp. 222-26). The psychology of William James (whose colorful phrases are, indeed, irrestible to many) usually receives more favorable comment from Arnheim and, in particular, from Langer.

Dewey, an ardent follower of psychologist William James, has been criticized for his too hasty dismissal of Jung (Geiger, 1964, p. 160). An opinion such as Dewey's, expressed in the early 1920s, is perhaps understandable. But when Arnheim, from the Gestaltist side, and Ehrenzweig, from the Freudian, take this same cavalier attitude toward Jung in the late 1960s, they reveal their respective psychological biases in a most disappointing way. Small wonder that Maslow (1968) expresses a longing for a "single, comprehensive system of psychology" that will be called simply "psychology" (p. 189). Students of Jung have equated the concept of individuation, which Jung considered central to his psychology, with Maslow's central concept of self-actualization. Maslow's "humanistic" psychology, derived from studies which retain the creative emphasis of Jungian psychotherapy, has had considerably more impact on the art education literature, however.

Jung recognizes a certain kinship with William James, but he makes no such acknowledgement of his contemporary, John Dewey, even in his major writings on education. It is Schiller's vision of aesthetic education to which Jung pays tribute in his lecture, "The Development of Personality;"

delivered in Vienna, in 1932, and published the same year as Dewey's Art as Experience, in 1934. And it is Read, rather than Dewey, who wholeheartedly embraces Schiller's philosophy of aesthetic education. The fact that Schiller, like Plato long before him, advocates art as the basis of all education, is central to Read's argument for universal aesthetic education. Acknowledging his indebtedness to both Plato and Schiller, Read concludes: "Many witnesses to this truth might be called but none so unequivocal as these two, whom I value more than any others; and I am very content to rest in their company (1958, p. 284)." Historians of art education invariably point out that Read's concept of aesthetic education had little, if any, impact at the classroom level. The same may be said for Dewey and many others whose ideas have, one after another, found adherents among the art education leadership. Perhaps, after all, it has been Jung's good fortune that he was so widely ignored in such circles. I have found this difficult to understand, nevertheless.

Up to this point in my research, it was primarily Read and Neumann, the two earliest exponents of Jung's views on art and education, in whom I found the strongest support for my own convictions. Their emphasis on the Jungian concept of transformation, which is of great importance to my thesis, did not include synchronicity, however. I was still dependent on Jung and Progoff for that. I remained unaware of the so-called "transformation literature" for some time to come.

2. Turning Points

I retired from teaching, unexpectedly, in 1978, when my husband was transferred to Southern California. My program at the University was interrupted by this move but, since the unofficial sabbatical it allowed me was to last for only a year or two, at most, I was not immediately concerned. In fact, I welcomed the change. I was able to pursue my research more fully than ever before, to take up some new interests long denied, and to explore the marvels of the Mojave Desert with my camera. The desert valleys, with their rims of incredibly-formed rock, and the mountain gorges, sheltering their hide-away streams, were an endless source of imagery: from the gigantic and awesome, far beyond reach; to the utterly fantastic, always close at hand. Film and focus, not pad and pencil, proved the more satisfactory medium for me in these surroundings.

When it became obvious that the transfer to California would be much longer than originally anticipated, I returned to Montreal for the school year, 1981-82, to complete some of the on-campus requirements for the master's program. That one year of concentrated work resulted in a number of new developments for me, in both drawing and photography: the way of drawing, which I shall explore in this inquiry, will incorporate these innovations; and the visual presentation, a selection of slides showing the development of each drawing, will be taken from sequences arranged for dissolve projection. I experimented with the dissolve projection technique, using sequences of my desert images, for a media-course presentation at the University. I am confident that this technique will

be an equally effective means of examining the drawing process. The drawing process and the projection technique of which I speak will be more fully explained in description of the inquiry procedures.

During this period, I also discovered the "transformation literature." I had heard Marilyn Ferguson, in a televised interview, describe her new book, The Aquarian Conspiracy (1980), before I left California. The book became available, in paperback, shortly after my arrival in Montreal. In this work, which is subtitled "Personal and Social Transformation in the 1980s," Ferguson traces the history of the transformation movement from its transcendentalist beginnings, through its resurgence in the turbulent sixties, to its wide-spread revival in the quieter form it has since acquired. This is not an organized movement, like its Harvard predecessor, but simply "people changing" and influencing change in others, through their own work, or through "networking." It operates with all the subtlety that Jung (1954) ascribes to true education: first, as "self-education;" then, unconsciously, in others, as "education through example." It holds promise of achieving what Read (1943) had foreseen as the ultimate goals of universal aesthetic education; and it makes manifest what McLuhan (1964) had predicted would be the effects of the new information media.

To my surprise, I found that I was already well advanced in my reading of the transformation literature; especially, in my investigations of Jung's synchronicity principle. In a survey of the new transformers, who are described as professionally involved in a wide variety of vocations, Ferguson (1980) shows that eighty-four percent of all respondents indicated some personal experience with synchronicity. Moreover, Ferguson's

survey also shows Jung, second only to Teilhard de Chardin, on the list of thinkers whom respondents named as the most influential in changing their personal views. Among the other influential thinkers, whose work was already familiar to me, were listed: Abraham Maslow, Margaret Mead, Alan Watts, and Marshall McLuhan. Within the text were references to many others who were by this time part of my bibliography. I must attribute to Ferguson, nevertheless, my discovery of José Arguelles' The Transformative Vision (1975), for it was primarily through his work that I began to see the significance of Jung's inquiry into the mandala.

That Jung's mandala studies are fundamental to Arguelles' research is apparent, even in this introductory description:

> My work as a scholar took me into the realm of psychophysics, whose unitive aesthetic, I came to realize, provided the basis of Worringer's viewpoint (. . . that art history properly understood was a "history of the human psyche and its forms of expression"). My work as a painter led me into the realm of the perennial philosophy, whose primary artistic manifestation is the mandala. Gradually, over a three-year period, I was finally able to unite these two currents of thought — the psychophysical aesthetic and the perennial philosophy. Their marriage was the resolution I had been seeking, and it is the guiding principle of this book (1975, p. 3; p. 1, inset).

Ultimately, it is the fact that Jung, following his mandala studies, was able to unite both modern physics and ancient mysticism within his psychology that makes him so important a contributor to Arguelles' work. And it is through Arguelles' interpretation of the Jungian concept of transformation, in relation to art, that he establishes for me Jung's relevance to modern art, to the new alchemy, and to the new technology; to Pollock and Joyce; to Read and McLuhan; to my own art and photography. Above all, it is Arguelles who has directed me toward Jung's explanation

of these things in his Memories, Dream, Reflections (1961); for it is this work of Jung's, his extraordinary autobiography, which has been of singular importance to my inquiry. Even so, my research was not yet fully rounded out. While the theoretical investigations into art and education had been fairly well covered, I felt, there were still some gaps in the material on science and synchronicity. Arguelles (1975) does not specifically mention synchronicity, although he certainly argues the case for its recognition as a principle fundamental to the transformative vision. Progoff (1973) is the exact opposite, in this respect; arguing for the principle of synchronicity, in relation to the theories of Einstein and Teilhard de Chardin, without mention of art.

Again, I owe to Ferguson (1980) the reference which guided me into this final area of investigation. In her chapter on the "frontiers of science," Ferguson's assessment of the views expressed by physicist Fritjof Capra, in his book The Tao of Physics (1975), gave promise of the Jungian connection I needed. Capra, describing this work as an "exploration of the parallels between modern physics and Eastern mysticism," refers to Jung only in the final chapter, however:

> The notion of a basic "quantum interconnectedness" . . . . received renewed attention during the last two decades, when physicists came to realize that the universe, in fact, may be interconnected in subtler ways than one had thought before. The new kind of interconnectedness that has recently emerged not only enforces the similarities between the views of physicists and mystics; it also raises the intriguing possibility of relating subatomic physics to Jungian psychology and, perhaps, even to parapsychology; and it sheds new light on the fundamental role of probability in quantum physics (1975, p. 341).

I came upon this book not long after I was permanently settled

back in Montreal, in 1984. My "sabbatical" was over; but my research, not quite, for from Capra (1975) I learned of his more recent book, The Turning Point (1982), which fully explains the relationship between sub-atomic physics and Jungian psychology. I obtained and read this second book of Capra's immediately after finishing his Tao of Physics, and I was not disappointed. With The Turning Point, my research had at last come full round to that time, ten years earlier, when Jung's Man and His Symbols had given me a first enticing glimpse of what might be discovered in pursuing my intuitions about the significance of Jungian psychology for art education. But perhaps I give myself too much credit, for it is more likely that I have merely followed the surer intuitions of Jung all along.

In Man and His Symbols (1964), Marie-Louise von Franz is the only contributing author who specifically uses the term synchronicity. She also gives some indication of its significance: briefly, in relation to Eastern meditative practices and Jung's technique of "active imagination," in her chapter "The Process of Individuation;" more fully, in relation to recently revised theories of evolution, microphysics, and mathematics, in her concluding chapter "Science and the Unconscious." Jung's own explanations of the synchronicity principle occur in his memorial address for Richard Wilhelm, of 1930 (CW 15, 1966); in his "On the Nature of the Psyche," of 1947 (CW 8, 1960); but, primarily, in his "Synchronicity," of 1952 (CW 8, 1960). Excerpts from Jung's 1952 monograph on synchronicity, in which he relates the factors of meaning and order, in his acausal connecting principle, to the ancient and modern sciences reviewed by

von Franz, are reproduced in Appendix A-I (1). I believe it appropriate to offer some of Jung's more detailed description of synchronicity in this way. Here, I prefer to continue with the description of Capra (1982), because it reinforces the early support given this concept by physicist Wolfgang Pauli, one of Jung's main advisers on the scientific implications of the synchronicity principle. Capra states:

> Indeed, it seems that Jung's approach was very much on the right lines and, in fact, many of the differences between Freud and Jung parallel those between classical and modern physics, between the mechanistic and the holistic paradigms.
>
> In transcending the rational framework of psychoanalysis, Jung also expanded Freud's deterministic approach to mental phenomena by postulating that psychological patterns were connected not only causally but also acausally. In particular, he introduced the term "synchronicity" for acausal connections between symbolic images in the inner, psychic world and events in the external reality. Jung saw these synchronistic connections as specific examples of a more general "acausal orderedness" in mind and matter. Today, thirty years later, this view seems to be supported by several developments in physics. The notion of order — or, more precisely, of ordered connectedness — has recently emerged as a central concept in particle physics, and physicists are now also making distinctions between causal (or "local") and acausal (or "nonlocal") connections. At the same time patterns of matter and patterns of mind are increasingly recognized as reflections of one another, which suggests that the study of order, in causal as well as acausal connectedness, may be an effective way of exploring the relationship between the inner and outer realms (1982, pp. 360-63).

Thus, the relationship between modern physics and Jungian psychology has been long, if not widely, recognized. What is interesting in Capra's reassessment, of 1982, is the fact that the most recent theory of quantum physics not only strengthens this relationship but points also toward an increasing acceptance and wider application of Jung's synchronicity principle in the future. Capra (1982) and Ferguson (1980), as well as

Progoff (1973), reveal the current range of its acceptance, primarily in the sciences; but it is only Progoff (1975) who provides a detailed example of its application, in psychotherapy. (The latter, because of its relevance to my inquiry procedures, I shall refer to again.) As with most authors of the transformation literature, the concept upon which these three base their argument is fundamentally educational. It is, according to Progoff (1975), the central concept of renewing society by renewing individual lives: "To reintegrate and renew one's life perspective has a transforming and spiritually renewing effect on every person in whom it takes place," regardless of age, social status, or educational background (p. 12). The authors here mentioned are, however, exceptional in their recognition of synchronicity as a principle which is (in Jung's words) "intellectually necessary" to our understanding of the creative, evolutionary process we call transformation. Additional material, taken from the work of these, and other, authors of the transformation literature, is to be found in Appendix A IV.

To the best of my knowledge, no one has as yet explored application of the synchronicity principle in art education research; neither Read, nor Jung himself, although it must be remembered that their writings on art and education were published before Jung's formulations of the synchronicity principle had been completed; certainly, long before any acceptance of it, beyond Jung's own circle, had occurred. In any case, those who now acknowledge the creative, ordering function of synchronicity in the process of transformation are, to an unprecedented degree, also acknowledging the function of meaning in art, in learning, and in life.

Ferguson (1980), for example, endorses a "new model of the universe in which art, religion, philosophy, and science converge (p. 410)." Showing how the combined influences of modern systems theory and mystical traditions, such as Taoism, have begun to yield promising new perspectives and innovative approaches in almost every sphere of inquiry, Ferguson identifies evolution as the emergent paradigm in science (chap. 6); and learning, in the broadest sense, as the emergent paradigm in education (chap. 9). A summary of material relevant to the new paradigm of learning is given in Appendix A IV (3). As evidence of the general movement toward holistic thinking, Ferguson reports that, in psychology, "systems thinking" and "unitary operational thought" are now being recognized as two stages of cognitive development beyond those previously distinguished by Piaget. Unitary thought, according to Ferguson, is marked by a shift to the mode of whole-knowing which is typical of mystical experience (pp. 371-74). "Generating our world of apparent concreteness," she explains, "is a realm of unbroken wholeness; from that dimension where there is only potential we extract meaning — we sense, perceive, measure." And we, again, see the world as a "work of art." Synchronistic phenomena, as Ferguson says, "remind us that we have access to a source of transcendent knowing, a domain not limited by time and space (pp. 174-76)."

Capra (1982), even more explicitly, equates mystical experience with the process of artistic creation (p. 297). Although he refers to art and education less frequently than Ferguson, Capra's detailed explanation of general systems theory, in relation to the holistic paradigm, is no less relevant to the present context. A primary indicator of its importance is

the fact that Capra (1982) bases his discussion of the cultural transformation we are experiencing on the systems view of life (chap. 9). Moreover, his thorough research of psychological theory — contrasting what he calls "Newtonian" psychology (chap. 6) with the new "systems" psychology (chap. 11) — leads him to conclude that the evolutionary theories of Jung and Teilhard de Chardin represent a systems view of mind which is consistent with both the mystical and the scientific views of consciousness. For Capra, systems theory offers the ideal framework for unifying the mystical and the modern views of mind and matter:

> Indeed, the "new physics," especially its bootstrap approach, is very close to general systems theory. It represents relationships rather than isolated entities and, like the systems view, perceives these relationships as being inherently dynamic. Systems thinking is process thinking; form becomes associated with process, interrelation with interaction, and opposites are unified through oscillation. . . . The reductionist description of organisms . . . . is dangerous only when it is taken as the complete explanation. Reductionism and holism, analysis and synthesis, are complementary approaches that, used in proper balance, help us obtain a deeper knowledge of life.
>
> The internal plasticity and flexibility of living systems, whose functioning is controlled by dynamic relations rather than rigid mechanical structures, gives rise to a number of characteristic properties that can be seen as different aspects of the same dynamic principle — the principle of self-organization. . . . The two principal dynamic phenomena of self-organization are self-renewal — the ability of living systems continuously to renew and recycle their components while maintaining the integrity of their overall structure — and self-transcendence — the ability to reach out creatively beyond physical and mental boundaries in the process of learning, development, and evolution (1982, pp. 267-69; emphases added).

Jung's concept of the "self-regulating" psyche, according to Capra, would be better expressed in modern systems language as the "self-organizing" psyche (p. 363).

Systems language was, of course, not available to Jung; and he was acutely aware of conceptual inadequacies in the "causalistic" language upon which he had to rely. Even synchronicity, he once said, "is an unsatisfactory term in so far as it only takes account of time phenomena (quoted in Progoff, 1973, p. 159)." Jung attributes the initial stimulus for his formulation of the synchronicity principle to his acquaintance with Einstein; during the years, around 1912, when Jung was developing his own breakaway theory. These early discussions with Einstein, Jung has written, led him to consider a "possible relativity of time as well as space, and their psychic conditionality (quoted in the editorial preface to Synchronicity, 1973, p. vi)." While Jung makes numerous references, in his descriptions of synchronicity, to the "psychically conditioned relativity of space and time (1973, p. 19, e.g.)," it is with the quantum physicists, such as Pauli and Bohr, that he prefers to align his thought. Progoff (1973) suggests intellectual modesty on the part of Jung; whereas Capra (1982) provides a more likely theoretical explanation for Jung's reluctance to equate his acausal connecting principle with Einsteinian physics. Citing the famous debate between Bohr and Einstein, of 1920, Capra describes Einstein's difficulty in accepting the acausal, or nonlocal, assumptions of quantum physics. Nevertheless, Capra continues to explain, the study of subatomic particle interaction — at velocities close to the speed of light — requires a framework that incorporates, not only quantum theory, but also relativity theory as developed by Einstein: "In such a framework space and time are intimately and inseparably connected and form a four-dimensional continuum called 'space-time' (1982, pp. 88-9)." Significantly, Capra (1982) entitles the

chapter, in which he discusses Jung's synchronicity principle, "Journeys beyond Space and Time" (chap. 11). I commend this, as well as the other chapters of Capra and Ferguson, noted above.

It is a point of historical interest, where quantum-relativistic theory in modern physics is concerned, that a key concept toward such a unified theory was originally proposed by Werner Heisenberg, in 1943 (Capra, 1975, p. 288); the very same year that Herbert Read, relying on Jungian psychology, proposed his concept of universal aesthetic education. And it is a point of theoretical interest that both proposals depend upon the concept of an acausally ordered matrix: in the case of Heisenberg (1943), it is his "S-matrix" theory — "S" referring to the "scattering" process which results in patterns characteristic of particle collision reactions; in the case of Read (1943), it is the Jungian concept of an "unconscious matrix" out of which arise, synchronistically, the patterns characteristic of human behavior — "S" now referring, I suggest, to the "synchronistic" process by which such archetypal patterns are organized. Introduction of Jung's synchronicity principle to Read's work of 1943, I further suggest, is "intellectually necessary" to advance the concept of aesthetic education to the "grass roots" level urged in the lectures of Read (1946); just as application of Heisenberg's uncertainty principle has already advanced theoretical physics to the "bootstrap" level described by Capra (1975):

> According to Geoffrey Chew, who is the originator of the bootstrap idea and has been the unifying force and philosophical leader in S-matrix theory for the past two decades, the extension of the bootstrap approach . . . may lead to the unprecedented possibility of being forced to include the study of human consciousness explicitly in our future theories of matter (p. 351; emphasis added).

It is at this level that the factor of meaning, which Jung describes as the "indispensable criterion" of synchronicity, becomes the indispensable criterion of science as well as art.

While Jung rarely speaks of synchronicity without making reference to meaning and connection, he does not that often use the description "meaningful connection" in his explanations of it. Instead, he relies upon the description "meaningful coincidence" to emphasize simultaneity and meaning as the terms of connection in a synchronistic event. Nevertheless, it is the ordering process by which a synchronistic connection is achieved that constitutes the creative act; and it is meaning, as the effective factor in this creative, ordering process, which brings to consciousness the "forms of psychic orderedness." (I refer here to concepts which are, for the most part, explained by Jung in the material of Appendix A I, 1.) Because my interest is primarily in the dynamics of the creative process Jung describes, I have associated the description "meaningful connection" with synchronicity, since my first acquaintance with the concept. From that point on, the making of meaningful connections and the experiencing of meaning in the making of art have been virtually synonymous for me. Capra's emphasis on order and connection, as well as on pattern and process, thus lends theoretical support to a view which I have held, more-or-less intuitively, for some time. The fact that such support comes from a reputable physicist, I think, may now be considered fortuitous, rather than essential, where art education research is concerned. I have quoted Capra's words at length, therefore, not because he speaks from the "esteemed" field of science; but because

he speaks of a new science which is, like Jungian psychology, conceptually very close to the fundamental interests of art. Ferguson (1980), at the end of her review of recent trends in scientific thought, suggests that perhaps, "at last, Science can say yes to Art (p. 187)." I would only rephrase this statement to read: "Perhaps Art may, yet, say yes to Science."

I am less equivocal over Ferguson's statement that pattern blindness, the "inability to see relationships or detect meaning," is probably the greatest "pedogenic" illness of our day (1980, pp. 282-300). This is essentially the same point that Read (1943) and McLuhan (1964) had been urging us to recognize. In fact, concern for this "inability to see relationships or detect meaning," I would say, was the underlying motivation in my choosing to enter the art teaching profession, in 1966. I had by then encountered many people, both young and old, whose lives seemed unnecessarily dulled for this inability to see the system of things. Convinced that my own artistic development had helped me in this respect and, encouraged by what I noted was beginning to happen in art classes in the schools, I made the decision. In short, I believed in the possibility of "education through art." But I also believed that this depended on learning to see; on the kind of pattern seeing which I now associate with the Jungian concept of "meaningful connection." Perceptual aesthetics is, therefore, the most accurate way of describing my general approach to the teaching of art. And it is in this area that my experience with photography has contributed the most. Through photography, I have learned to see more and, I believe, helped many students to see more, as a result.

I say this, however, fully aware that my camera would not have served me so well without the years of experiencing the quality of meaning that comes from the making of art.

Jung describes how a few words in the preface of Krafft-Ebing's textbook on psychiatry resulted in his sudden, absolute conviction that he must make his career in this branch of medicine. The phrases "subjective character" and "diseases of the personality," he says, brought together for him "in a flash" the two main currents of his interest: the biological and the spiritual (1965, pp. 108-09). In my own case, it was coming upon the phrase "meaningful connection" in Jung's work, "Synchronicity" (1952), that seemed most accurately to describe what I believed I was trying to accomplish through the teaching of art. This occurred, however, in what turned out to be my last few months of teaching; not at the beginning of a career, as was the case with Jung. A "delayed" synchronicity, from my 1974 introduction to Jung's connecting principle, the mysteries of the creative process to which this principle applies have sustained my research ever since. The literature discussed in these two sections has been helpful in formulating some of my ideas about the creative process; primarily, I believe, because of its relevance to what I have already experienced in the making and teaching of art. I look forward to the examination of my own drawing serial, now, for a deeper understanding of how all that I have learned so far applies to that process.

3. Historical Points

This section, and the one immediately following, are intended to orient the reader to the material presented in Appendix A. In its content, this material provides further theoretical support for my thesis, within the general context of art education history. In its form, it represents the research process through which I discovered its special significance for my inquiry, thus bringing it within the meaning-context of the artistic serial that I describe. For both of these reasons, I believe it appropriate to offer a selection of this material as a supplement to description within the text. Finally, the material itself, I believe, offers sufficient reason for my emphasis on Jung.

According to Progoff (1973), the range of Jung's investigations literally spans the alphabet: from Alchemy to Zen. Although my research into these areas has barely begun to cover the Jungian alphabet, I have made substantial progress: from Art, to Quantum and Relativity theory, by way of Synchronicity and Taoism. The need to assimilate this seemingly extraneous material, with the theoretical and historical material already gathered on art education, has resulted in the "outlines" I now present. Out of these, the correlations most supportive of my thesis gradually emerged. Progoff, using a personal example of its application, describes the process of correlation as an extension of Jungian psychotherapy: a means of establishing a "unity of outer and inner in the continuity of life experience (1973, p. 34)." The preceding two sections, in the way that they reveal a particularly meaningful period in my life experience, exemplify the process of correlation, as Progoff explains it. He also

makes clear, however, that it is only when I begin to work directly with my own images, in the new drawing serial, that the Jungian method of amplification will apply. As I move forward into this phase of the inquiry, therefore, it is through the process of amplification that I may expect to discover the new insights I seek. Only then, based on further correlations within the meaning-context of the artistic serial, will the general implications of my inquiry become fully apparent. Both methods, in that they tend to promote the making of meaningful connections, are dependent upon the Jungian principle of synchronicity. I shall explain how Progoff's At a Journal Workshop (1975) — in which he describes the "intensive journal process" that evolved from his work on synchronicity — contributes to my inquiry procedures, later on. Here, I must continue to explain the form in which the research outlines are presented.

The terminology used in the outlines, if not defined, is at least adequately acknowledged to its source. There are two terms, generally descriptive of my research, which I am obliged to acknowledge more explicitly, however. First, based on the need for synthesis as it is argued by Jung (CW 8, 1960), Arguelles (1975), McLuhan (1964), and Capra (1982), I have adopted the term psychotechnological to define the correlations established during my research of art education history. Both Arguelles and McLuhan rely upon the historical viewpoint of Lewis Mumford, whose concepts of psyche and techne are a principal source of this term. But it is the Jungian concept of psychic transformation which is the very essence of its meaning. Ferguson (1980) attests to this in her description of the "transformative technologies;" i.e., contemporary therapies

based on a great variety of introspective techniques which are known, generally, as the "psychotechnologies." Through these "subtle sciences of the mind," according to Ferguson: "The gift of insight — of making imaginative new connections — once the speciality of a lucky few, is there for anyone willing to persist, experiment, explore (p. 32)."

The second term derives from the work of the same authors. Based on the metapsychology of Jung (CW 8, 1960), the metahistory of Arguelles (1975) and McLuhan (1964), and the metaphysics of Capra (1982), I have adopted the term metatheoretical to define the conceptual framework of my research. There is good reason, according to the authors of the transformation literature, for taking this greatly broadened view. For example, McLuhan (1964) explains how the electric media, as technological extensions of our central nervous system, virtually eliminate the kind of detachment which has for so long prevailed in Western society: "Today the action and the reaction occur almost at the same time. We actually live mythically and integrally, as it were, but we continue to think in the old, fragmented space and time patterns of the pre-electric age (p. 20)." It is this situation, this "peculiar drama of the twentieth century" which McLuhan sees as the inevitable result of conflict between the electric and the mechanical technologies, that makes a metatheoretical framework for the history of art education conceptually necessary.

Out of the psychotechnological correlations established within this expanded framework, the year 1880 — when modern art, the new electric technologies, and the new science of psychology first joined forces — marks the beginning of the affective revolution in education. Ostensibly

contained for almost a century, by conciliatory measures such as the institutionalization of art education, this revolution erupted in the late 1960s with a violence from which the system has never fully recovered. Educational crisis has been headline news ever since. The current crisis in art education emerges now, out of the conceptually-expanded framework I describe, as exemplary evidence that the foremost predictions of McLuhan are the educational reality with which we live. If the controversial message of McLuhan, leading spokesman on the urgency of "understanding media" in the 1960s, can no longer be ignored; neither can the full import of Herbert Read's intention by "education through art" continue to remain the self-serving slogan of art specialism. Yet, in its struggle for status as a specialized discipline within the schools, art education has a history of steadfastly ignoring the real message of both. It is in reaching beyond this ideologically circumscribed view that the term <u>metatheoretical</u> begins to reflect the broader educational interests in art upon which McLuhan and Read base their argument. Conceptually, their views bring art education to a most critical point in its history; a true turning point.

The principal advantage of a metatheoretical framework therefore, in research such as here described, is that it allows us to see art education in the full perspective of a psychotechnological continuum. Consequently, psychotechnological correlations, over the period since 1880, generate a renewed emphasis on the <u>intrinsic</u> value of art throughout human history:

1) In the <u>art-technology</u> context, i.e., a reaffirmation of the universality of art, based on —

the internal technology, which Arguelles (1975) ascribes to the "endurance of the archaic" in man;

the electric implosion which, according to McLuhan (1964), results in the rapid "retribalization" of man, today.

2) In the art-education context, i.e., a reassessment of some of the earlier theories of aesthetic education, based on —

the educational philosophy of Dewey and Read;

the developmental psychology of Jung and Lowenfeld, through Read;

the psychology of perception (Gestalt), as advanced by Arnheim and Ehrenzweig.

Broadening our perspectives of art education to this extent may, in fact, be our only recourse, if we are to keep pace with the educational demands of a rapidly advancing technology. On this point, McLuhan forcefully reminds us that it is the "power of the arts to anticipate future social and technological developments, by a generation and more (1964, p. xi)," which remains our best prospect. It must be remembered, however, that McLuhan's view of the indispensable function of art in our modern society, like Read's before him, challenges the concept of art education as we have known it. For as McLuhan points out, the new electric technologies demand a dramatic reversal of our customary views and opinions.

The concept of "four views," or the quaternity, which I stated in the beginning would govern the organization of this thesis, also governs the four-part (quaternary) structure of the research outlines. Burnham (1973), in developing his structural analysis of art, concludes that the "human brain possesses an innate faculty for partitioning meaningful relations into groups of four (p. 56)." Jung has explained this phenomenon on many occasions; in particular, as I have stressed, in connection with the mandala structure. And it is a prime factor in his concept of mean-

ing as described in "Synchronicity" (1952). Diagrams, attached to some of the outlines presented in Appendix A, attempt to show the mandalic whole-view upon which the metatheoretical framework of this research depends. The more complex of these diagrams are patterned on the traditional movements of the Hopi Sundance Wheel. Similarly, the Hindu time ratio (4-3-2-1), which Arguelles (1975) describes in relation to the Holocene Era, has been arbitrarily applied to outlines of the modern period to emphasize the continuity of pattern in each cycle examined. Thus, the 4-3-2-1 ratio, a numerical reversal of the standard sequential view, is a device for indicating cyclical renewal (as opposed to linear advance) along the psychotechnological continuum. Psychotechnological correlations are, in this way, based primarily on the ancient Hindu and Hopi cosmologies: a numerical device of the Hindu tradition, symbolizing the Great Return; a circular device of the Hopi tradition, symbolizing the Great Wheel of Life. In parallel with these, the four world views, of Pepper (1942), and the four psychological types, of Jung (1921), serve to indicate the potential for renewal in the West. This, I see, as the aesthetic education potential envisioned by Jung and Read.

The four-part structure of the outlines, like that of the main text, is therefore intended to reflect the "image of wholeness" which Jung discovered in the quaternary form of the mandala; i.e., the holistic paradigm which identifies Jungian psychology with the electric age, the transformation movement, and universal aesthetic education. Appendix A is itself presented in four parts, each of which relates to a specific part of the main text: Appendix A I to Part I, and so forth. There is

also a brief introductory part, equivalent to the main introduction. Finally, the material of Appendix A is presented in the following ways:

1) Excerpts of theoretical description; for example, Jung's explanation of the synchronicity principle, in Appendix A I (1), to which I have already referred;
2) Descriptive outlines, which include quoted passages from the work of a particular author, in correlation with various of the four-part structures used;
3) Comparative outlines, historical and theoretical, which correlate various of the four-part structures;
4) Illustrated outlines, which correlate various diagrammatic representations of the mandala structure.

An example of a descriptive outline which correlates the views of McLuhan (1964), within the basic four-part structure just described, is here attached. As a research method, such outlines represent a personal attempt to restore the essential balance of the internal and external technologies. Without such balance, one is in danger of viewing the recent, affluent past of art education as its Golden Age; the current reversal in its gains, as a return to darker days. But as Arguelles (1975) explains, the views of Read and McLuhan compel us now to question the very basis of such an assessment. Having been a participant in the "golden" period of art education in Montreal, from 1966 to 1978, I have found, only adds to the difficulty of the task. MacGregor (1979), in his history of the Canadian Society for Education through Art, records evidence of such difficulty on the part of the general membership: from its firm adherence to the Read "slogan" through its equally firm rejection of the McLuhan "message." By contrast, the "membership" of the transformation movement, to which Read and McLuhan rightfully belong, is readier for the risk. "The transformed self," says Ferguson (1980), "is the medium."

FOUR VIEWS	Psychotechnological Correlations			
McLuhan (1964):	Hindu and Hopi Traditions	Jung (1921) and Pepper (1942)		
I. RESEARCH	(4)	Introspection	Sensation	Mechanism

"At no period in human culture have men understood the psychic mechanisms involved in invention and technology (20). . . . As an extension and expediter of the sense life, any medium at once affects the entire field of the senses. . . . The development of writing and the visual organization of life made possible the discovery of individualism, introspection and so on (54). . . . The artist is the man in any field, scientific or humanistic, who grasps the implications of new knowledge in his own time. He is the man of integral awareness (71)."

II. EDUCATION	(3)	Wisdom	Thought	Formism

"In the 'implosion' of the electric age the separation of thought and feeling has come to seem as strange as the departmentalization of knowledge in schools and universities (158). . . . Even slight changes in the environment of the very well adjusted find them without resources to meet new challenge. Such is the plight of the representatives of conventional wisdom in any society. Their entire stake of security and status is in a single form of acquired knowledge, so that innovation is for them not novelty but annihilation (74)."

III. TECHNOLOGY	(2)	Innocence	Feeling	Contextualism

"The power of the TV mosaic to transform American innocence into depth sophistication, independently of 'content,' is not surprising if looked at directly. This mosaic TV image had already been adumbrated in the popular press that grew up with the telegraph (282). . . . Our highly literate societies are at a loss as they encounter the new structures of opinion and feeling that result from instant and global information. (Visuality has lost its primacy.) But literate society thinks of its artificial visual bias as a thing natural and innate (297)."

IV. TRANSFORMATION	(1)	Illumination	Intuition	Organicism

"The electric age is literally one of illumination. Just as light is at once energy and information, so electric automation unites production, [illegible]tion, and learning in an inextricable process (305). . . . Our new electric technology now extends the instant processing of knowledge by interrelation that has long occurred within our central nervous system. It is that same speed that constitutes organic unity and ends the mechanical age that had gone into high gear with Gutenberg (303). . . . Continued in their present patterns of fragmented unrelation, our school curricula will ensure a citizenry unable to understand the cybernated world in which they live (301)."

(Emphases added)

Illustration of a Descriptive Outline — Figure 1

4. Theoretical Points

The organization of my research material was problematical, because of its scope, until I centered on the four general headings that appear in the example outline just presented: i.e., (1) Research; (2) Education; (3) Technology; and (4) Transformation. These, I found, could be adapted specifically to any set of correlations attempted and were, consequently, the effective means of integrating art education theory within the larger, metatheoretical framework I have described. Thus, the general research headings became an important part of the structure upon which the psycho-technological correlations relevant to art education were based. The Read-Jung typology, noted earlier, is a well-known example of the kind of specific adaptation to which I now refer. This typology appears, further adapted, within several of the outlines presented in Appendix A.

The four-part structure of Appendix A is organized under the general research headings; as is, the structure of Part IV of the main text. These same headings correlate with the main structural headings of the thesis itself, as shown below. The thesis subheadings, given, are somewhat modified in terminology; not, in substance.

Research Headings	Thesis Subheadings		Thesis Headings
Research as	Personal History	I.	The Artistic Serial
Education as	Self-Education	II.	The New Drawing Serial
Technology as	Inquiry Process	III.	The Micro-Gesture Drawings
Transformation as	Inquiry Outcome	IV.	The Self-Inquiry Process

The research headings, wherever they appear, are shown in the order just given. This linear arrangement of the categories is intended to reflect

the traditional pattern of educational theory and practice, in general. As part of the traditional system, according to Read (1943), art education has been dominated by the rational, thinking function described by Jung (1921); even in its most "progressive" forms. Consequently, a transposition of order in some of the research outlines — for example, placing feeling before thinking, in the linear arrangement of Jung's typology — is intended to reflect a shift to the new pattern of learning advocated, by Read, in terms of universal aesthetic education. The significance of such a shift in the educational pattern has been the preoccupation of many minds throughout this century. The difference, now, according to Ferguson (1980), is that the new educational transformers are actually "out there" doing something about it. For them, the notion of educational reform — literally, a reworking of the old paradigm — has become obsolete.

I focus on the matter of order, here, to re-emphasize the arbitrary nature of the structural devices used in the outlines. If the linear arrangement is flexible, in the way described, the categories themselves are even more so. For example, in Outlines 4 and 5, of Appendix A II, correlations of the Read-Jung typology, with the analytical structure used by Burnham (1973), attempt to show that at least three psychological functions are operative in the types of art given for each category; in one case, according to Burnham, all four. The circular diagram of Jung's typology, shown in Outline 5, indicates the potential for wholeness more clearly, of course, than does any linear representation of the four types. Like Jung, Read is emphatic on this point, readily conceding that "in

their purity all such types are hypothetical." He maintains, however, that the interdependence of the distinctive art and personality types, which have been shown to exist, "is a factor of supreme importance in any consideration of the educational aspects of art (1958, p. 104)." Jung (1964), in a reappraisal of his typology, says, furthermore:

> The reader should understand that these four criteria or types of human behavior are just four viewpoints among many others. . . . There is nothing dogmatic about them, but their basic nature recommends them as suitable for a classification (p. 61).
>
> It would obviously be impossible to formulate any psychological theory, or to teach it, by describing large numbers of separate cases without any effort to see what they have in common and how they differ (p. 59).

It is worth noting, I think, that Jung made the above statements some forty years after his description of the typology was first published.

Several of the more recently made outlines attempt to correlate the theory of Jung, with various theories of learning, based on four primary concepts of his psychology: i.e., (1) his concept of the self-regulating psyche; (2) his concept of meaning as the ordering factor in the principle of synchronicity; (3) his concept of the function of psychic energy in the process of transformation; and (4) his concept of the development of personality in the process of individuation. Synchronicity is the dynamic principle which governs the creative psychological processes leading toward individuation. The task of the educator, according to Jung (1954), is to set these creative processes in motion. It is not, as is often assumed, the development of personality (which only imposes the adult ideal). Appendix A II (1) contains excerpts of Jung's views on education which further explain this point. Outlines in this, and other, parts of

Appendix A show the four phases of life through which psychological development becomes progressively individuated: i.e., in the first half of life, the child and the youth phases, which are the more biologically oriented; and in the second half of life, the adult and the elder phases, which are the more spiritually oriented. The term elder is one which I have selected, to emphasize that it is primarily at this late stage of adulthood, if ever, when individuation is fully attained.

Also shown in these outlines are the four kinds of education which are distinguished by Jung (1954): i.e., (1) education through example, which is unconscious, constant, and the most effective way of all; (2) collective education, which must attempt to foster the collective values while, at the same time, making allowance for the uniqueness of the individual; (3) individual education, which must attempt to satisfy, by special means, idiosyncratic needs that fall outside the collective norm; and (4) self-education, which applies primarily to adults who are the examples through whom the unconscious education of others takes place. Parents, educators, and psychiatrists are among those who should pay particular heed to this last category, according to Jung. New generations depend entirely upon the process of continuing self-education in the adults who have responsibility for their psychological and social well-being. For this reason, it disturbs Jung that there has been so little attention given to adult education. Those who dismiss Jung's educational views, because of his emphasis on adult education, fail utterly to see this point (e.g., Ehrenzweig, 1967). Similar misinterpretations have occurred with Jung's theory of the archetypes (e.g., Arnheim, 1966) and,

of course, with synchronicity (e.g., Storr, 1973).

I have stressed Jung's synchronicity principle in my description because I believe that the creative potential of his psychology is greatly diminished by its omission. Too often, in the past, synchronicity has either been ignored altogether; or, discredited for its association with parapsychology. The fact that Jung found empirical support for his theory of synchronicity in J.B. Rhine's experiments in extrasensory perception, as well as the fact that Jung's own examples of the synchronistic phenomenon were frequently of this nature, has undoubtedly led to the many aspersions cast against it. Jung's primary aim, in choosing such remarkable examples of synchronistic events, was to establish the undeniable facts of their existence as natural phenomena; thus, bringing them within the range of normal psychology. "Resistance to the recognition of such facts," Jung submits, "rests principally on the repugnance people feel for an allegedly supernatural faculty tacked onto the psyche (1969, p. 141)." Synchronistic phenomena, however extraordinary they appear to us, are not supernatural. In fact, as spontaneous products of the unconscious, they go for the most part unnoticed in the course of our daily lives. Often, as in my own case, they are recognized as extraordinarily significant, only in retrospect. The transformative technologies, to which I earlier referred, are now showing a number of ways in which synchronistic phenomena can be successfully evoked, as Jung claimed. The art-making situation, providing it is meaningful, is among the ways acknowledged.

Perhaps, if we take from all this only the word "extraordinary" and attach it to art experiences which are genuinely transformative in their

effect, it becomes easier to apply the idea of synchronicity to art education. Is it not, after all, the connection between art and the extraordinary which gives us our strongest arguments for art in education? When we speak of aesthetic meaning or artistic vision are we not, in fact, distinguishing such experiences as out-of-the-ordinary? And do we not also consider such experiences to be natural and normal; the creative right of each individual in our charge?

Jung emphasizes that his "analytical" psychology (as distinct from Freudian "psychoanalysis") adheres to the general field of normal psychology; and that learning, if not its principal aim, is certainly its by-product: "It is obvious that the purpose and inmost meaning of this new psychology is educational as well as medical (1981, p. 93)." It rests with educators, then, as much as with psychiatrists, to be as certain of the purpose and inmost meaning of their "art." For Jung recognizes that it is the "art" of the psychiatrist — and, in particular, the "art" of the unconscious — that is the effective factor in educative experience. This is clearly reflected in his conception of education through example. Thus, when Jung speaks of education, he does not confine himself to "mass" education. Where that is concerned, he plainly believes that it is only as good, or as bad, as its educators. Aldous Huxley, we do well to remember, dismisses the latter as "bad artists" (quoted, in Ferguson, 1980, p. 310).

I shall offer, for this section, an example of a comparative outline which correlates the Jungian concepts of education and individuation with the self-inquiry process. Its emphasis is on the phases of life and work

which Jung describes in his autobiography; in comparison with what is generally known of Joyce, Pollock, and others of similar stature. Jung, nevertheless, remains the principal model for my inquiry. I have stressed the importance of Jung's theoretical work, for art education, throughout the description of my research. His autobiography, however, I find a lesson in self-education, without equal. This, unfortunately, cannot be shown in a bare outline. There are, moreover, many interesting interconnections within this outline that cannot be fully revealed.

Taking the work of James Joyce as an example: there is the fact that Jung (1971, p. 125) discerns in the structural elements of Ulysses the symbol of Joyce's self; a symbol of the self such as was revealed to Jung through his own artistic explorations of the mandala. Then, there is the fact that Arguelles (1975, p. 251) rightly attributes much of McLuhan's perceptive analysis of our runaway technology to his "tireless interpretation" of Joyce's runaway language, in Finnigans Wake. And, while Arguelles here compares Joyce's achievement, in words, with Pollock's achievement, in paint; Read (1968, pp. 89-90) refers us again to the earlier Ulysses, on the basis of its "subjective" use of words, to make a similar comparison with Picasso's use of plastic forms in his paintings. Finally, there is the fact that, according to Capra (1975, p. 282), the fanciful term quark, applied by quantum physicists to the unobservable entities known as "quark symmetries," comes directly from the Joycean phrase, "Three quarks for Muster Mark," in Finnigans Wake. Capra relates the mystery surrounding such symmetries to a Zen koan which, in his terms, becomes the "quark koan." For the rest, I must

defer to points made elsewhere in this description.

I am fully aware that the outlines I present cannot have, for the reader, the meaningful connections that they have for me. On the other hand, the reader may discover in them connections that I have missed. I find that, with each review, they yield more and more. Everything that I have been confident to state, so far, has come from working with these outlines. I offer them, however, as I shall offer my drawings, only to represent a way of working that is particularly meaningful to me; not, necessarily, to anyone else. It is, I believe, the Jungian concept of self-education, exemplified in the self-inquiry process I have pursued — not the research material, or the drawings, as such — that will prove, in the long run, of primary significance.

Appendix A, of which I have here spoken at some length, may be regarded as an illustration of the research process; i.e., the initial, theoretical phase of the inquiry. The visual presentation, to which I have only briefly referred as yet, is identified as Appendix B and may be regarded as an illustration of the drawing process. Description of this practical phase of the inquiry, focused on my own way of drawing, begins with Part II.

The Self-Inquiry Process

Toward SELF-EDUCATION		MODELS		Toward INDIVIDUATION
First Half of Life (Biological)		The Formative Years (Vocational)		Influence by Others (External)
(1) Child	Innocence+	Self-Awareness	(4)	Education through Example
Instinctual Phase		JUNG Early Memories*		Unconscious Emulation
Familial Influences		JOYCE Early Portrait**		Personality Models (Action)
Education through Example		POLLOCK S-Western Years PICASSO Barcelona Years		Psychic Transformation (Read, 1943)
(2) Youth	Wisdom+	Self-Discovery	(3)	Self-Education
Cultural Phase		JUNG Mandala*		Extension of Consciousness
Environmental Influences		JOYCE Ulysses		Development of Personality
Collective Education		POLLOCK Jungian Therapy CASTANEDA Yaqui Sorcery		Creative Transformation (Neumann, 1959)
Second Half of Life (Spiritual)		The Mature Work Years (Innovational)		Influence on Others (Internal)
(3) Adult	Introspection+	Self-Knowledge	(2)	Education through Example
Personal Phase		JUNG Synchronicity		Unconscious Inspiration
Humanistic Conceptions		JOYCE Finnigans Wake		Personality Models (Thought)
Individual Education		POLLOCK Action Painting EINSTEIN Relativity		Transformative Vision (Arguelles, 1975)
(4) Elder	Illumination+	Self-Transcendence	(1)	Self-Education
Transpersonal Phase		JUNG, TEILHARD Metapsychology		Extension of Consciousness
Holistic Conceptions		JOYCE, POLLOCK Metalanguage		Development of Personality
Self-Education		HEISENBERG, CAPRA Metaphysics		Transformation Movement (Ferguson, 1980)

Jung (1966): "to realize Tao — would be the true task of the pupil."

Capra (1975): The Tao of Physics

Jung (1954): "Personality is Tao."

+Hopi Orientations

*Jung, Memories, Dreams, Reflections (1961)

**Joyce, A Portrait of the Artist as a Young Man (1916)

Illustration of a Comparative Outline

Figure 2

PART II

THE NEW DRAWING SERIAL

Our primary criterion in choosing the work on which we shall focus our attention in establishing a dialogue relationship is not that it contains problems that we wish to resolve. We choose it, rather, because it is a work that seems to contain meanings and potentialities greater than those that we have so far recognized and understood. We choose a work that has a further possibility of development. It will then in all probability also be a work that has something to teach us. When we choose the work for our first dialogue exercise, we bear in mind that this is only the first of a series of exercises by which we shall establish contact with the various works that are meaningful in our life.

— Ira Progoff
At a Journal Workshop (1975)

Description of Procedures

1. The Journal Process

I have already acknowledged the practical value of Progoff's work, as a source of procedures appropriate to my research. The "Intensive Journal Process" which Progoff describes in his work of 1975, however, finds its most direct application in the procedures I shall be following as I focus on the new drawing serial. The suitability of Progoff's approach, to the drawing phase of my inquiry, is revealed primarily in the chapter he calls "Dialogue with Works." The significance of this chapter, for anyone undertaking an inquiry such as I describe, is quite apparent even in the brief, introductory quotation I have used. While I make no attempt to follow his procedures, precisely, Progoff's influence is nevertheless evident throughout my work: "Dialogue with Persons," for example, is clearly reflected in my frequent references to the life and work of Carl Jung; and "Dialogue with Events," in my description of the synchronistic events which have enriched and expanded the meaning-context of my artistic serial up to now. "Dialogue with Works" will become fully apparent through description and analysis of the drawing process which I shall soon be examining in much greater detail (in Part III); and "Dialogue with Society," already apparent in my emphasis on the concept of transformation, will be further developed when I discuss the educational implications of the self-inquiry process (in Part IV).

The various "log" entries which Progoff describes are similarly reflected in the historical approach I have taken throughout this work. The events significant to my personal history, as presented in Part I, for example, represent the "steppingstones" which Progoff recommends as the initial entries for the period to be examined. These constitute the "period log" with which the "intensive journal process" actually begins. Obviously, the "period log" equates with what I have defined as my artistic serial. In describing my own drawing process, during the part of the inquiry to follow, I shall be using the introspective procedures that Progoff recommends for entries in the "daily log," although the word "daily" hardly applies at this intensive stage of the journal process. The "dream (imagery) log" and the "life history log" will find further application in Parts III and IV, respectively. Ultimately, it is the fact that synchronicity and seriality are fundamental principles in the transformative process that Progoff describes which makes his work, both theoretically and practically, of value to my inquiry.

Aside from the fact that Progoff's "intensive journal process" evolved from the experience of working with Jung, on synchronicity, and that his journal procedures indeed reflect the Jungian method known as "active imagination," there is one other fact that makes his work especially relevant to my inquiry. Progoff explains that it was only after 1963, following his comparative studies of creative lives, that his procedures took the active form he has found most effective for wider, more independent usage of the journal process. He emphasizes, furthermore, that "it was not the contents of persons' lives that were taken as the

model but the essential process, the fluidity of the inner movement (1975, p. 31)." It is this "essential process" that I shall attempt to disclose by means of my journal recordings, as I examine the new drawing serial.

In making my observations on the drawing process, I do not intend to try the kind of stream-of-consciousness recording that others have used; nor, do I intend to delay all recording until after each drawing has been completed. Either extreme, I believe, risks the "intellectual substitution" for experience against which Jung, for one, has warned. Instead, I shall use what I call the "contemplative pauses," which occur naturally within the drawing process, as an opportunity for making the journal entries. Since such pauses occur at frequent intervals, the recording process, in this case, identifies with the daily log procedure Progoff calls "current" recording. Preliminary practice sessions with this procedure have shown a time-range of five to thirty-five minutes between pauses of which I could be aware. The drawing process is so totally absorbing that it takes practice to pull away from it and make the required recording. I would expect the interval between pauses to reduce to an average of ten minutes, or less, with continued practice. Since it would be most unnatural for me to voice my thoughts, aloud, during either the drawing process or the contemplative pauses, I have decided to make the journal recordings by the slower-paced, silent method of writing which, I believe, is more conducive to introspection. Photographing the drawing, I consider disruptive enough, at this stage. I shall explain why I prefer to record my voiced responses, on tape, at a later "feedback" stage of the process, in Section 3.

2. The Process Photos

My intentions, where the visual recording of the drawing process is concerned, were anticipated by Picasso as early as 1935, when he said:

> It would be very interesting to record photographically, not the stages of a painting, but its metamorphoses. One would see perhaps by what course a mind finds its way towards the crystallization of its dream (quoted, in Ghiselin, 1952, p. 56).

What was for Picasso, in the great era of "moving pictures," little more than an intriguing thought, is today a commonplace. Yet, I was to recall Picasso's remarks in formulating the basic concept of procedures for my inquiry into the making of art: the concept of photographically serializing the detail of transformations within my own drawing process. As I have already indicated, the dissolve projection technique, using slide sequences rather than film, was the method finally selected.

From the art education research literature, it is Beittel (1973) who best describes the photographic procedures I shall use. Beittel fully explains his preference for process photos, or sequences of slides, that are taken at frequent intervals during his studies of individual artists at work. Dialogue is tape-recorded only as it occurs, spontaneously, in the drawing process; and afterwards, during periods of "process-recall," stimulated by showings of the slide sequences. Tape-recording of the stream-of-consciousness approach was tried, and rejected for its superficiality, by Beittel and his associates. On this point, I am clearly in agreement. I differ on use of the term serial, however. Beittel uses the terms drawing serial and artistic serial, interchangeably, referring

only to the work produced during ten sessions of process-observation in the drawing laboratory. My use of the term drawing serial, by contrast, applies to all drawings of the kind produced since 1972. Thus, it is only when I speak of the new drawing serial that our terms are close to equivalent. My definition of the artistic serial, as already explained, is considerably broader in scope.

The set-up I have devised for the photographic procedures, on the other hand, is much simpler than the one that Beittel describes. Secured to one end of my drawing table, I have an adjustable metal frame which supports both camera and lights. Preliminary tests have shown that a distance of 45 cm, from camera lens to drawing surface, gives the best results. Other measures to facilitate procedures include the use of: registration tapes, to assure precise placement of the drawing for each photograph; a switch, fastened to the table edge, to operate the lights conveniently; and a cable release, to prevent camera wobble, when the photograph is taken. I use two (200 W) tungsten lamps, with reflectors, set at 65 cm above the drawing surface, to avoid glare spots in the photographs. The film used is Kodak Ektachrome, No. 160, Tungsten; the camera, a Pentax-ME 35 mm SLR; the lens, a Pentax-M 50 mm f/1.7. The camera focus is reset with each change of film, only; although periodic checks are made. When I come to a pause in the drawing, I move to the opposite end of the table, register the drawing, switch on the lights, and press the cable release. This is done, each time, only after I have written my observations and reflections in the journal. Once the photo is taken, I resume drawing until the next pause occurs.

3. The Feedback Process

To summarize briefly at this point: throughout the drawing process, I shall be recording my observations and reflections, in writing, during each natural pause in the drawing; basically following the "dialogue" and "feedback" procedures outlined by Progoff (1975). On completion of each written entry in the journal, a single photograph of the drawing will be taken, at the level of development then achieved. This process will be repeated through each of the eight drawings planned. At this stage of the inquiry, feedback is seen as a natural outcome of procedures directly related to ongoing experience in the process of drawing. The next stage attempts, by indirect means, to stimulate further feedback on the process.

Following the return of each set of developed slides, the sequence will be arranged for projection, to stimulate "process-recall" in the manner described by Beittel (1973). At this stage, my observations and reflections on the drawing process will be tape-recorded, because I am convinced that writing would, here, be a hindrance. To remove my eyes from the process unfolding on the screen would only restrict the flow of feedback. Immediately following each "feedback" session, however, I shall attempt to record my impressions of the experience through drawing. For these "feedback" drawings, the paper is divided into small sections, just as a calendar is divided for the days of the month. A spontaneous impression-image is "entered" in one of the sections; then the drawing process, again, takes over. I shall be describing my drawing process in some detail, very shortly.

Since the number of process photos taken will far exceed the number required for the dissolve sequences that I plan, the feedback sessions — based, initially, on the full complement of slides for each drawing — will be used, also, as an opportunity to begin making the necessary selections. Many such sessions with the slides, to eliminate all but those essential to the "dissolve" effect, are anticipated. With this accomplished, however, a final feedback session to record my observations on the dissolve sequences, will conclude this part of the inquiry. Thereafter, analysis of the recorded data will begin. The analytic process will be described, and the results given, in Parts III and IV.

Two Kodak Carousel projectors and one dissolve unit are required for projection of the sequences finally selected. The projectors must be set to focus on the same area of the screen; and the slides must be arranged in the two Carousel trays so that they will project, alternately, and in sequence, when the dissolve unit begins to operate. As one projection dissolves, the alternate projection emerges as though out of the one fading away. The effect, although not unlike time-lapse photography, I find even more visually exciting; especially, when a slow dissolve is used. Another reason I prefer this medium, over film, is that it gives me full freedom to manipulate the slides, in any manner I see fit, until the most effective arrangement has been achieved. And that is just the point: it is in the seeing and handling of the slides that unpredictable possibilities occur.

The visual presentation for the thesis will consist of eight short sequences of slides, selected from those arranged for dissolve projection. For further details on the presentation sequences, see Appendix B (p. 197).

4. The Drawing Process

To describe the drawing process in which I became involved, with the sprinkling can series, I earlier used the term microdynamics. That term, I still believe to be a fitting description for the process. To identify the kind of drawing I do, however, the term micro-gesture provides a more accurate description. "Micro-gesture drawing," to define it as simply as possible, is distinguished by two main characteristics:

1) its concentration on the dynamics of the drawing marks, those marks traditionally known as artistic handwriting or, as Ehrenzweig (1967) has more recently called them, the micro-elements of art;
2) its organic development toward what Arnheim (1966) has called dynamic complexity of form, the extreme form of which has been traditionally known as the horror vacui.

This, then, is the kind of drawing that I have been doing since 1972. Consequently, when I refer to the drawing serial, it may now be further distinguished as the "micro-gesture drawing" serial; the serial for this inquiry being, simply, the new "micro-gesture" drawing serial. The inspiration for the drawings, the way I begin to draw, the way I choose to finish, and so on, have all changed considerably over the years; but not, basically, the way of drawing. The ideas that come through my close-up photography continue to sustain an interest in making the micro-gestures. All those minute gestures, that keep the drawing exciting and alive for me, are, in fact, my way of finding meaning in the making of art.

The first drawings I did of the sprinkling can were the usual, bold gestural drawings; exciting enough, in their quality of line, but somewhat barren to my eye. When I began adding torn scraps of black-and-white

newspaper photos to one of the drawings, the combination with the black felt-pen lines made it, suddenly, much more interesting. A second collage, deliberately using the partial images of colored magazine scraps, became a formalized exercise of which I soon wearied. It was at this point that I turned to the slide, which showed the can in the "dynamic complexity" of its natural setting, and discovered micro-gesture drawing in the way that I earlier described.

In the new micro-gesture drawing serial, I shall be using both found-objects and slides (somewhat reminiscent of the sprinkling can series) as inspiration for four of the drawings; two others will be spontaneously drawn, without external references of any kind; the final two will be the "feedback" drawings explained in Section 3. I prefer to do these drawings in fairly small scale. The camera distance of 45 cm, for example, allows a maximum drawing size of 20 cm x 30 cm, with which I am quite content. As to media, the drawing paper with which I prefer to work is a medium-weight Mayfair coverstock that has just enough grain to affect the drawing marks; the drawing pencil, is a Berol Veriblack, No. 315 (soft). Because of problems in reproducing the finer, graphic qualities of this complex pencil-work, the new micro-gesture drawings will be illustrated only in the slide sequences of the visual presentation. Projection of the slides, in sequence, better reveals not only the details of the work but the working process which, above all, I wish to emphasize. An earlier pen-and-ink drawing, satisfactorily reproduced as an offset print (Figure 3, Detail), will be the only example given within the text. While not a true example of micro-gesture drawing, as

such, it nevertheless illustrates how my personal interests in drawing have carried over into the art teaching process. The string-pulled blot, which inspired the drawing, was found among those rejected by students engaged in the activity. Scores of such trial-blots remained scattered about the artroom at this stage of the project.

There was something about the radically off-center concentration of marks in the abandoned blot that intrigued me. I developed the drawing, at home, late into the night of Hallowe'en 1977, — which explains its title and perhaps, to some degree, its image. The solid black areas and the coarser linear markings define the original blot out of which the image grew. It was not preconceived but developed, gradually, from a vaguely face-like structure, that became the profile on the right, and a broad linear mass, suggestive of hair, that became the mane. The animal qualities of the image emerged as a dominant factor in the drawing's development only about midway through the process. In general, the vague suggestiveness of these string-pulled blots worked equally well for students. Their difficulties occurred when they attempted development of an image that was virtually ready-made in the blot; or, conversely, one so vague that they were obliged to "fill in" the drawing extensively. This is a projective technique obviously similar, in intent, to the Rorschach ink-blot test cards; but with none of the precise symmetry typical of them. In Figure 3, the open, asymmetrical organization of the drawing had to be sacrificed in order to illustrate the features described. The detail shown, a section taken from the extreme right of the work, represents barely one-sixth of the entire drawing space.

Hallowe'en 1977 (Detail)

Illustration of an Ink-Blot Drawing

Figure 3

Variations on this approach, called "Starting Points for Students," are outlined in Appendix A II (6). Where initial inspiration for the drawing serial is concerned, these fall roughly within the categories described for the new micro-gesture drawings. My use of slides in the new drawings, for example, depends on a projective technique comparable to that of the ink-blot drawings. The difference, as already implied, rests with the distinctive features of micro-gesture drawing: a term then unknown to me and, consequently, to my students of the time. I believe I would have refrained from using the term, in any case; just as I refrained awhile from showing the Hallowe'en drawing in class. Students were soon creating more than enough good examples on their own, so that my drawing was purely incidental to the work in progress, when shown. If anything, the influence was in my direction. Student enthusiasm for this activity was contagious; in effect, making me an eager participant in the project.

This, certainly, was contrary to my usual practice. Students saw far more examples of my close-up photography, over the course of a year, than they ever saw of my close-up art. As for an occasional exposure to the latter, I think students appreciated the evidence that their teacher still made some art much more than they appreciated the kind of art that she made.

PART III

THE MICRO-GESTURE DRAWINGS

And is it not true that even the small step of a glimpse through the microscope reveals to us images which we should deem fantastic and overimaginative if we were to see them somewhere accidentally, and lacked the sense to understand them?

Does then the artist concern himself with microscopy? History? Paleontology?

Only for purposes of comparison, only in the exercise of his mobility of mind.

Only in the sense of freedom.

But in the sense of freedom which merely demands its rights, the right to develop, as great Nature herself develops.

From type to prototype.

— Paul Klee
"On Modern Art" (1924)

In-Depth Examination of the Drawing Process

1. Process Description

Jung (1961) explains how, in the early stages of examining his inner processes, he was tormented by questions of what he was actually trying to accomplish in devoting himself, so it seemed, to the art-making "games" and "fantasies" in which he had indulged as a child. This was not science, as he knew it, to be sure; was it, then, art? Finally, he concluded that it was not art but nature with which he was, both personally and professionally, most deeply concerned. With the professional issue resolved, the mandala drawings in which he was soon thoroughly absorbed had, by 1920, begun to yield the insights out of which the principal concepts of his psychology emerged. The theories he advanced, from then on, he had no hesitation in calling his "scientific" work. And art, whether for himself or for his patients, thereafter was recognized primarily for its therapeutic value. The technique known as "active imagination" had been born.

As an art educator, seeking new insights into the creative process that Jung so thoroughly explored, I, too, must decide what I am really doing in focusing on my own drawing process. In my case, taking the professional standpoint means setting aside much of what Jung describes. Guided by his example, I need not digress into "aesthetizing" my own work, as Jung confesses he at first did; nor, into "psychologizing" myself. This decision in no way precludes recognition of the therapeutic and

aesthetic values to be derived from the making of art. But it does leave, as Jung advises, any major attempt in these areas to the experts. Theoretically, therefore, I depend on Jung and Read, or on others who reflect their views, in the areas of psychology and aesthetics. Primarily, however, I depend on the first-hand experience of examining, in depth, the drawing process which has had such a marked influence on my work in art education. Even before I was aware of Jung's mandala serial, and its great significance for his work, I had determined to follow this course. Study of the literature alone, I was convinced, would not satisfy an inquiry into meaning as it is experienced in the making of art. Now, of course, I equate Jung's in-depth examination of his mandala serial with my own undertaking in examining the new micro-gesture drawings. It will be seen, furthermore, that my emphasis on the educational implications of the self-inquiry process represents no radical departure from Jung's basic approach. The comparative outline, given in Figure 5 (p. 129), shows in some detail just how closely I have adhered to the Jungian models throughout this inquiry.

The language of description, according to Jung, is particularly prone to the aesthetizing tendency: the "style of the unconscious," he says, at first gave him no choice but to record his observations in a rather "high-flown" manner. But eventually, in the process of transferring the initial recordings from the "Black Book" to the "Red Book," along with most of the original drawings, he found his solution: "I gave up this esthetizing tendency in good time, in favor of a more

rigorous process of understanding. I saw that so much fantasy needed firm ground underfoot, and that I must return wholly to reality. For me, reality meant scientific comprehension. I had to draw concrete conclusions from the insights the unconscious had given me — and that task was to become a life work (1965, p. 188)." In Progoff (1975), there are similar references to a "poetic" tendency which, according to his observations, commonly prevails during the initial stages of the intensive journal process. The "stanzas" of Paul Klee — the so-called "notes" for his 1924 lecture on modern art — border on the poetic throughout. Aside from the obvious relevance of his words to this part of my inquiry, Klee's introductory statement for his lecture draws attention to an aspect of artistic creation often overlooked by psychologists and aestheticians of the past. Klee states: "I shall confine myself largely to throwing some light on those elements of the creative process which, during the growth of a work of art, take place in the subconscious (in Herbert, 1964, p. 75; emphasis added)." It is the artist and, I think it fair to say, the art teacher who, through their experiences in the art-making situation, are more acutely aware of the growth of a work of art. I shall explain, as I go along, how this one point became a vital factor in analysis and description of the drawing serial.

Despite the great variety of quaternary structures shown in Appendix A, I shall retain only the Read-Jung typology as the structural basis for analysis of the new micro-gesture drawings. I must point out, however, that it is Jung's explanation of the dynamics of his typology — not Read's linear adaptation of it — which alone suits my purposes here.

For, it is only within the creative complex described by Jung that there is place for the four phases of growth I distinguish for micro-gesture drawing. These phases, which it must be further emphasized are no more discrete than the four psychological types distinguished by Jung, identify as: 1) inspiration; 2) organization; 3) development; and 4) contemplation. Their inclusion within the Read-Jung typology not only provides the more comprehensive analytic structure required for process analysis but is, I believe, all the more in keeping with Jung's emphasis on the active role of imagination in each of the four basic functions, namely: sensation, thought, feeling, and intuition. An outline of the analytic structure, formulated on this basis, is presented in Figure 4 (p. 128).

Combining the four phases of the drawing process with the Read-Jung typology sharpens awareness of the various functions involved, at various times, and to varying degree, not only in micro-gesture drawing but in creative work of any kind. While the integrity of Read's artistic types is lost in the process, his central concept of education through art comes through greatly enhanced; all causal reductionism removed. At this level, as I earlier suggested should be the case, the synchronicity principle described by Jung (1952) and the aesthetic principle taken from Plato, by Read (1943), conjoin as the universal creative principle on which the concept of aesthetic education must be founded. It is on this basis that I regard my inquiry, with its focus on a personal way of drawing, as an example of "self-education through art." That being the case, I see no reason to describe in great detail each phase of the micro-gesture

drawings; nor, the stream of personal fantasies that accompanied their production. That this fantasizing flowed on to a degree that I had not before realized must nevertheless be acknowledged, for it clearly indicates the ease with which a technique such as micro-gesture drawing maintains access to the unconscious processes; and, thus, to synchronicity. Jung (1947) applies the physicist's concept of complementarity to the situation: "When an unconscious content passes over into consciousness its synchronistic manifestation ceases; conversely, synchronistic phenomena can be evoked by putting the subject into an unconscious state (1969, p. 142)." While Jung here explains the hypnotic trance, in clinical terms; Ghiselin (1952) gives a better picture of the trance-like state of the artist at work:

> But actually the state of so-called trance so often mentioned as characteristic of the creative process or of stages in it differs markedly from ordinary trance or hypnosis, in its collectedness, its autonomy, its extreme watchfulness. And it seems never to be directly induced. It appears rather to be generated indirectly, to subsist as the characteristic of a consciousness partly unfocused, attention diverted from the too assertive contours of any particular scheme and dispersed upon an object without complete schematic representation. In short, the creative discipline when successful may generate a trance-like state, but one does not throw oneself into a trance in order to create (p. 25; emphases added).

For me, this trance-like state was most pronounced during the developmental, or micro-gestural, phase of the drawing process.

I shall enlist several of the artists, whose views on the creative process are reproduced in Ghiselin's anthology, to assist me in further description of the micro-gesture drawings. But for the most part, at the micro-gestural level, I shall have to let the drawings speak for themselves; revealing what they will of my fantasies.

2. Process Observation

Based on the dialogue and feedback procedures described in Part II, observation here refers only to what was initially apprehended and recorded during the drawing and process-recall sessions. Much of this material, which I equate with Jung's "Black Book" entries, will be revealed, to the extent possible, in the slide sequences of Appendix B: the photographic record of the drawing process. Description, given its broader educational aims, will therefore depend largely on the reflective periods that followed. This should not be interpreted as discounting, in any way, the importance of the observation procedures. On the contrary, it is to the in-depth involvement in process, as indicated by the observations recorded, that I credit a deeper level of reflection and a fuller understanding of the creative process. Reflection, stimulated by the drawing-recording procedures, occurred spontaneously, unpredictably, throughout the drawing phase of the inquiry; and continues, still, as I write. The record of these reflective periods — of new connections that frequently forced a whole new line of thought — I equate with Jung's "Red Book" entries; at least to the extent that my reflections have been greatly aided by his thought. In that sense, Parts III and IV of this thesis may be regarded as a condensed equivalent of the "Red Book." The major part of this record, however, is revealed in the selection and organization of new material for Appendix A. I shall refer to Appendix A more often, from here on.

The photographic material of Appendix B is another matter, altogether.

Since the micro-gesture drawings are to be illustrated only in this way, some further comment on my observations of the drawing process is warranted. My comments will inevitably go beyond what I have distinguished strictly as observation and, thus, beyond what is merely a description of micro-gesture drawing as such. In fact, I intend to use this description as a means of illustrating various phases of the drawing process; and, in that connection, a redirection of thought which led to modification of the analytic structure originally planned.

The drawings, as planned, fall naturally into four basic categories which, for awhile, I considered integrating within the Read-Jung typology, by "type." It soon became apparent that this scheme, limited largely to the inspirational phases of the work, would not provide an adequate structure for process analysis. I shall retain the terms used, despite their obvious inadequacies, purely as a means of differentiating the "types" of micro-gesture drawing under discussion. Applying the terminology of Read (1943), for example: the first four drawings may be distinguished as objective, that is, having an external referent; the last four, spontaneously drawn, as subjective, that is, having no "objective" referent. Within these two broad categories (by which Read intended to reflect the extraverted and introverted attitudes of Jung's description), the drawings may be further distinguished along these lines:

No. 1) and No. 2) based on the found object and retaining the term objective;

No. 3) and No. 4) based on images, found in superimposed slides, and distinguished as projective;

No. 5) based on spontaneous drawing and
and No. 6) retaining the term <u>subjective</u>;

No. 7) based on process-recall, or "feed-
and No. 8) back," drawing and distinguished
as <u>introjective</u>.

<u>Objective</u> drawing thus begins with the fascinating qualities of the <u>found</u> object and is, according to Read's classification, related to "objective superrealism." The objects that inspired the first two drawings, found in the advanced state of deterioration which so strongly appeals to me, were picked up on photo-excursions into the desert: i.e., for Drawing No. 1, a grossly deformed leather shoe, discovered alongside an old mining road; and for No. 2, a bristling, beast-like section of a fallen Joshua tree. (Indigenous only to this high-desert country, the Joshua tree assumes hauntingly suggestive forms, dead or alive.) Objects having such striking qualities as these can hardly be taken as a "point of departure," in the usual sense. Yet, despite the degree of abstraction already achieved by nature, there is much left for the artist to do. For instance, I deliberately set myself the task of working from the objects, alone; i.e., independent of the background detail used in the drawings of the sprinkling can. Not surprisingly, the old shoe, being a constructed object, retained a much stronger hold over the drawing than did the tree stump. I had to restrict myself to drawing only selected areas of the shoe, resorting to a very open organization; whereas the stump, abundantly suggestive in all its natural detail, was much easier to develop imaginatively, overall. Read (1943) allows a subjective element even during the organizational phase of "objective realism," but I think Picasso's

remarks on the matter are, by far, the more illuminating:

> There is no abstract art. One always has to begin with something. One can then remove all appearance of reality; one runs no risk, for the idea of the object has left an ineffaceable imprint. It is the thing that aroused the artist, stimulated his ideas, stirred his emotions. Ideas and emotions will ultimately be prisoners of his work; whatever they do they can't escape from the picture; they form an integral part of it, even when their presence is no longer discernible. Whether he likes it or not, man is the instrument of nature; it imposes its character, its appearance, upon him (in Ghiselin, 1952, p. 57).

Projective drawing, by Read's classification, also relates to "objective superrealism," which really leaves the term without the intended distinction. Actually, if one turns to Jung's definition of projection (as I inevitably had to do), one finds that the term applies not just to a given "type" of artwork, nor even to "creative" work in general, but to each new experience of reality. According to Jung (1921), projection, in its active form is:

1) the active projection of a subjective content into the object and, therefore, a process of introversion;
2) the active form of projection is also an act of judgment, the aim of which is to separate the subject from the object, thus making it dependent on the rational function of feeling (i.e., valuing);
3) the active form of projection is an essential component of the act of empathy which, to be complete, depends upon introjection, i.e., a process of extraversion, and the opposite of projection (1976b, p. 458).
4) Both empathy and abstraction are needed for any real appreciation of the object as well as for artistic creation. Both are always present in every individual, though in most cases they are unequally differentiated (1976b, p. 296).

It is apparent to me now that, in choosing the term projective for this type of drawing, I was trying to emphasize it as a technique for activating the imaginative powers. On that basis, I let it stand.

The realization that what Jung was saying could apply, just as well, to each micro-gesture was quite another matter. This, along with the already eroded distinctions between objective and subjective, convinced me that any further attempt to classify the drawings, by type, was not likely to succeed. Since it would have been utterly futile to attempt examination of each micro-gesture, I began to look at how the Read-Jung typology would hold up when applied to different phases of the drawing process. Finally, I arrived at the four phases identified as inspiration, organization, development, and contemplation; development, as said, being primarily the micro-gestural phase; contemplation, the "extreme watchfulness" of Ghiselin's description (p. 69, above), or the "unconscious scanning" stressed by Ehrenzweig in his work of 1967 (as shown in Appendix A III, 6). Jung's emphasis on the active nature of the various processes involved in the creative act must now be understood within each of the terms identifying the four phases of the drawing process: active contemplation, for example, as used by Arnheim (1966; also, in Appendix A III, 6). And the phases themselves must be understood as interactive; not strictly sequential, as the listing of them might suggest. At least, this approach now gave me a manageable working base.

Having qualified my use of the term to this extent, I shall describe the "projective" drawings. Based on superimposed slides of a creek-bed — slides, that is, which were taken before I had learned that rippling water and surface glare require some rather special photographic techniques — the vague suggestiveness of the images that come through, by randomly combining the slides, is similar to off-focus projection techniques, used

mainly for teaching purposes, in the late 1970s. This was around the time that the "projective" ink-blot drawing, illustrated in Figure 3, was done. The fact that, in this case, the superimposed slides are mechanically "projected" is a coincidence of terms, only. It is the poor quality of the slides that is primary, facilitating rather than hindering the "projective" process. Drawing No. 3 has a single, dominant image, an imaginary reptilian creature hauling itself ashore; No. 4, a multitude of imaginary creatures throughout, presenting a strange variation on the paradise theme that is highly deserving of the title, "Horror Vacui." In both cases, the vague "watery" images are projected at close range, reducing them to the small scale of the drawing paper. Then, working directly over the tiny blobs and blotches displayed, micro-gestural scribbles transfer this complex, overall organization onto the paper. It is not a definitive tracing, outlining the images suggested, but results in something rather like a finely-detailed contour map. I think of this transfer process as a gestural "lift," almost like <u>frottage</u>. Max Ernst's account of how he discovered the frottage process is comparable to the experience I describe:

> I was struck by the way the floor, its grain accentuated by many scrubbings, obsessed my nervously excited gaze. So I decided to explore the symbolism of the obsession. . . . I took a series of drawings from the floorboards by dropping pieces of paper on them at random and then rubbing the paper with blacklead. As I looked carefully at the drawings that I got in this way — some dark, others smudgily dim — I was surprised by the sudden heightening of my visionary powers, and the dream-like succession of contradictory images that came one on top of another with the persistence and rapidity peculiar to memories of love (in Ghiselin, 1952, p. 64).

The title of Ernst's essay, "Inspiration to Order," provides a fitting

description of what I am attempting to reveal about each of the drawings under discussion in this section.

Subjective drawing, by Read's classification, relates to "subjective expressionism;" in this case, inspired by the sensational qualities of the medium. Drawing No. 5, for example, begins with the same allover micro-gestural scribbling as described for the "projective" drawings, above. Here, however, the scribbling is done on a totally blank page, spontaneously, with no preconception of what images, if any, may eventually emerge. To assure complexity, three pencils (2B) are gripped together and moved simultaneously; again, producing a kind of contour map. Drawing No. 6 differs only in that it begins with bolder, single-line scribbling (macro-gestural), using the Veriblack drawing pencil. In both cases, the work is developed through micro-gestural drawing. Henry Moore aptly describes the inspirational and organizational phases of this approach:

> I sometimes begin a drawing with no preconceived problem to solve, with only the desire to use pencil on paper, and make lines, tones, and shapes with no conscious aim; but some idea becomes conscious and crystallizes, and then a control and ordering takes place (in Ghiselin, 1952, p. 77).

It is when the crystallization, of which Moore speaks, occurs, that the whole analytic scheme reverses itself, turning back to Read's "objective superrealism," once more. In other words, what was a crystallization found "ready-made" in the object, a product of the external reality, now becomes a crystallization found "ready-made" in the drawing, a product of the internal reality. Either way, according to Picasso (p. 56, above), it is the crystallization of a dream; or, the active projection of a

subjective content, according to Jung (p. 74, above). The reversal I mention is shown in the analytic structure given in Figure 4 (p. 128).

Concerning the final "feedback" drawings, which I have identified as introjective, I must refer again to the definitions of Jung (1921):

> Psychologically speaking, introjection is a process of assimilation, while projection is a process of dissimilation. Introjection is an assimilation of object to subject, projection a dissimilation of object from subject through the expulsion of a subjective content into the object (i.e., active projection). Introjection is a process of extraversion, since assimilation to the object requires empathy. . . . A passive and an active introjection may be distinguished . . . empathy as a process of adaptation belongs to the latter category (1976b, p. 452).
>
> Taken as a whole, empathy is a process of introjection, since it brings the object into intimate relation with the subject. In order to establish this relationship, the subject detaches a content — a feeling, for instance — from himself, lodges it in the object, thereby animating it, and in this way draws the object into the sphere of the subject (1976b, p. 458).

If we combine with this the relevant points of Jung's assertions about active projection and empathy, we obtain what now appears to be the full explanation for a single grasp of reality, a single creative act, a single micro-gesture. Ehrenzweig (1967), for example, identifies projection-introjection as the "dual rhythm" of creativity, suggesting moreover that this is the very pattern which marks the course of a single perception (p. 282). Arnheim (1966), in his description of perceptual abstraction, further substantiates this view in defining the elementary processes of perception as "creative acts of grasping structure (p. 33)." In my closest observations of micro-gesture drawing, I would momentarily be aware of an outward-inward movement — eye to hand, hand to eye — so

intense that I almost believed I could feel the messages going back and forth. Based on the foregoing statements, particularly those of Jung, I believe I may reasonably claim the micro-gesture as a creative act. It is on this basis that I regard each micro-gesture drawing of the new inquiry serial as a "work of art." The educational aims of the inquiry, which were a definite factor in planning the series of drawings examined, take precedence over formal concerns of that nature, in any case.

My intention in describing the feedback drawings as introjective, in fact, had a specific educational motive: i.e., evaluation of the serial concept for students. Ehrenzweig (1967) emphasizes seriality and spontaneity in his recommendations for art teachers (as shown in Appendix A III, 8). He submits, moreover, that there is a close correlation between a lack of spontaneity in the art teacher's own work and an intolerance of spontaneity in the work of students, singling out neglect of the introjective phase of creativity as the source of the problem (pp. 117-21). I reasoned that the process-recall procedures provided an opportunity for evaluating the serial approach not only as a means of encouraging spontaneity (which, from experience, I already believed that it did) but also as a means of encouraging assimilation; or, "re-introjection," as Ehrenzweig calls it, in reference to the finished work of art. Generally speaking, this is a problem more evident at the junior high school level. Senior students, with a background of several years in the art program, are readier to accept their finished work. This, then, was a primary motive in undertaking the so-called "feedback" drawings; and, so it remains, in distinguishing them now as introjective.

As with the "projective" drawings, I am again emphasizing technique but, in this case, a technique for activating the contemplative powers. Micro-gesture drawing, I believe, is conducive to this very important aspect of the creative process in art.

The introjective drawings begin exactly like Drawing No. 6, only on a much smaller scale. Drawing No. 7, called "First Impressions," is based on the full complement of slides for each of the previous six drawings; i.e., on six process-recall sessions, followed immediately by drawing. The drawing paper is divided into sections, 10 cm square; each, providing space for a scribbled "entry," inspired by one of the sequences viewed. Drawing No. 8, called "Final Impressions," is based on viewing the shorter dissolve sequences, arranged for projection as described in Part II (2); thus requiring only one process-recall session for the six scribbled entries. It is worth noting, perhaps, that Drawing No. 7 preserves the segmented organization of the page to a greater extent than No. 8, which expands more freely over-all. There is no attempt to reproduce the images of the drawings viewed, in either case, but the association remains strong enough that something of their essential quality comes through during the micro-gestural development of each scribbled entry. Surprisingly, these final two drawings of the new serial reveal more of the fantasizing that went on throughout the process than do any of the others. It occurs to me that what I accomplished with these "introjective" drawings was to bring forth, virtually clamoring for assimilation, some of the deepest fantasies of my "Black Book" entries. The similarity with what J.L. Lowes was able to disclose through his painstaking search of Coleridge's "Note Books" for

The Ancient Mariner is striking. I would be hard pressed to improve on the description Lowes gives:

> Facts which sank at intervals out of conscious recollection drew together beneath the surface through almost chemical affinities of common elements. . . . And there in Coleridge's unconscious mind, while his consciousness was busy with the toothache, or Hartley's infant ills, or pleasant strollings with the Wordsworths between Nether Stowey and Alfoxden, or what is dreamt in this or that philosophy — there in the dark moved the phantasms of the fishes and animalculae and serpentine forms of his vicarious voyagings, thrusting out tentacles of association, and interweaving beyond disengagement (quoted by R.W. Gerard, in Ghiselin, 1952, p. 228).

Here, Lowes gives us a glimpse into what I would call the meaning-context of Coleridge's artistic serial. So far as the educational motive of the introjective drawings is concerned, the key point is made by Lowes in the final phrases; his allusion to the "tentacles of association." In terms of meaning, it is the network of associations or, to put it another way, the context of relevance which the serial provides that appears to foster spontaneity (through active projection) and, at the same time, assimilation (through active introjection): where there is no active projection of the imagination, there is no genuine assimilation of the work at any stage. In terms of education, the serial concept is therefore, fundamentally, a part of what is generally known as a depth program. In effect, I assigned myself a depth program in undertaking this inquiry. This is reflected in the expanded definition of the artistic serial with which I established its meaning-context. As description continues, however, it will be apparent that it is primarily through process observation and reflection that the complex function of meaning, within the context of the artistic serial, is more fully understood.

As explained, the general distinctions (or "types") herein described derive largely from the inspirational phase of the drawings; that is, their starting point. I have stressed this phase not only because it lends itself well to description but also because I have found the starting point such a vital factor in the work of students. I have observed its significance in my own work, with particular attention, for that reason. Paradoxically, the stronger the hold of the object, the freer the fantasies flowed (as described in the sprinkling can drawings, for example); mostly, in the first four drawings of the new serial, irrelevant, and as distracting in themselves as the extraneous thoughts they triggered. Conversely, in the more spontaneous drawings (Numbers 5 to 8), I was less aware of the fantasies for they seemed to flow directly into the drawing. This, as mentioned, was most remarkable in the "introjective" drawings, which quite naturally "thrust out tentacles of association," or "feedback loops," during the developmental phase of the drawing. In either case, the drawings became more purposive, or meaningful, through some association with reality; however loose the link. Without such looseness, there is of course little scope for the imagination: active projection and active introjection are denied their vital, complementary functions throughout the growth of the work. Micro-gesture drawing, I conclude, insofar as it prevents a too-early, over-precise realization of the initial inspiration, appears to accomplish this for me. The new micro-gesture drawing serial, planned specifically for in-depth examination of this drawing technique, is not one I would recommend for students, however — restricted, as it is, to one medium, one scale, and one way of drawing.

Examples of starting points for student serials, given in Appendix A II (6), come closer to those described by Ehrenzweig (1967), of which he says: "What matters most . . . in all these examples is the use of the intellect in order to challenge, assist, and control spontaneous image-making." Taking a selected image or idea through a series of formal transformations, he explains, involves the students in tasks that cannot be solved by a purely intellectual analysis, however: "a case of the intellect obstructing its own way of functioning (pp. 164-65)." The paradox, according to Ehrenzweig, is that somehow "our involvement with outer events is far better able to express our real preoccupations than a direct attempt at looking inside ourselves (p. 157)." On several such points, there is a remarkable similarity between Ehrenzweig's recommendations for "teaching spontaneity through the intellect" (as outlined in Appendix A III, 8), and Jung's description of "active imagination" (given in Appendix A III, 1). Both methods rely on a series of transformations as the indirect means of access to processes in the creative unconscious. Jung's reference to a "spontaneous amplification of the archetypes" thus underscores what appears to be the real advantage of the serial approach for art students: without radical disruption, without loss of meaning, the serial gradually moves the student from stereotype to archetype; or, as Klee puts it, from "type to prototype."

3. Process Reflection

Up to now I have been giving what might ordinarily be considered "general observations" on the drawing process, which implies, rightly enough, that a certain amount of reflection has gone into the comments made. The distinction I make between observation and reflection must be more clear-cut than that, however. Simply put, it is a distinction based on the root meanings of apprehension and comprehension; in essence, giving us another example of the "complementarity" situation so often described by Jung. The need for such a distinction, here, arises out of the way in which reflection occurred: literally, as afterthought. The beginnings of such thought, however intriguing, were nevertheless more problematic than productive.

In the early stages of observation, thoughts of this kind were an intrusion, hindering attempts to write down whatever could be, momentarily, grasped of processes behind the drawing; occasionally, even, forestalling resumption of the work. Unbidden, and ill-formed, the thoughts that pushed forward at this stage were merely a disruption of the concentration needed for the observation procedures. The problem occurred less and less, however, as the drawing-observing-recording procedures became smoother, more automatic; developing, as it were, a rhythm all their own. By then, I was thoroughly caught up in the observation process. And from then on, my reflections — certainly, the more significant of them — were based on thoughts that came afterwards, by surprise, when I would be engaged in some routine task totally removed from the drawing. Now, more in the

nature of genuine insight, these thoughts were jotted down, whenever they occurred, to be further developed as time allowed. With this, I became increasingly involved in the reflective periods described; in a process, that is, of adapting to the new patterns of thought with which I was constantly confronted. It is primarily for this reason that I consider the drawing phase of the inquiry its transformative phase.

Many of these "afterthoughts" sent me, again and again, back to the books; often disclosing points of new significance among the references with which I was most familiar; often, too, resulting in more new outlines, based on correlations which had hitherto escaped me. The odd assortment of notes accumulated in this way soon required consolidation. Eventually, they were all typed — considerably expanded upon during the process, I might add — and organized into the form I compare with Jung's "Red Book." The journal, containing the process observations, remains in the original hand-written form; including the rudimentary "jottings" with which each entry began. The latter, a kind of spontaneous short-hand, became the effective means of forestalling distractive thought long enough, at least, for me to write a brief description of what these odd markings meant. Space was allowed so that, in going over the journal entries afterwards, they too could be expanded upon. Since I was soon fully occupied with the rush of ideas that came so effortlessly, at other times, I did not pursue expansion of the journal entries to any great extent. It would nevertheless be interesting, at some later date, to apply the "introjective" technique to the journal material, through writing, much in the same way as I have described doing with the process-photos, through drawing; in other

words, to give full rein to the aesthetizing and psychologizing tendencies withheld, I think for good reason, from the present work. Perhaps, after the style of Klee?

Description in the previous two sections, I believe, shows clearly enough that the idea for the four phases of growth in a work of art cannot be attributed entirely to the words of Klee, however. I would like to elaborate on this point a little further, on the assumption that one well-rounded example of the many reflective periods, which followed observation of the drawing process, will better satisfy description within the text. In fact, each, of some seventeen entries in Appendix A alone, represents a reflective period stimulated by process observation; and the outlines, presented in Figures 4 and 5, are but two examples of the many others made. Figure 4, the analytic structure based on the phases of growth in the micro-gesture drawings examined, represents a <u>redirection</u> of thought which, as explained, is attributable primarily to Jung's dynamic view of the creative process. Certainly, there can be no doubt that the mandala structure, maintained throughout this thesis, directly influenced the identification of <u>four</u> phases in the drawing process. All the more so, since the quaternity, upon which Jung's typology is based, is, as he says, the "logical basis for any whole judgment (1965, p. 397)." On the other hand, ready-made schemes such as Graham Wallas' (preparation, incubation, illumination, verification), however logical they may have at one time appeared, proved no match for the Jungian process-view. I turned, instead, to some of the most commonly used terms of art-process description; the term <u>contemplation</u> being, perhaps, an exception.

Identification of the four phases was relatively easy once the need for them, as the basis for process analysis, had been recognized: for example, organization, the first to be decided upon, is a term which I have long preferred to the more academic "composition." I have no difficulty, that is, in associating the word active with "organization;" nor, with "development," probably the commonest of all the terms selected. As already explained, active development refers mainly to the micro-gestural phases of the drawing process. Inspiration, beyond the "flash" most often emphasized in art description, is, as Picasso's words make clear (p. 73, above), active throughout the process of artistic creation. Maslow (1971) to some extent supports this view, in distinguishing the inspirational phase as primary creativity; all other phases (the "working" phases, that is) being secondary to it. Ehrenzweig (1967) relates the moment of inspiration to the "super-real;" Arnheim (1966), to the "primordial," relying on terms used by Read and Jung, respectively, but laying much more stress on the role of artistic vision (as indicated in Appendix A III, 6).

As to the term contemplation, it is Arnheim's analysis of perceptual dynamics in art; in particular, his emphasis on the role of active contemplation throughout the process of artistic creation, which directly influenced this choice. Active contemplation thus becomes not only the logical but the essential counterpart of active imagination; in other words, its complementary opposite. A glance at descriptive outlines, which correlate the four phases of the drawing process with views of the above-mentioned authors, begins to reveal the educational significance of points made this far. I refer to the views of Arnheim (1966), in

Appendix A III (7); Ehrenzweig (1967), in A III (8); and Maslow (1971), in A IV (2). While Maslow (1971) openly supports the concept of education through art as the new paradigm for all education, it is at a more fundamental level that the views of these three are linked to the educational concepts of Read and Jung: i.e., in their common recognition of the art-making situation as a potential growth situation for the individual.

It is at this level that the educational interests of analytical psychology and philosophical aesthetics are equally well served. For example: Jung's analysis of the technique of active imagination, centered on the growth of the individual, reveals its potential for art education as much as for art therapy; in turn, my analysis of the drawing process, centered on the growth of a work of art, reaffirms that it is the indirect approach, upon which the technique of active imagination depends, which is the effective factor, in either case. Jung's description of active imagination, along with his explanation of how the indirect approach operates through the auxiliary, or non-dominant, psychological functions, is given in Appendix A III (1). This, and the outlines given in Figures 4 and 5, begin to show how the growth of a work of art and the growth of an individual, through art, are fundamentally interconnected. What I wish to emphasize, here, is that the "growth situation," in art, is made possible only because of the "complementarity situation" which results when Jung's active imagination and Arnheim's active contemplation are, together, taken as essential components of the process of artistic creation. It will be recalled that Jung makes a very similar statement concerning the need for both abstraction and empathy in artistic creation.

Perhaps, by way of clarification, it may be helpful at this point to paraphrase some of Jung's statements on empathy (pp. 74, 78, above): active imagination (i.e., active projection, which is a process of introversion, an act of abstraction) is an "essential component" of the act of empathy; but "taken as a whole," empathy is a process of active contemplation (i.e., active introjection, which is a process of extraversion, the complementary opposite of active projection). Thus, through art — or, for that matter, through any deeply absorbing, purposive activity which stimulates the participation of functions not ordinarily operative — there is a constant alternation of opposite, but complementary, attitudes. In terms of the present analysis, active imagination and active contemplation, like the complementary pairs of opposites just mentioned, represent the introverted-extraverted attitudes described by Jung. This is precisely what was intended in distinguishing observation (apprehension) and reflection (comprehension) as the complementary pair of opposites governing the inquiry procedures. New insights, that is, the ideas that inspired and sustained reflective thought over prolonged periods, are, in that sense, equivalent to the ideas that inspired and sustained the [illegible] drawings, from start to finish. Jung's description of the creative complex, in which he relates the rhythmic alternation of the two attitudes and the four basic psychological functions, is given in Appendix A IV (c). I shall have more to say about the four functions, in relation to the four phases of the drawing process and the creative complex, in the section on process analysis.

With rare exceptions, the rethinking forced upon me throughout examination of the drawing process, would result in a new understanding of some theoretical point made by Jung. In turn, Jung's thorough exposition of the subject in question would, invariably, lead to a fuller appreciation of similar views, differently expressed, by various other authors. My use of the term active contemplation, of Arnheim's description, is a case in point. The term was certainly not chosen because Jung, in any way, neglected this aspect of the creative process. In fact, Arnheim regularly supports this side of his argument on artistic creation by quoting Jung: e.g., "an exaggerated trust in the unconscious (only) impairs the conscious power of decision (in Arnheim, 1966, p. 288)." While, it is true, Jung himself appears at times to place an "exaggerated" emphasis on the power of the unconscious, to prejudge his work on that basis is tantamount to dismissing Dewey's concept of qualitative thought on the grounds that it derives from an "exaggerated" emphasis on experience: in short, the "pragmatist" label, for Dewey; the "mystical," or the "romantic," for Jung. It must be remembered, however, that both these men spoke from where they saw the greater need; and their arguments were directed toward a restoration of balance, not a substitution of one extreme for the other. For Jung, it was a matter of balance between the conscious and unconscious processes, which he saw as the primary pair of complementary opposites governing individual growth.

Growth, which in Jungian terms refers to the process of individuation or the transformation of personality, depends upon the "integration of

unconscious contents into consciousness (1969, p. 127)" and is effected, each step along the way, only when an extension of consciousness has been achieved; or, as Dewey might put it, "when such an experience has been had." Arnheim puts it this way: "The delicate balance of all a person's powers — which alone permits him to live fully and to work well — is upset not only when intellect interferes with intuition, but equally when sensation dislodges reasoning (1974, p. 3)." Thus, it is not only because psychologists, such as Arnheim, have applied their experience and knowledge to aesthetics more extensively than Jung did but because they, indeed, reflect the Jungian view more extensively than they are ready to admit, that I have come to rely upon their work. This is true, although to a lesser degree, of the aesthetic philosophers. Langer (1962), for example, simply declares the unconscious conceptually unnecessary to her argument, "once we treat feeling as a phase of processes which in most of their stages are not felt (p. 21)." In my view, it is Jung's argument, more than Langer's own, which gives full import to some of her tersest statements: e.g., "Art education is the education of feeling, and a society that neglects it gives itself up to formless emotion (p. 84)." In short, Langer remains content with a "semantic shift" to the process of feeling (p. 54); whereas Jung looks for the "connecting" principle.

There was a time, nevertheless, about midway through the drawing process, when I believed that Jung had overlooked one vital point: on the matter of order, in his descriptions of the synchronicity principle. Nowhere in these descriptions does Jung so much as mention the word rhythm; yet, suddenly, it seemed to me, this had to be the underlying explanation

for the ordering process by which a meaningful connection is made. Read (1943) discusses rhythm at some length in explaining Plato's ideal system of education which, according to Read, is based on the view that "all grace of movement and harmony of living — the moral disposition of the soul itself — are determined by aesthetic feeling: by the recognition of rhythm and harmony (1958, p. 62)." This is followed by the passage from Plato's Republic which asserts, basically, that the qualities of rhythm and harmony, which enter into the works of man, are the very qualities which exist in the works of nature; giving us, in essence, a systems view of aesthetic education. The Platonic view of rhythm and harmony, described by Read as the universal aesthetic principle, is very similar to the systems view of life described by Capra (1982; chap. 9). Capra, devoting several pages of this chapter to the discussion of rhythm, reaffirms its elementary role in the ordering processes of man and nature:

> In the future elaboration of the new holistic world view, the notion of rhythm is likely to play a very fundamental role. The systems approach has shown that living organisms are intrinsically dynamic, their visible forms being stable manifestations of underlying processes. Process and stability, however, are compatible only if the processes form rhythmic patterns — fluctuations, oscillations, vibrations, waves. The new systems biology shows that fluctuations are crucial in the dynamics of self-organization. They are the basis of order in the living world: ordered structures arise from rhythmic pattern (emphasis added).
>
> The conceptual shift from structure to rhythm may be extremely useful in our attempts to find a unifying description of nature. Rhythmic patterns seem to be manifest at all levels. Atoms are patterns of probability waves, molecules are vibrating structures, and organisms are multidimensional, interdependent patterns of fluctuations. Plants, animals, and human beings undergo cycles of activity and rest, and all their physiological functions oscillate in rhythms of various periodicities. The components of ecosystems are interlinked through cyclical exchanges of matter and energy; civilizations rise and fall in evolutionary cycles, and the planet as a whole has its rhythms and recurrences as it spins around its axis and moves around the sun (p. 300).

Capra, whose work has already been extensively used to support the views of Jung, from the standpoint of modern physics, continues to do so in the passages just quoted. In fact, Jung comes remarkably close to Capra's description, when he explains the application of Bohr's complementarity theory, to synchronicity, in terms of psychic probability and psychic orderedness (as described in Appendix A I, 1). It is as though Jung takes for granted what Capra has to say about rhythm.

It is typical of Jung not to repeat himself. Thus, we have to go back to Chapter 3 of his earlier Symbols of Transformation, originally published in 1912, for a full discussion on the matter of rhythm. The fact that this work was reissued, extensively revised, in 1952 — the same year that his monograph on synchronicity was finally published — is, I think, highly significant. This, however, is not immediately obvious to the reader for Jung devotes much of this chapter to the history of fire-making (or, "fire-boring," as he calls it). Etymologically, a number of the words which refer to the rhythmic action involved in fire-making have also acquired meanings which refer to learning, thinking, and speaking; fire-making and speech, as Jung points out, being the two most significant achievements of early man. The figurative meanings, according to Jung, reflect the element of rhythm as the "movement to and fro in the mind (1976a, p. 145)." Mythologically, Prometheus, who stole the fire of illumination for mankind, represents the unconscious (as the "fore-thinker"); while his brother, Epimetheus, husband of Pandora and her fateful "box," represents human consciousness (as the "after-thinker"). All of this follows upon Jung's psychological interpretation of rhythm which, as we might

expect, refutes the prevailing view that "there is no differentiated achievement which is not a substitute for some form of sexuality." Attributing this error, at least in part to the influence of Freud, Jung explains his own change of mind:

> Only later did I realize that the rhythmic tendency does not come from the nutritional phase at all, as if it had migrated from there to the sexual, but that it is a peculiarity of emotional processes in general. Any kind of excitement, no matter in what phase of life, displays a tendency to rhythmic expression, perseveration, repetition. . . . Rhythmic patterns therefore offer no ground for assuming that the function they affect originated in sexuality (1976a, p. 155; emphases added).

Such statements become all the more relevant to the special instances of synchronicity — as the "acts of creation in time" with which we are most concerned in art education — when combined with Jung's definition of affect:

> By the term affect I mean a state of feeling characterized by marked physical innervation on the one hand and a peculiar disturbance of the ideational process on the other. I use emotion as synonymous with affect. I distinguish . . . feeling from affect, in spite of the fact that the dividing line is fluid, since every feeling, after attaining a certain strength, releases physical innervations, thus becoming an affect. . . . I regard affect on the one hand as a psychic feeling-state and on the other as a physiological innervation-state, each of which has a cumulative, reciprocal effect on the other (1976b, pp. 411-12; emphases added).

If we take from the above quotations, the underscored statements of Capra (1982) — that "ordered structures arise from rhythmic pattern," and of Jung (1912) — that "the rhythmic tendency . . . is a peculiarity of emotional processes in general;" and then apply these to Jung's definition of affect, we gain a clearer picture of how both meaning and rhythm function as the integrative factors in a synchronistic event. Jung's defini-

tion is, in fact, a description of the process of integration which, in terms of synchronicity, refers to the making of meaningful connections. It is based on the concept of psychophysical equivalence (in Gestalt theory, called "isomorphism") and results in what Jung speaks of as a psychophysical oneness; in other words, the union of opposites, within the affective system. Thus, for a given affect, the "physiological innervation-state," indicating a perception of rhythmic pattern, defines the ordering factor; while the "psychic feeling-state," indicating a perception of ordered structure, as image or idea, defines the meaning factor. These factors, in terms of art description, may be identified as kinesthetic feeling (i.e., felt rhythm) and aesthetic feeling (i.e., felt meaning); their integration, called synesthetic, being the "unitive," or "psychophysical," aesthetic described by Arguelles (1975). In psychology, the equivalent term, attributed to Robert Assagioli, is psychosynthesis. Jung (1912) refers to the process of integration as subliminal synthesis, according it the precognitive function which he later ascribes to synchronicity: i.e., the creative, transcendent function upon which the growth of the individual depends. Capra (1982), speaking of self-transcendence, says: "Living organisms have an inherent potential for reaching out beyond themselves to create new structures and new patterns of behavior (p. 285)." Self-renewal (as adaptation) and self-transcendence (as creative transformation), according to Capra, represent the complementary dynamic phenomena of self-organization.

Like Jung, Capra equates the particle/wave terminology of atomic physics — that is, the complementary terms of opposites in Bohr's theory —

with the Yang/Yin terminology of the ancient Taoist texts: Capra showing how the notion of rhythm brings the modern scientific view of reality ever closer to the holistic view of the early Chinese sages (1982, p. 301ff); Jung, tracing the notion of harmony, as viewed by the early "peripatetic" philosophers, to the modern physicist's concept of correspondence, the term which Bohr apparently first used to describe his theory (1973, p. 73n). Here, Jung notes that "Niels Bohr used 'correspondence' as a mediating term between the representation of the discontinuum (particle) and the continuum (wave)." Applied to synchronicity, this concept may be interpreted as the mediating term between the representation of the discontinuum (i.e., felt meaning, as the unique factor, in "psychic orderedness") and the continuum (i.e., felt rhythm, as the universal factor, in "psychic probability"). Jung (1947), in describing the relationship between the concepts of atomic physics and his own dynamic view of the psyche, explains that it is the unconscious effects (archetypal) which have an organizing influence on the contents of consciousness: "Investigation of these effects yields the singular fact that they proceed from an unconscious, i.e., objective, reality which behaves at the same time as a subjective one — in other words, like a consciousness. Hence the reality underlying the unconscious effects . . . . is, at one and the same time, absolute subjectivity and universal truth (1969, pp. 139-40)." This statement further explains Jung's references to "objective," or "transcendental," meaning in his descriptions of synchronicity (quoted, in Appendix A I, 1). It also points to the dual aspect of perception, establishing the link between synchronicity and unconscious (extrasensory) perception.

Capra (1982), describing the crucial role of rhythm in our perception of reality, points out that: "Pictures of separate objects exist only in our inner world of symbols, concepts, and ideas. The reality around us is an ongoing rhythmic dance, and our senses translate some of it into frequency patterns that can be processed by the brain (p. 301)." Relevant to Jung's statement about Bohr's theory, Capra explains furthermore:

> The discovery of the dual aspect of matter and of the fundamental role of probability has demolished the classical notion of solid objects. At the subatomic level, the solid material objects of classical physics dissolve into wave-like patterns of probabilities (which) do not represent probabilities of things, but rather probabilities of interconnections. . . . In quantum theory you never end up with "things;" you always deal with interconnections. This is how modern physics reveals the basic oneness of the universe (1982, p. 80; emphases added).

Much in the same way, recent neurophysiological studies disclosing the dual aspect of perception have begun to undermine the classical notion of how the brain processes sensory data:

> Numerous experiments have indicated that the registration of data by the sense organs will be different for different individuals before perception is experienced. These studies show that the physiological aspects of perception cannot be separated from the psychological aspects of interpretation. Moreover, the new view of perception also blurs the conventional distinction between sensory and extrasensory perception — another vestige of Cartesian thinking — by showing that all perception is, to some extent, extrasensory (1982, p. 295).

In light of all this, it is not surprising that Jung found considerable support for the idea of synchronicity in the theoretical formulations of quantum physicists, such as Niels Bohr; and statistical evidence of its phenomenality in the ESP experiments of parapsychologists, such as J.B. Rhine. It will be remembered from earlier description, however, that it

was the work of the sinologist, Richard Wilhelm, which gave real impetus to Jung's researches on the matter. Capra (1975) notes that Niels Bohr was, similarly, so impressed by the parallels he discovered between his own theory and Eastern philosophy, while visiting China in 1937, that he selected the T'ai-chi tu — ancient symbol of the complementary opposites Yin and Yang — as the central motif for his coat-of-arms, when knighted by the Danish government ten years later (p. 174; illustrated).

Psychophysical oneness, the subliminal synthesis described by the synchronicity principle, depends upon subliminal perception, which Jung distinguishes as intuition; in contrast with sensation, conscious perception, which is its complementary opposite. Where the intuitive function is concerned, Jung relies extensively on the Taoist viewpoint, as interpreted by Richard Wilhelm (quoted, in Appendix A I, 1). Here, the reference is to Lao-tzu's description of Tao as "Nothing" because, as Jung explains, it does not appear in the world of the senses but is only its organizer. Wilhelm, Jung continues, describes it as a "borderline conception" which is potentially meaningful in that it points to:

> something that corresponds firstly to the visible, i.e., something in the nature of an image; secondly to the audible, i.e., something in the nature of words; thirdly to extension in space, i.e., something with a form. But these three things are not clearly distinguished and definable, they are a non-spatial and non-temporal unity (in Jung, 1973, p. 71).

Jung (1921) speaks of intuition as the "precursor" of ideas. It is in this sense that Wilhelm's interpretation of Tao, as "Nothing," refers to the latent "rationality" in all things. This also, says Jung, is what makes "meaningful coincidence" possible.

Arnheim (1966) adopts a similar view of "the" unconscious, emphasizing that it is "no thing" — as nominal usage of the term commonly implies — but rather an "attribute" of mental phenomena (p. 287). The point is essential to his explanation of conscious and unconscious reasoning in creative work (quoted in Appendix A III, 7) and is, perhaps, the point on which he comes closest to an acceptance of the Jungian view. Ironically, in the essay in which he is most openly critical of Jung, it is the T'ai-chi tu which Arnheim chooses for analysis; a perceptual analysis intended to refute Jung's theory of "the" archetypes, over the issue of inherited perceptual matrices (pp. 222-24). What he accomplishes, expertly, is not a refutation of Jung's theory, at all, but a clarification of one of the commonest misconceptions of it: i.e., the notion of "inborn" ideas. Jung repeatedly disavows such "arrant assumptions" in the very work to which Arnheim refers ("On the Nature of the Psyche," 1969, p. 136, e.g.); claiming, as do the Gestaltists, only a tendency, a "borderline conception" such as Wilhelm describes, above. On the positive side of the issue, there is the fact that Arnheim does apply Bohr's theory of complementarity to "oscillatory alternation," his term for the way we perceive the dynamic properties of the Yin-Yang diagram and, thereby, its symbolic meaning: "The dynamics created by shapes is what perceptual patterns and symbolized life situations have in common (pp. 240-41)."

The spirit of the East which Jung, in 1930, believed was "at our gates" (1971, p. 59), has now entered the hallowed halls of some of our sciences. Gradually, it reveals to us the wisdom of its Way.

4. Process Analysis

Once decision was made to apply the Read-Jung typology to the phases of growth identified in the micro-gesture drawings, analysis, based on this manifold structure, became an ongoing part of the inquiry procedures. In particular, the observation procedures, because of their closeness to the drawing process, stimulated thoughts relevant to the analysis of each phase. Increasingly, I found myself adding comments of this nature to entries in the journal; sometimes during a contemplative pause in the drawing but, more often, at the end of a drawing-recording session. In turn, it was working with the analytic structure which finally emerged from these procedures that stimulated reflection on the creative process, in general. Much of the relevant theory, derived largely from Jung's metapsychology, has already been presented. The purpose of this section is to show how Jung's constructive approach to analysis takes us closer to a metatheory of creativity. Discussion will be based, essentially, on a four-point analogy with certain fundamental concepts of modern physics as they relate to the basic psychological functions of Jung's typology: i.e., feeling, intuition, sensation, and thought — in that order.

Jung's conviction that he was studying nature through art — in his terms, the "nature of the psyche" — refers, in fact, to the nature of the creative process; its "structure" and "dynamics" as described, primarily, in Volume 8 (1960) of The Collected Works. The culmination of the theory developed in this volume is "synchronicity," Jung's explanatory principle for the creative act which is, as we have seen, from the very outset an

act of perception: an "intuitive leap" equivalent, in principle, to the "quantum leap" recognized by modern physics. Such phenomena defy a purely causal explanation and can be described, quantitatively, only in terms of energy. Thus, Capra (1975) describes the sudden switch from one "quantum state" to another in terms of numerical value (p. 82); while Jung (1947), on the grounds that an emotionally-charged psychic state "exhibits a certain quantitative aspect," suggests an analogous description in terms of feeling value (1969, p. 144). Synchronistic phenomena, according to Jung, are clearly dependent on affects:

> Every emotional state produces an alteration of consciousness . . . that is to say there is a certain narrowing of consciousness and a corresponding strengthening of the unconscious which, particularly in the case of strong affects, is noticeable even to the layman. . . . The conscious then comes under the influence of unconscious instinctual impulses and contents. These are as a rule complexes whose ultimate basis is the archetype, the "instinctual pattern" (1973, p. 30; emphases added).

Jung's argument, here, is based on experimental evidence that the emotional state of the subject is the "critical" factor in extrasensory perception. In such cases, he says: "Synchronistic events rest on the simultaneous occurrence of two different psychic states. One of them is the normal, probable state (i.e., the one that is causally explicable), and the other, the critical experience, is the one that cannot be derived causally from the first (1973, p. 28)." Since affectivity rests to a large extent on the instincts, Jung explains, "simultaneity or synchronicity seem to be bound up with the archetypes (pp. 21, 24)." Consequently, they are primarily connected with processes in the unconscious; i.e., with feeling, functioning at the unconscious level of perception we call intuition. Jung defines intuition as "perception by means of subliminal contents (1973, p. 35)."

Continuing the analogy with modern physics more specifically, the "excited state" of an atom — in which an electron has made the quantum jump into a higher atomic orbit (Capra, 1975, pp. 79-83), may now be equated with the heightened "feeling-tone" of a complex — whose archetypal effect has irrupted into consciousness as the new image or idea. Jung establishes the grounds for this analogy in the essays, "On Psychic Energy," and "The Transcendent Function" (CW 8, 1960); speaking of the nucleus, which is the affective center of the complex, and of the fantasies that move in orbit around it. The real basis for the analogy, however, is the principle of synchronicity as it applies, for example, to the "essential interconnectedness of all phenomena" argued by Capra (1982); in particular, his observation that in the new physics "patterns of matter and patterns of mind are increasingly recognized as reflections of one another (quoted, p. 26, above)." This view, which is fundamental to classical Chinese thought, Jung interprets as: "the presence in the microcosm of macrocosmic events (quoted, in Jung's description of the synchronicity principle, Appendix A I, 1)."

The existence of synchronicity, according to Jung (1952), is self-evident to the Chinese thinker. Thus, in looking for a method which would yield "measurable results" of its occurrence as well as further insight into the psychic factors involved, Jung turned to the I Ching or Book of Changes, long acknowledged as the "experimental foundation" of Chinese philosophy and science. "Basing themselves on the hypothesis of the unity of nature," the sages who devised the intuitive method of the I Ching some three thousand years ago, Jung says, "sought to explain

the simultaneous occurrence of a psychic state with a physical process as an equivalence of meaning." In order to verify their basic hypothesis, however:

> some limiting condition was needed in this apparently limitless experiment, namely a definite form of physical procedure, a method or technique which forced nature to answer in even or odd numbers. These, as representatives of Yin and Yang, are found in both the unconscious and nature in the characteristic form of opposites (1973, p. 36).

Progoff (1973) gives a detailed account of how Jung introduced him to using the I Ching; even providing three Swiss coins for the purpose. The distinction Progoff makes between correlation, as he applies it to the oracle figure he drew from the I Ching on that occasion, and Jung's method of amplification, has already been pointed out. We cannot assume, however, that Jung — a practised user of the I Ching and fully aware of the subtleties of its operation — turned to other methods for the reason that Progoff's distinction would suggest. In his psychiatric practice, we know, Jung relied on a variety of indirect techniques for bringing about a spontaneous amplification of the archetype; including the I Ching, when it seemed appropriate. What we can assume, I think, is that Progoff's introduction to the I Ching was so-considered. Active imagination, the indirect, intuitive method that evolved from Jung's own experiences with art, was just as judiciously used.

In one of his descriptions of active imagination (reproduced in Appendix A III, 1), Jung lists the abstract (archetypal) features of images diversely expressed in the art of his patients, allowing that these basic, universal forms are to some extent conscious. But, "as formative prin-

ciples they are unconscious, and by the same token their psychological meaning is not conscious either." Explaining that his own most fundamental ideas were derived from such experiences, he again emphasizes: "First I made the observations, and only then did I hammer out my views." He continues:

> And so it is with the hand that guides the crayon or brush, the foot that executes the dance-step, with the eye and the ear, with the word and the thought: a dark impulse is the ultimate arbiter of the pattern, an unconscious a priori precipitates itself into plastic form . . . . . Over the whole procedure there seems to reign a dim foreknowledge not only of the pattern but of its meaning. Image and meaning are identical; and as the first takes shape, so the latter becomes clear (1969, p. 114).

Progoff's distinction highlights the real issue, after all, for it is not the method but the attitude of the subject which is, again, the critical factor. And it is the latter that gives us valid reason for equating Jung's technique of active imagination with the intuitive method of the I Ching. If the hand that guides the brush, or tosses the coins, is "moved" by an attitude of intuitive expectation, the organizing ability of the affected archetype is called into play. In that sense, the image spontaneously produced in the mind of the painter, or the image spontaneously produced in the mind of the oracle-seeker, may, at any given moment in the process, represent a meaningful equivalent of the emotional state of the subject. In this same way, according to Jung, the high scores of participants in the ESP experiments are a "product of pure imagination, of 'chance' ideas which reveal the structure of that which produces them, namely the unconscious (1973, p. 20)." Ferguson (1980), as earlier mentioned, includes various forms of artistic creation in a long list of alternative therapies to which "active imagination," as a generic

term, equally applies. It is, therefore, primarily in principle that the intuitive methods recognized and practised by Jung recommend themselves to teachers of all disciplines: i.e., the universal, creative principle he called synchronicity.

Jung (1921) says of intuition that it "stands in a compensatory relationship to sensation and, like it, is the matrix out of which thinking and feeling develop as rational functions (1976b, p. 454)." On the other hand: "The kind of thinking or feeling that is directed to the perception of accidentals, and is therefore irrational, is either intuitive or sensational. Both intuition and sensation are functions that find fulfilment in the absolute perception of the flux of events. Hence, by their very nature, they will react to every possible occurrence and be attuned to the absolutely contingent (p. 455)." Jung (1952), speaking of synchronicity, identifies the archetype as the contingent, granting it the "functional significance of a world-constituting factor (quoted, in Appendix A I, 1)." This statement is supported by Jung's concepts of absolute knowledge and transcendental meaning, described in the same reference. According to Jung, "the 'absolute knowledge' which is characteristic of synchronistic phenomena, a knowledge not mediated by the sense organs, supports the hypothesis of a self-subsistent meaning (1973, p. 90)." Such argument establishes the way in which synchronicity operates within the complex, transcendent function described by Jung (in Appendix A IV, 8). So far, only feeling and intuition, as part of this creative, complex function, have been emphasized within the context of our analogy with modern physics.

Feeling, as discussed to this point, functions irrationally along with intuition, in the manner just described by Jung. Together, we may say, they give us the "wave picture" of unconscious processes involved in the making of meaningful connections. Because of Jung's emphasis on the role of emotional affectivity at the unconscious, intuitive level of perception, I prefer to distinguish this synchronistic phase of the creative process by the term affective abstraction. Jung's description of a "dim foreknowledge" of pattern and meaning (p. 103, above), as well as Wilhelm's description of a "borderline conception" (p. 98, above), define the unconscious, synchronistic phase of the perceptual act to which the term refers. As to the conscious phase of the process, based on Arnheim's description of "Perceptual Abstraction in Art" (1966), I reserve the term perceptual abstraction for the complementary, Gestalt phase of the perceptual act when, as Jung puts it, "the synchronistic marginal phenomena disappear, time and space resume their accustomed sway, and consciousness is once more isolated in its subjectivity (1969, p. 141)." In this case, feeling functions irrationally along with sensation to give us the "particle picture" described by modern physics. Interpretations of the particle (discontinuum), as felt meaning, and of the wave (continuum), as felt rhythm, were explained in the previous section. What we often call felt thought, Jung speaks of as the "original, affective thought," or the "archetypal idea." He explains how such thought comes into the picture, in this way:

> Feeling is impure and, because undifferentiated, still fused with the unconscious. Hence, the individual is unable to unite the contaminated feeling with the idea. At this juncture the primordial image appears in the inner field of vision as a symbol, and, by

> virtue of its concrete nature, embraces the undifferentiated, concretized feeling, but also, by virtue of its intrinsic significance, embraces the idea, of which it is indeed the matrix, and so unites the two. In this way the primordial image acts as a mediator, once again proving its redeeming power (1976b, p. 446).

Jung, in this example of the ideation process, is actually describing the operation of synchronicity in the transcendent function: i.e., the unconscious perception of an equivalence of pattern and meaning which, by transcending the typical attitude, symbolically, leads to a transformation of consciousness. Not as an act of "pure" intuition, because feeling and thinking are also functioning irrationally in the process, but as an act of "pure" imagination. Jung explains, relevant to this example, that he uses the term idea to express the meaning of the primordial image; not as something secondary, which has been derived through rational elaboration, but as something primary, a "given possibility of thought-combinations in general (1976b, p. 437)." It is important to note here that, by Jung's definition, abstraction — like imagination — is an activity that pertains to all four functions. It also calls upon the two basic attitudes in the way earlier described: i.e., beginning as a process of introversion (abstraction) and, if completed, ending as a process of extraversion (empathy). Accordingly, Jung identifies abstract intuition with the symbolic (as opposed to the purely fantastic); abstract sensation, with the aesthetic (as opposed to the purely sensuous). On the other hand, since abstract feeling, as a rational act of judgment, generally reflects the "intellectual, aesthetic, and moral" aspirations of mankind, Jung places it on the same "high" level as abstract thought (1976b, p. 410). It is the original affective thought

nevertheless, when symbolically united with its counterfunction, aesthetic feeling, in the way that Jung describes, which makes understanding, and the further development of rational thought, possible.

So, it is in the dynamics of Jung's typology, not in its structure alone, that we find sound argument for art as the basis of education: i.e., for Plato's and Schiller's "aesthetic" education, as endorsed by Jung and Read (in Appendix A II, 1); for Read's "education through art," as endorsed by Maslow (also, in A II, 1); and for Maslow's "transpersonal" education, as endorsed by Ferguson (in A IV, 3). We must acknowledge, too, that the concept of aesthetic education, which has been around almost as long as the I Ching, is based on the same universal principle and calls for the same attitude of intuitive expectation; the design and implementation of the method, as Jung himself teaches, being the ultimate responsibility of the individual educator. Aesthetic education, we are beginning to see, for teacher and learner alike, depends upon the transcendent function.

We are also beginning to see why Jung defines the "transcendent function" as a "complex" function: it is complex in that it is "made up of other functions;" transcendent, in that it "facilitates a transition from one attitude to another (quoted, in Appendix A IV, 8)." In the analytic structure of Figure 4, a numerical device showing three psychological functions in a different combination for each phase of the drawing process, attempts to reveal something of the dynamics involved. As it stands, of course, this structure is no more than a crude schematic of the creative process which Jung describes. I am dependent

on description in this part of the text, as well as on the relevant material of Appendix A, to show its basic significance. Where the micro-gesture drawings fit into this scheme, I rely particularly on the description given in Section 2. The words "micro" and "macro" are about the only reminder that the analytic structure of Figure 4 actually developed out of the examination of my own drawing process. I mention this fact to bring the personal, experiential nature of the self-inquiry process once more to the forefront. In terms of our on-going analogy with modern physics, this equates with the affective state of the observer; the subjective factor which, according to Jung, "modifies or even eliminates the principles underlying the physicist's picture of the world (1973, p. 108)." Psychology appears to have a certain advantage over physics, in this regard, for it can "supplement the purely subjective psychology of consciousness by postulating the existence of an unconscious that possesses a large measure of objective reality (W. Pauli, in Jung, 1969, p. 140n)."

Up to now emphasis has been on the wave picture; on feeling and intuition as they function in our unconscious perception of the flux of events until that moment, when the meaningful connection has been made, and the particle picture takes hold. Micro-gesture drawing, to the extent that it promotes the kind of "unconscious scanning" distinguished by Ehrenzweig (1967), relates to the indirect, intuitive methods Jung believed evocative of the synchronistic phenomenon. In theory, then, each micro-gesture has the potential of becoming a syn-

chronistic event; an affective abstraction, as I have called it. And this is precisely where the personal, or subjective, element may enter the picture as a negative factor. If the affect weakens at any point in the process, the micro-gestures lose their dynamic quality, falling back on subliminal contents that are limited to previous experience; i.e., on typical, rather than on archetypical, patterns of thought. Usually, a contemplative pause, scanning the overall development of the work, is enough to overcome such lapses and allow the drawing to continue, revitalized. Jung, noting a similar falling off of attitude among participants in the ESP experiments, comments: "But, if for some inner or outer reason, there is a freshening of interest on the subject's part, the score rises again. . . . enthusiasm, positive expectation, hope, belief in ESP (synchronicity) seem to be the real conditions which determine . . . results." As an example of unexpectedly poor results, Jung refers to the case of a well-known medium who, in the experimental setting, was "unable to summon up any feeling for the 'soulless' test-cards (1973, p. 18)." In a very similar way, it seems, the 'mechanical' nature of the inquiry-procedures — of which I was at first overly conscious — interfered with the intuitive attitude essential to the micro-gesture drawing process. As Jung points out, however, an attitude which is oriented toward consciousness "plays a disturbing role only when the one-sidedness is excessive (1976b, p. 416)." Fortunately, this disturbing feature of the inquiry procedures was eventually overcome, in the manner already described. The mechanics, once mastered, no longer intruded significantly upon the drawing process.

The two basic attitudes, introversion and extraversion, which, for purposes of this inquiry I have identified as active imagination and active contemplation, are thus entirely dependent on the strength of the affect. Their alternation, it has been emphasized, is equally vital to the growth of a work of art or to the growth of an individual. And it is the autonomous creative complex, in which the opposites of attitude and function are symbolically united, that elevates art to the visionary, transformative level distinguished by Jung (1966; e.g., in Appendix A II, 6). The "transformative vision," in art, is a theme central to the work of Arguelles (1975; e.g., in Appendix A IV, 1); while the "creative transformation," of the artistic personality, is central to much of the work of Neumann (1959; e.g., also in Appendix A IV, 1). A further contribution to the theory of analytical psychology, for which Neumann is recognized, is his concept of centroversion; the term by which he describes the transformative effect, on consciousness, when a subliminal synthesis of introversion and extraversion has occurred. It is Neumann's view, moreover, that the partial transformations, which in fact we most often experience, are important for their cumulative effect; that is to say, they become part of a creative complex which will, given the proper affect, lead to a "decisive transformation of consciousness (1959, pp. 150-51)." This, I believe, is how the micro-gestures work, for me, in the drawing process: their effect is also cumulative.

Singly, the microdynamic marks of the drawing are momentarily articulate, and meaningful, as they are made; in sum, however, they are meaningful only to the work as a whole, rapidly constellating themselves into

patterns that are increasingly macrodynamic in their effect. Yet, because of the organic nature of their micro-gestural development, it is quite possible to think of each one of the drawings as a serial in its own right. And when the work is going well, one drawing follows naturally upon the other, expanding into the larger inquiry serial described in Section 2. The analytic structure of Figure 4 is designed to show the serial nature of each drawing, horizontally, by phases; and the sequence of drawings which comprise the inquiry serial, vertically, by general category. The four basic functions, with their auxiliaries, are shown along the horizontal alignment of the structure; the two basic attitudes, along both the horizontal and the vertical. This cross-connecting mechanism gives some indication of how Jung's constructive approach to analysis differs, markedly, from the reductive approach taken by Read (1943) in his classification of artistic types.

Relevant to the micro-, macro-, elements of the drawing process, as shown in Figure 4, it will be noted that sensation is the principal function where attention is on the micro-gestures; with intuition and thought as the auxiliary functions. Thought, in this case, alternates between intuitive and sensational thinking; thus, calling upon feeling in the way described by Jung (p. 106, above). It is oriented toward organization, guided by inspiration and contemplation. When attention shifts to the macro-elements, however, feeling becomes the principal function, with intuition and sensation operating as the auxiliaries. It is this intensified feeling for the found object (inner or outer), which generates affective thought in all phases of the drawing process,

freshening interest and sustaining meaning throughout the development of each drawing. All of which, according to Jung (1921), must be initiated through active fantasy: a product of intuition and a process of abstraction. Referring again to Jung's definition of abstract feeling (p. 107, above) we may say, very generally, that the "micro-phases" of the drawing process are aesthetically oriented — indirectly, through feeling and intuition, toward the pattern of the fantasy-product; while the "macro-phases" are intellectually oriented — also indirectly, through sensation and thought, toward its symbolic meaning. In terms of our analogy, this associates the microdynamics of the pattern with the "wave picture" described by modern physics, and the macrodynamics of its meaning, with the "particle picture;" giving us what Capra calls "two complementary descriptions of the same reality (1982, p. 79)."

Turning, then, to the particle theory of modern physics, which I have already identified with Arnheim's theory of perceptual abstraction in art, it seems only logical to continue the analogy based on points of similarity between the physicist's and the artist's pictures of reality: the physical macrocosm and the psychological microcosm. While attention is now directed toward sensation (conscious perception), it is with the understanding that the other functions are also involved; i.e., feeling or thinking, along with intuition. For example, I describe the "superrealism" of the new micro-gesture drawings in terms of intensified feeling for the found object; an "excited state," that is, in which it may be said, I am suddenly "struck" by an equivalence of pattern and meaning. Capra (1975), on the other hand, describes the "supermicro-

scopes" which enable the physicist to observe particle reaction-patterns, in terms of increased velocity; patterns, that is, which are suddenly, and very briefly, "struck" under experimental conditions. He is referring to high-energy accelerators, up to four miles long, in which particles travelling at close to the speed of light are photographed, in collision, despite the fact that they exist under such conditions for "much less than a millionth of a second." Observation is possible, Capra explains, only because the particles, colliding in specially-designed "bubble chambers," leave tracks which can be photographed in much the same way that a jet plane leaves visible trails in the sky (p. 90). Several of Capra's illustrations of these recorded patterns are reminiscent of some of Klee's more whimsical line-drawings (e.g., p. 91). Another, illustrating "a shower of about 100 particles produced by a cosmic ray which found its way into a bubble chamber," is remarkably like some of the drawings in Leonardo's "deluge" series (e.g., p. 261). Nor, is the aesthetic quality of the particle tracks missed by Capra. The curves and spirals of the linear patterns they create are, in his word for them, "beautiful" (p. 90).

Capra (1975) uses another common analogy in his explanation of how matter acquires its characteristic solid appearance: "The confinement of electrons in an atom results in enormous velocities of up to 600 miles per second! These high velocities make the atom appear as a rigid sphere, just as a fast rotating propeller appears as a disc (p. 80)." Jung takes his quantitative analysis of feeling almost to this point when he suggests that "mass and velocity would be adequate con-

cepts for characterizing the psyche so far as it has any observable aspects in space (1969, p. 144)." In Capra's description, however, there is the further suggestion that movement within the mind's eye must reach speeds sufficient to concretize the inner image. Studies in perception, reviewed in Appendix A III (6), give some indication of the actual speeds involved. Registration of an image, at the subliminal level, has been shown to occur within a mere fraction of a second. Even at the conscious level, registration is brief and unstable: with "prolonged inspection," for example, a restructuring of the "good" Gestalt will occur within seconds. Arnheim (1966) establishes the connection between the phenomenon of prolonged inspection and his own concept of "active contemplation" (e.g., in Appendix A III, 6 and 7). The connection with Jung's concept of "active imagination" is clear in his definitions of the perceptual functions, sensation and intuition (CW 6, 1971). Specifically related to artistic vision, it depends on the compensatory role of intuition (subliminal perception) in our conscious perception of reality. In terms of the creative complex, however, the connection depends primarily on argument taken from various parts of The Structure and Dynamics of the Psyche (CW 8, 1960).

As with intuition, Jung (1921) recognizes the primordial image as the "precursor" of the idea; the original idea, or inspiration, that is, for creative work in any field. While we may look to a modern physicist, such as Capra, for analogies which enhance our understanding of the "structure and dynamics of the psyche;" for its "observable aspects in space," we find concrete evidence in the work of a modern artist like

Henry Moore, whose sculpture consistently bears the imprint of a primordial vision. Moore's comments on his work (reproduced in Ghiselin, 1952) are, once more, especially relevant. Reflecting Jung's view of the archetypes, for example, Moore remarks: "There are universal shapes to which everybody is subconsciously conditioned and to which they can respond if their conscious control does not shut them off (p. 75)." Reflecting my particular interest in micro-gesture drawing, Moore emphasizes the emotional meaning of the very large and the very small for the artist, explaining that "the average in-between size does not disconnect an idea enough from prosaic everyday life (p. 76)." Moore, we know, often found inspiration for his monumental sculptures in the smallest of objects: a pebble, a shell, or a bit of bone. And, he is quick to point out, the feeling of monumental grandeur engendered by a work depends, not so much on its physical size, as on the size of the vision behind it (p. 75).

Moore's comments bring the matter of scale into the particle picture, as an emotional factor which can positively affect the artist's attitude toward his work. This now gives us four factors of meaning to be considered in our analysis of the drawing process. Based on the analytic structure of Figure 4, these may be shown operative in each work, as follows:

	Drawing Phases	Meaning Factors (Variables)			Principal Functions	
A.	Inspiration	Image	Primordial	(Macro)	Feeling	(Aesthetic)
3	Organization	Scale	Imaginary	(Micro)	Intuition	(Symbolic) 3
	Development 3	Marks	Gestural	(Micro)	Sensation	(Aesthetic)
	Contemplation	Idea	Visionary	(Macro)	Thought	(Symbolic)

B. [the "reversal," outlined in Figure 4, and described in Section 2]

Brackets, in this scheme, indicate some of the complementary pairs of opposites whose synthesis, at the subliminal level, is essential to the creative process. The aesthetic and the symbolic, as pattern and meaning, are basic components of the transcendent function, which is to be the final point of discussion in our analogy with modern physics. In this case, attention will be focused on thought, with operation of the auxiliary functions again understood; and on number, which is defined by Jung as the "archetype of order" (in Appendix A I, 4). The number "3," above, in fact represents the transcendent function: i.e., the bringing together of opposites for the production of a third, transformative function; a synthesis that opens the way to new patterns of thought. At this point, according to Jung, consciousness must take over the lead; a consciousness which, he points out, "is not only itself a transformation of the original instinctual image, but also its transformer (quoted, in Appendix A III, 1)." The instinctual patterns of order are, for the most part, triads or tetrads whose mathematical structures, Jung insists, provide "irrefutable" evidence that "the unconscious uses number as an ordering factor (1973, p. 41)." Jung equates the transcendent function, which in mathematics is based on "real" and "imaginary" numbers, with his own psychological concept of it, based on "conscious" and "unconscious" processes.

Capra (1982), in developing his argument for the systems view of life, gives order as important a role as rhythm in our perception of reality: "The ability to recognize order seems to be an essential

aspect of the rational mind; every perception of a pattern is, in a sense, a perception of order (p. 95)." He goes on to explain how the language of topology, a form of mathematical description only recently applied to particle physics, is being successfully used to classify the patterns of "ordered interconnectedness" observed in particle reaction processes. Topology, Capra's description leads us to conclude, is as widely applicable, in research, as general systems theory. Because it is more concerned with connection than with quantification, topology has already found application in such diverse fields as symbolic logic, the social sciences, and psychology. "Topological psychology," notably in the work of Kurt Lewin, has been around since the 1930s, for example. Jung's description of number, in relation to synchronicity, leaves little doubt that he saw, in mathematics, a promising field of investigation for his own psychology. Capra (1982) has already credited Jung with a "systems view of mind." It is just possible that some mathematical thinker may yet, one day, recognize in Jung's psychology of number a topological description of mind. Jung, however, did not venture much beyond the natural numbers, of which he says: "The sequence of natural numbers turns out to be more than a mere stringing together of identical units: it contains the whole of mathematics and everything yet to be discovered in this field (1973, p. 40)." The natural numbers, when applied to Jung's concept of the transcendent function, we shall see, take us not into the abstract mathematical formulations of modern physics but back into the so-called "magic numbers" of ancient alchemy.

Burnham (1973) makes a substantial move in this direction when he substitutes the alchemical agents for the mathematical equations on which he bases his structural analysis of art. Burnham's "topological" approach to analysis is described in Appendix A I (4) and is shown, adapted to the Read-Jung typology, in A II (4) and (5). While his "alchemical equations" are the basis of the three-term "functional equations," used in Figure 4, Burnham's quaternary structure shows the coming together of opposites, not as the third function mentioned above, but as the fifth. This fifth function, or equation, is represented mathematically, by zero; alchemically, by aether, or the "quintessence." It appears as the center of Burnham's diagrams (D2 and D4); or, at the end of the linear sequences used to describe them. This, it will be noted, characterizes the form in which most of the outlines and diagrams of Appendix A are presented: a synthesis, or transformation, is shown as the fifth term. The centering process which Jung discovered through his work with the mandala structure may, nevertheless, be described as the third, the fifth, the seventh, and so on. The main criterion, judging by Jung's use of these enumeratives, is the number of factors under consideration. Leibniz, as McLuhan tells us (in Appendix A, 3), "saw in the mystic elegance of the binary system of Zero and 1 the image of Creation." Jung (1952) discusses certain parallels between the views of Leibniz (who was also influenced by Chinese thought) and his concept of synchronicity, but he relies on an alchemical axiom to explain the numerical significance of the mandala; the quaternary system in which he saw the image of self-creation. The axiom, which reads simply, "Out of the Third comes the One as the Fourth,"

is quoted in Jung's description of number (Appendix A I, 4). I shall rely on corollaries of this axiom to explain the numerical significance of the creative complex described by Jung (in Appendix A IV, 8).

In alchemy, it seems, there is always this idea of the "one more;" a concept of change that is clearly reflected in Jung's description of the psyche which, "as a living phenomenon," he says, "is always indissolubly bound up with the continuity of the vital process, so that it is not only something evolved but also continually evolving and creative (1976b, p. 431)." In the Chinese Book of Changes or the I Ching, this continuity is represented, as Yang, by assigning an odd-numbered value of three to coins that come up as tails; heads, assigned an even-numbered value of two, represents Yin, the formative, synchronistic phase of the process. As Jung points out, mantic procedures such as the I Ching show that "the method best adapted to the nature of chance is the numerical method." Such methods reveal, moreover, that both number and synchronicity "possess numinosity and mystery as their common characteristics." The natural numbers, which have been used from earliest times to formulate numinous experiences, Jung observes, "have never been entirely robbed of their numinous aura;" thus, all the numbers from 1 to 9 remain "sacred" (1973, p. 40). To these, Jung adds a series of seven "significant numbers" (from 10 to 40), which is comparable to the series of seven "magic numbers" (from 2 to 126) used to describe the constituents of an atomic nucleus. Discovery of the latter, we note, earned its author a Nobel Prize (in Jung, 1964, p. 307n). The fact that the number 28 appears in both series is especially significant to my analysis, as I shall soon explain.

Applying the concept of even and odd numbers, used in the I Ching, to the alchemical axiom, quoted above, allows us to extend the axiom over the numbers one to nine, as follows:

Even Numbers (Yin)	Odd Numbers (Yang)	Interpretations (Alchemical)
Out of the Two comes the One	... as the Third	: the tertium comparationis
Out of the Four comes the One	... as the Fifth	: the quinta essentia (aether)
Out of the Six comes the One	... as the Seventh	: the septenarius magicus occultas
Out of the Eight comes the One	... as the Ninth	: the novenarius magicus occultas

In general, Jung uses the Latin phrase tertium comparationis to identify the common factor, or mediating term, between two opposites. The phrase occurs, for the most part, in his descriptions of synchronicity, where he refers specifically to meaning as the tertium comparationis (as quoted, for example, in Appendix A I, 1). In mathematics, equivalent terms would again be the "common factor;" or, the "lowest common denominator." The quinta essentia, or the "quintessence," is described in relation to unconscious perception and the concept of absolute knowledge, in Synchronicity (1973, pp. 77-8). The septenarius magicus occultas, or the "hidden magic number, seven," is described in Aion (1979, p. 240) and is illustrated, with material from this source, in the diagrams of Appendix A IV, (7). It represents the seventh, transcendent factor of the creative complex which is described by Jung in Appendix A IV (8). The "hidden magic number, nine," is my own invention, included here primarily because of its relevance to the I Ching.

Among the most significant numbers associated with the I Ching are: six, for three heads, and nine, for three tails, — each of which represents a fall of the coins highly favorable to transformation; six tosses of the three coins are required to make up the six lines of a hexagram, which is composed of two trigrams; seven is a factor of 49, the number of yarrow stalks whose fall may be used instead of the six falls of the coins; eight is a factor of 64, the total possible number of Yin-Yang combinations on which the hexagrams of the I Ching are based. The number of positions represented on the Hopi Sundancé Wheel is also 64, as shown in Diagram 13, of Appendix A IV (7). Diagram 12, on the same page, indicates how the 28 phases, in Yeats' vision of the Great Wheel, derive. Description, and additional diagrams, of both models are given in Appendix A IV (6). It will be noted, relevant to these particular models, that seven is a factor of 28, the number of phases in Yeats' cosmological scheme; and that the Hopi cosmology is based on a concept of seven worlds, the present era being only the fourth.

The number 28, as mentioned, is particularly significant to my own analytic scheme, in that it represents the product of the "hidden magic number, seven," multiplied by the four phases of the drawing process. The 28 phases obtained by this calculation, however, are only numerically comparable to those of Yeats' scheme. Diagrammatically, the structure developed for analysis of the micro-gesture drawings is more closely related to the Hopi model: with its four microwheels, representing the four phases of the drawing process; and its great seven-world macrowheel, representing the creative complex of each drawing. The number 64, of

both the Hopi and the I Ching structures, thus becomes as significant as the number 28, relevant to my analysis. A comparison of the numbers 28 and 64, based on the "hidden magic number, nine," and the "one more" of the alchemical axiom, yields some rather interesting results:

$9 \times 3 = 27$	$27 + 1 = 28$	(cf)	$9 \times 7 = 63$	$63 + 1 = 64$
⋮			⋮	
as the 4th	$4 \times 7 = 28$		as the 8th	$8 \times 8 = 64$
Out of the Four .... the Fifth			Out of the Eight .... the Ninth	

The archetypal patterns of order — the tetrads and triads distinguished by Jung — are each represented in the "magic number" seven ($4 + 3 = 7$). Four, as the common factor of 28 and 64, represents the tetradic structure of the Yeats and Hopi models, which equate with my own in the way described. The "one more" of the alchemical axiom is particularly significant, however, in establishing a numerical relationship with the I Ching, to which Jung ascribes a triadic structure. The three, in this case simply a factor of the number six, represents the three lines of each trigram, on which the hexagrams of the I Ching are built. In the above calculations, three, as a common factor of 27 and 63, must be based on the "magic number" nine and must include the "one more," as shown, to reveal the triads common to each model. One of the more significant features of these simple calculations is the fact that the "magic number" seven appears as the multiplier (9×7) in the equation relevant to both the Hopi and the I Ching models; despite their basic differences in structure. A summary of various other calculations, based on the "magic circles" and the "magic numbers," is given in Appendix A IV (9). With that, I shall let the numbers speak for themselves

in the same "magical" way that the process-photos of the micro-gesture drawings are intended to do, in Appendix B. Both, in that sense, reveal something of my fantasies — gestural and numerical.

Jung speaks of the creative complex in discussing the psychology of the artist (CW 15, 1966), but he details the seven criteria of its structure only in describing the transcendent function (CW 8, 1960). The dynamics of its operation are more thoroughly explained, however, in his definitions of the terms that relate to his typology (CW 6, 1971; chap. 11); the latter being the source of excerpts reproduced in Appendix A IV (8). The transcendent function is itself the seventh creative factor; now identified by the "hidden magic number, seven." It is complex in that it unites the four basic psychological functions: i.e., the irrational perceptual functions, intuition and sensation; and the rational reflective functions, feeling and thought. As Jung explains (in Appendix A III, 1.3), this is accomplished indirectly through the auxiliary functions; not by appealing directly to the most repressed function. In other words, the union of the principal (typical) function with its opposite can only be achieved, subliminally and symbolically, through imagination. The complex function is transcendent in that it unites the two basic psychological attitudes, introversion and extraversion, to produce the synthesis called "centroverion" by Neumann (1959). This, as I interpret the process, is accomplished through the operation of synchronicity at the subliminal level of perception. Description of the transcendent function, in alchemical terms, therefore reads: "Out of the Six comes the One as the Seventh."

Synthesis of the Six — the four functions and the two attitudes — is aided by the fact that the functions themselves alternate between the introverted and the extraverted attitudes. Jung (1921) identifies the artistic personality primarily with introverted intuition and introverted sensation. It will be noted in the analytic structure of Figure 4, however, that — while the two perceptual functions, intuition and sensation, are shown operative in each phase of the drawing process — they are not always a principal function; nor, do they remain "introverted." Ideally, it is the rhythmic alternation of the two attitudes, here identified as "active imagination" and "active contemplation," that accounts for the dynamic interplay of all four functions during the process of artistic creation. Consequently, each function can be given only a representative role as either a principal, or an auxiliary, function in any one phase. Operation of the fourth, opposing function (not shown in the various three-function equations of Figure 4) is best explained by Jung: his description of the symbolic union of feeling and thought, for example, (quoted, pp. 106-07, above). Figure 4 is presented immediately following this description.

I have referred to the analytic structure of Figure 4 many times in this part of the thesis but have delayed its presentation, because of its admitted shortcomings, until explanation of the concepts on which it is based had been completed. Jung's constructive approach to analysis, barely discernible in this structure, requires some further comment, however. Actually, it is reflected in the many aspects of his work which have been used in support of this thesis: in particular, his theory of meaning, as

it applies to the creative principle he called synchronicity; and to the creative process he called individuation. In defining his constructive method, for example, Jung uses three key words that relate directly to the thesis title: described as synthetic, the constructive method is implied in the general concept of "meaning in the making of art;" described as individualistic, it is implied in the concept of the "self-inquiry" process; and described as prospective, it is implied in the concept of the ongoing "artistic serial," as a complex of potentially symbolic meanings. The significance of this method, as it applies to the present inquiry, is even more clearly evident in the concluding statements of Jung's definition:

> The constructive method can also be directly applied by the subject to his own material, in which case it is an intuitive method, employed to elucidate the general meaning of an unconscious product. This elucidation is the result of an associative (as distinct from actively apperceptive) addition of further material, which so enriches the symbolic product (e.g., a dream) that it eventually attains a degree of clarity sufficient for conscious comprehension. It becomes interwoven with more general associations and is thereby assimilated (1976b, pp. 423-24; cf., the constructive role of the "living" symbol, in Jung's description of the transcendent function, Appendix A IV, 8.2).

The degree to which Jung's intuitions and thoughts have aided me in the "elucidation" of material acquired through the examination of my own drawing process, is outlined in Figure 5 (presented as the final page of this section). This outline is, in effect, a summary of Jung's influence on all phases of work done for the thesis; an influence, I must add, far greater and far more beneficial than anticipated when the work began. Hence, it also represents a personal endorsement of the Jungian models of "self-inquiry" and the "artistic serial" in art edu-

cation research. There is no need to explain Figure 5, for in fact that has already been done in various parts of my description. I present it, now, primarily to mark a transition from the analysis of Part III, to the synthesis of Part IV.

Part IV, a summation rather than a description, attempts to pull together the practical and theoretical aspects of the self-inquiry process that were discussed in Parts I, II, and III. Synthesis will be based on the four general research headings, in correlation with the main thesis headings and the material of Appendix A (as previously outlined, p. 43, above). The terms used to identify the four phases of the drawing process will also be incorporated, as subheadings, within this scheme. The principal terms of description for the thesis will be given at the beginning of each section of Part IV, in outline form; followed by a short summation of points relevant to each. Two broader summations, along these same lines, will cover the research ("A") and the drawing ("B") phases of the inquiry; from the constructive, i.e., synthetic, point of view outlined in Figure 5. Emphasis will be on the educational implications of the self-inquiry process, as self-education of the educator, and will include suggestions for further research. Description, as such, terminates here.

Part III Micro-Gesture Drawing: Phases of Analysis

Analytic Structure of the Drawing Process

	Formative Phases		Transformative Phases	
	1. Inspiration	2. Organization	3. Development	4. Contemplation
A.				
Found Imagery	Objective Superrealism	Objective Constructivism	Subjective Expressionism	Subjective Realism
Objective Drawing No.'s (1 and 2) (3 and 4)	FEELING (2) (2) (4) + (1)	INTUITION (4) (4) + (1) (2)	SENSATION (1) (1) + (4) (3)	THOUGHT (3) (3) (1) + (4)
Empathetical	Found (Macro) Images	Dynamics (Micro) Rhythmic Pattern	Haptic (Micro) Expression	Organic (Macro) Impression
	Active — Empathetic / Abstractive — Contemplation		Active — Abstractive / Empathetic — Imagination	
B.				
Found Imagery	Subjective Expressionism	Subjective Realism	Objective Superrealism	Objective Constructivism
Subjective Drawing No.'s (5 and 6) (7 and 8)	SENSATION (1) (1) + (4) (3)	THOUGHT (3) (3) (1) + (4)	FEELING (2) (2) (4) + (1)	INTUITION (4) (4) + (1) (2)
Fantastical	Haptic (Micro) Expression	Organic (Macro) Impression	Found (Macro) Images	Dynamics (Micro) Rhythmic Pattern

[See: Appendix A II (4), (5)]

Figure 4

	JUNGIAN Models:	SELF-INQUIRY and the ARTISTIC SERIAL in Art Education Research		
Part	III.	ART as a Transformative Technology		
	Creative COMPLEX Transcendent Function	Psychotechnology of the SYNCHRONICITY	Principle	AESTHETIC Experience Primordial
	Jungian Model:	IN-DEPTH Examination of Process	PSYCHODYNAMICS	Pattern-Seeking SYSTEM
	(Active Imagination Active Contemplation	(Jung's Mandala Drawing Serial New Micro-Gesture Drawing Serial	(Introverted Extraverted Modes)	(Universal Unique Factors)
	Subliminal Perception	APPREHENSION: Rhythmic Pattern	Felt MEANING	Kinesthetic
	Life-Rhythms	ORDERING Factors	IMAGINATIVE	New CONNECTIONS
	ILLUMINATION	SERIALITY of the Creative Process		Self-ORGANIZATION
Part	IV.	The Technology of SELF-EDUCATION		
	Creative IMPERATIVE Transcendental Meaning	Psychotechnology of the INDIVIDUATION	Process	SYMBOLIC Transformation Archetypal
	Jungian Model:	INDIRECT Application of Principle	PSYCHOSYNTHESIS	Pattern-Seeing SYSTEM
	(Introspective Intuition Retrospective Intuition	(Self-Analysis Self-Inquiry	(Psychological Educational	(Therapeutic Aesthetic Values)	(Personal Transpersonal Factors)
	Subliminal Synthesis	COMPREHENSION: Ordered Structure	Felt THOUGHT	Synesthetic
	Life-Motives	MEANING Factors	INTUITIVE	New UNDERSTANDING
	INSIGHT	UNIVERSALITY of the Creative Principle		Self-TRANSCENDENCE
		Toward a Metatheory of CREATIVITY [See JUNG: Appendix A III (1), A IV (8)]		

Synthetic Structure of the Self-Inquiry Process Figure 5

PART IV

THE SELF-INQUIRY PROCESS

The years when I was pursuing my inner images were the most important in my life — in them everything essential was decided. It all began then; the later details are only supplements and clarifications of the material that burst forth from the unconscious, and at first swamped me. It was the prima materia of a lifetime's work.

It has taken me virtually forty-five years to distill within the vessel of my scientific work the things that I experienced and wrote down at that time.

— Carl Jung
Memories, Dreams, Reflections (1961)

Educational Implications of the Self-Inquiry Process

PHASE A: Metatheoretical Implications for Art Education Research

1. Self-Inquiry as a Research Method (described in Part I)

Thesis: The Meaning-Context of the Artistic Serial

ONE Principle in the Making and Teaching of Art

Synchronicity (as outlined in Appendix A I):

the universal, creative principle described by Jung (1952), whose concept of meaning, as the "indispensable criterion" of a synchronistic event, provides the metatheoretical foundation of all research for this inquiry.

1) Inspiration for the self-inquiry process began with the discovery of micro-gesture drawing and, from that, development of a serial approach in working with my "more advanced" art students; paralleled by the discovery of Jung's mandala serial and the technique, called "active imagination," which he reserved for his "more advanced" patients.

2) The indirect method of Jung's description, applied to the research phase of the inquiry, refers to my reliance on the transformation literature which, in its open support of Jungian psychology, led me to see intuitively, with the eye of the artist-teacher, the relevance of Jung's work for art education research. Meaningful connections, derived largely from study of the transformation literature, thus brought the research experience fully within the meaning-context of the artistic serial.

3) As a research method, the self-inquiry process therefore relates to the Jungian concepts of "education through example" and "self-education," as shown in the comparative outline of Figure 2 (p. 51, above).

4) Metatheoretical implications of the synchronicity principle, in learning and in life, are outlined in Appendix A I (3).

2. Self-Inquiry as Self-Education (described in Parts I and II)

Antithesis: The Creative Context of the New Drawing Serial

TWO Forces in the Development of Personality

Aesthetic Education (as outlined in Appendix A II): based on recognition of the formative (aesthetic) and transformative (intellectual) "correlates" of the creative process, described by Jung (192'); and interpreted by Read (1943) as "education through art."

1) Organization of all material relevant to the thesis, as explained in Part I, is based on the quaternary structure of the mandala: the Read-Jung typology, for example, which is used in the outlines of Appendix A as a structural basis for the concept of aesthetic education.

2) In-depth examination of the transformation literature, with focus on the work of Jung as described in Part I, is paralleled in the in-depth procedures for examining the creative process in art, with focus on the new micro-gesture drawings as described in Part II.

3) The concept of self-education through art, based on Jung's exemplary model of the artistic serial, is seen as appropriate beginning research for the art educator. As here applied, however, it depends upon a history of meaningful experiences in both the making and teaching of art.

4) Metatheoretical implications of the concept of universal aesthetic education indicate a broader role for art education in the future; as suggested by Maslow, in Appendix A II (1.3), and as outlined in Appendix A II (3).

5) The fifth term, representing the alchemical concept of the "one more," which is typical of most of the outlines of Appendix A, may be generally interpreted as the aesthetic imperative in education, today.

SUMMATION A: Jung's constructive approach to analysis as it applies to the research phase of the self-inquiry process.

Self-Education through Example (Parts I and II):

the Jungian models of "self-inquiry" and the "artistic serial" applied to art education research; i.e., Jung's artistic explorations of the mandala as a source of insight into the structure and dynamics of the creative process; into meaning in the making and teaching of art.

1) Synthesis, based on correlations between the art education and the transformation literature — intuitively integrated with recalled aesthetic experiences in the making and teaching of art — established the meaning-context of the artistic serial, as defined, in that the research remained personally meaningful throughout this phase of the inquiry. It is because the insights gained at this stage are derived largely from the thoughts of others that the research phase of the inquiry is identified, above, as "self-education through example;" i.e., primarily, the example of Jung. On the other hand, because the self-inquiry process, by its very nature, calls upon the introspective intuitions which Jung associates with the contents of the personal unconscious, reasoning remains at a formative, and essentially aesthetic, level. In that sense, the research phase of the inquiry equates with the inspirational and organizational phases of the drawing process shown in Figure 4 (B); i.e., the formative phases of the "subjective" drawings in which sensation and thought are recognized as the principal functions; with intuition and feeling serving the vital, compensatory role. The limitations of this subjective treatment of the research material are thus more than compensated for by the retention of meaning which it allows. Constructively viewed, this is an essential, preparatory step in the process of self-education.

2) Structure, i.e., the mandalic structure of the research phase as it relates to the meaning-context of the artistic serial, is based on the tetrad of the four psychological functions distinguished by Jung; the dynamics of the creative (antithetical) forces, governing subliminal synthesis of the four, being understood within his concept of "meaningful connection." Jung's connecting principle, "synchronicity," in this way accounts for the fifth term that appears in most of the research outlines. In the analogy with modern physics, this fifth term equates with the fifth dimension introduced, in 1923, and long since surpassed; or, with the recently verified fifth force, called "electro-weak," which is not likely to be surpassed until high-energy accelerators of greatly increased length have been constructed. In terms of aesthetic education, Read (1943) takes another direction, multiplying the four functions by the two forces to produce eight artistic types; the scheme identified as the Read-Jung typology and described, in relation to the eight micro-gesture drawings, in Part III (2). In terms of the "magic numbers," however, Read's eight "types," even when multiplied by the four phases of the drawing process, give us only half the picture; i.e., 32, rather than 64, permutations. Based principally on sensation and thought, as shown for the formative phases of the drawings in Figure 4 (B), this represents the "particle picture," only: i.e., in mathematical terms, the "real" numbers; or, in psychological terms, the "conscious" processes, of the transcendent function described by Jung. It is significant, therefore, that the functional equations of Figure 4 (B), showing sensation and thought as the principal functions, have a numerical "order-value" of eight (as indicated in Appendix A IV, 9.2).

3) Educational implications of the self-inquiry process remained centered, during the research phase, on aesthetic education in art; i.e., on various means of assuring its implementation in art education. Like many others since, Read (1943) recognizes teacher training as a principal means for achieving this goal. But it is only Jung, speaking from his own practical experience, who urges self-education of the educator: "The educator should know above all else that talk and officious discipline lead nowhere, that what counts is example. . . . The doctor therefore believes that the best way to educate others is for the educator himself to be educated." This, he explains, requires that the educator at least try out first on himself the "profundities" learned from the textbooks (1981, p. 132). Edmonston (1961) provides an appropriate example of such an attempt, in that he examines his own "studio processes" from the point of view of the "artist-teacher." His thesis is limited, however, to the highly specialized notions that were then being promoted in art education. (Cf., Beittel's description of the kind of euphoria that developed during the affluent sixties; in Victoria & Sacca, 1978). The work of Arguelles (1975) is a preferable example, in that it adheres closely to the Jungian model of self-education through art. Arguelles explains (quoted, in part, p. 23, above) how his own artistic explorations of the mandala, combined with extensive research, led to his concept of the transformative vision in art. The words of Jung himself, in the introductory quotation to this final part of the thesis, are full testimony to the profound implications of the self-inquiry process as a research method on which the aesthetic self-education of the art educator might be based.

4) Further research on the self-inquiry process, in the education of art educators, suggests the study of its application at the undergraduate level; to instill, in the early stages of training, awareness that the education of others through example is, as Jung says, of "incomparably more powerful effect" than any teaching method yet devised. To be constructively effective, in the way described by Jung (1954), this unconscious form of education demands nothing less than a continuous process of aesthetic self-education on the part of the educator. From experience, with beginning art teachers who rely mainly on the "profundities" learned in training, there is an alarming dependency on imitation, rather than innovation; usually accompanied by a standstill in their own art work. Follow-up studies, on in-service programs designed specifically to encourage aesthetic self-education among art educators, could help to alleviate such problems not only during the probationary period but long afterwards. Experiencing the benefits of aesthetic self-education, through art, should not have to be delayed for a formal inquiry, when the teaching career is well-advanced; as in the case of Edmonston, and myself. Following the example of Jung, which I believe could be of great benefit at any stage, does not mean taking up the painting of mandalas, however, in the way that Arguelles chose to do; nor even, using the mandala structure as an organizing device, in the way that I have done. It means only that the effort be "the product of a conscious attitude not opposed to the unconscious, and of unconscious processes not opposed but merely compensatory to consciousness;" advice that comes from Jung's general definition of imagination, in its active form (i.e., "active fantasy," 1976b, p. 429).

PHASE B: Metatheoretical Implications for Aesthetic Education

3. Self-Inquiry as a Transformative Technology (described in Part III)

Synthesis: The Creative Complex of the Micro-Gesture Drawings

THREE Phases of Creativity in the Process of Transformation

Art as Psychotechnology (as outlined in Appendix A III):

the subliminal synthesis of opposites, through projection and introjection, to produce a third, transformative function; i.e., the complex, transcendent function which is described by Jung in Appendix A IV (8).

1) Development of the new micro-gesture drawing serial is described in terms of active imagination (projection) and active contemplation (introjection); an example of the complementarity situation which applies, also, to the way process observation and reflection developed.

2) The indirect method, applied to the drawing phase of the inquiry, thus refers not only to the drawing process but to the examination procedures as well; bringing the entire experience of this phase of the inquiry fully within the meaning-context of the artistic serial.

3) The concept of art as a transformative technology is paramount at this stage; not only as a means of aesthetic self-education for the educator but as a general concept of "self-transcendence through art."

4) Metatheoretical implications nevertheless encompass all of the "transformative technologies;" artistic creation being the one principal example here studied. In educational terms, based on Jung's dynamic view of the creative process, this extends the aesthetic imperative to all fields of learning and to all phases of life; as indicated in the comparative outline of Appendix A III (3). See also Outlines A IV (2), (3), and (4).

4. Self-Inquiry as Creative Transformation (summarized in Part IV)

Metathesis: The Meaning-Complex of the Self-Inquiry Process

FOUR Factors of Meaning in the Creative Process

> The Process of Individuation (as outlined in Appendix A IV): the creative, transformative process by which the psyche becomes progressively individuated; especially during the second half of life, when the search for meaning is more fully identified with the search for wholeness (Jung, 1961).

1) Contemplation, not only as it occurred aesthetically during the drawing-observing process, but as it occurred intellectually, and transformatively, during the reflective periods that followed; i.e., still guided by aesthetic feeling but, now, rationally directed toward analysis and evaluation of the self-inquiry process, as a whole.

2) Through in-depth examination and analysis of micro-gesture drawing, came a new understanding of the dynamics of the creative process described by Jung (1921); i.e., a working knowledge to be carried over into future undertakings in art, in education, and in further research.

3) As creative transformation, the self-inquiry process implies attainment of a new level of individuation, based on the many synchronicities and partial transformations that culminate in the final event: self-transcendence through art, as one of the "transformative technologies."

4) Metatheoretical implications at this stage suggest that the continuing aesthetic self-education of the educator is the primary means for effectively implementing aesthetic education, on a universal basis.

5), 6), and 7) The creative triad, within the tetradic structure of the mandala, reveals the "hidden magic" of its meaning. In aesthetic education, as in Jung's abstract feeling, this triad is generally expressed in terms of the aesthetic, the intellectual, and the moral.

SUMMATION B: Jung's constructive approach to analysis as it applies to the drawing phase of the self-inquiry process.

Self-Education through Art (Parts III and IV):

the concepts of "self-inquiry" and the "artistic serial" applied to the examination of my own art process; i.e., the in-depth examination of the new micro-gesture drawings as a source of further insight into the creative process described by Jung (CW 8, 1960).

1) Synthesis, based now on amplification of the material acquired through process observation and reflection, expanded the meaning-context of the artistic serial in an unexpected way. With each new insight into my own drawing process, came a clearer understanding of Jung's constructive view of the role of the unconscious in creative work. This explains the overriding emphasis on Jungian metatheory in description and analysis of the drawing phase of the inquiry. Indirectly, through examination of the new micro-gesture drawings, the self-inquiry process reached into the retrospective intuitions which Jung associates with the contents of the collective unconscious, namely the archetypes. Thought shifted suddenly from my own drawing process to the creative process in general; from meaning, in the personal creative context, to meaning in the autonomous creative complex described by Jung. As explained in Part III, it was primarily during the reflective periods, stimulated by process observation, when these "crystallizations" occurred. It is for this reason that I distinguish the drawing phase of the inquiry as transformative, and essentially intellectual; related to the "objective," developmental and contemplative, phases of the spontaneous drawings outlined in Figure 4 (B). In this case, feeling and intuition are recognized as the principal functions, with sensation and thought now serving the dynamic, complementary role that makes assimilation of the new material possible.

2) Structure, i.e., the mandalic structure of the drawing phase as it relates, now, to the meaning-complex of the artistic serial, continues to be based on the four psychological functions; each of which is a fundamental factor in the experiencing of new meaning. Understanding the dynamics of the process, however, requires recognition of three additional factors: the two "creative" forces and the one "transcendent" function, synchronistically achieved, in the way described by Jung (1952); in other words, the "wave picture," missing from Read's scheme. These meaning factors, explained in relation to analysis of the drawing process in Part III (pp. 116-17), thus identify with the seven criteria of the creative complex described by Jung in Appendix A IV (8). (Cf., the seven-part structures, of Gendlin and Castaneda, outlined in A IV, 4). It is this Jungian model that equates with the latest concepts of pattern and order in modern physics: e.g., "supersymmetry," based on the dynamics of the circle or sphere; or, "oscillation," the notion of rhythm explained by Capra (1982). It also gives us the whole-picture of "meaning in the making of art," in that meanings, which accrued during the research phase of the self-inquiry process, became part of the meaning-complex for the drawing phase: i.e., the "associative material" which, from a constructive standpoint, makes possible the "elucidation" of new, intuitively acquired, material in the way described by Jung (p. 126, above). In other words, the synchronicities and partial transformations of the research phase became creatively transformative only through the transcendent function as it occurred during the drawing phase. Significantly, the functional equations based principally on feeling and intuition, in the transformative phases of Figure 4 (B), have an "order-value" of seven, the "hidden magic number."

3) Educational implications of the self-inquiry process, as they developed during the drawing phase, are the logical, and ethical, extension of those discussed for the research phase: i.e., the implementation of aesthetic education on a universal basis. The achievement of this wider goal depends, all the more, on the Jungian concept of aesthetic self-education for the educator; not necessarily through art, as such, but through the art of self-inquiry and, by implication, through the art of teaching. That, I like to think, is what this inquiry based on the Jungian model is all about. It is in this vein, I believe, that the concept of "education through art," recommended by Maslow (1971) as the paradigm for all education, must be interpreted. Maslow's views on aesthetic education (as expressed in Appendix A II, 1.3, and IV, 2) are, in many respects, a synthesis of the aesthetic education imperatives argued by Jung and Read. Moreover, Maslow supports his views by citing various "peak experiences" in his own aesthetic self-education as psychologist and teacher: educating himself aesthetically, in mathematics, for example (as quoted). From personal experience in art teaching, it was only after I had educated myself aesthetically, in art history, that I was able to develop meaningful ways of presenting this part of the art program to students. It is the "peak-producing" experiences of aesthetic self-education that lead to creative transformation and, with that, the ethical responsibility which Jung describes as the "burden" of new insight: a responsibility felt on his part, he says, as an obligation to "communicate to the world" what he had discovered about the unconscious (1965, pp. 192-93); consequently, on my own part, as an obligation to communicate the value of Jung's discoveries for all education.

4) Further research on the self-inquiry process, in the education of aesthetic educators, suggests the study of aesthetic self-education through art in the training of educators whose professional interests lie outside the field of art education. The work of Milner (1950), a Freudian psychoanalyst, is an acknowledged example of self-education of this kind, for the inexperienced artist. In turn, this suggests a parallel study of aesthetic self-education through subjects, other than art, in the training of art educators. As an example of the latter, I offer the research method of this inquiry, through which — with the aid of Jung and Capra — my aesthetic education in psychology and physics has been advanced. Such studies, accompanied by the kind of in-service programs previously described, could help prepare art educators (beginning and advanced, alike) to take an active role in the implementation of universal aesthetic education; i.e., in the development and application of the art education paradigm in all subjects and, eventually, at all levels. That appears to be the real challenge of Maslow's endorsement. Circumstances (no longer affluent) seem to be forcing a redefinition of art education, along generalist lines, in any case; e.g., as described in MacGregor (1980). Constructively viewed, however, the present situation is perhaps richer in opportunity for leadership and initiative, on the part of art educators, than ever before. With a public at last beginning to realize that "quality" education requires "quality" teaching, the time may soon be ripe for another "Woods Hole" — on the process of aesthetic education. Significantly, Bruner (1971), in assessing the failure of the last one, suggests a renewed emphasis on vocation. (Cf., Jung's emphasis, in Appendix A II, 1.2).

"Out of the Four . . . "

5) Read (1943) appends to his chapter, "Unconscious Modes of Integration," a discussion on the electro-chemical aspects of the concept of psychophysical isomorphism in Gestalt psychology. He points out that, while the quadrivalent structure of carbon may explain the nature of patterns deposited on the interfaces of the cortex, it does not account for the "further elaboration of these cortical configurations into significant images, or symbols." He concludes: "For an hypothesis adequate to explain this development we must for the present rely on the dynamic psychology of Jung (1958, p. 206)." The dynamic principle of Jung's psychology of the unconscious, it has been emphasized, is the principle of <u>synchronicity</u> (on which the <u>fifth</u> term of the research outlines is based). Jung himself, in explaining the <u>psychoid</u> nature of the archetypes of the unconscious — the instinctual patterns of meaning and order in mandalic form — also refers to carbon:

> The deeper "layers" of the psyche lose their individual uniqueness as they retreat farther and farther into darkness. "Lower down," that is to say as they approach the autonomous functional systems, they become increasingly collective until they are universalized and extinguished in the body's materiality, i.e., in chemical substances. The body's carbon is simply carbon. Hence "at bottom" the psyche is simply "world" (1965, p. 405).

"Out of the Five . . . "

6) Read illustrates his discussion with a diagram of the carbon-based molecule reproduced below; pointing out that it is "comparable in quaternity, regularity, and complexity with the Golden Flower and other mandalas." What he does not mention, however, is the fact that carbon has an atomic number of <u>six</u> (i.e., 6 electrons and 6 protons), which would

relate its dynamics to the six basic factors of the creative complex described by Jung. (Cf. also, the hexagrams of the I Ching.)

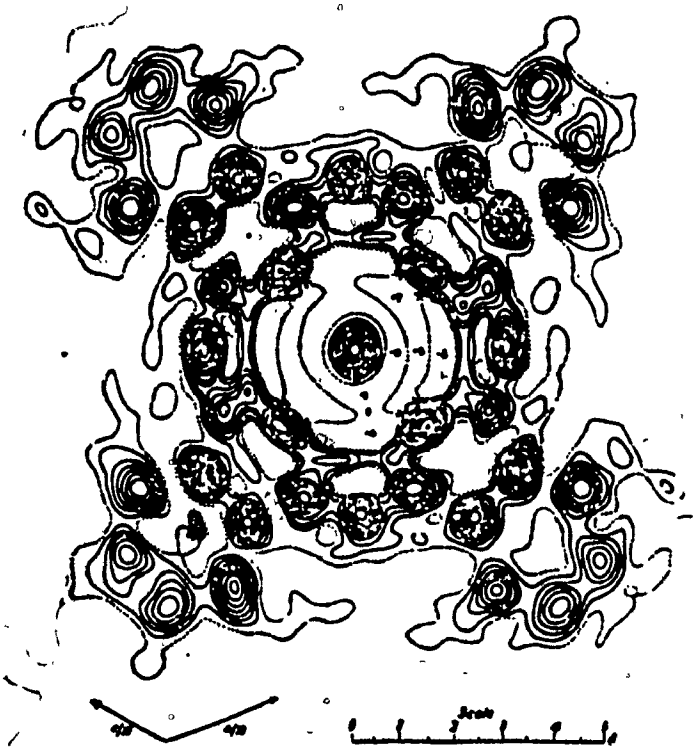


Figure 6

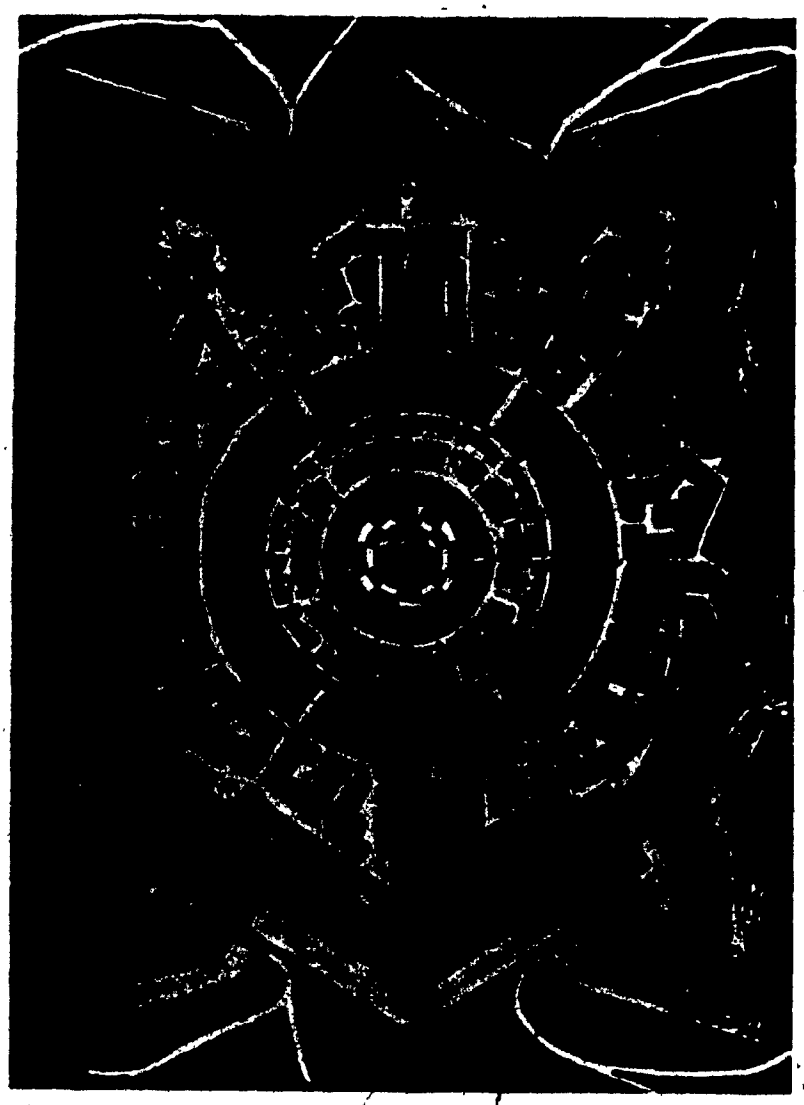
"Mandala"

Map of a molecule of Platinum Phthalocyanine drawn in the form of a contour map showing the distribution of electron density, or scattering matter, in the molecule

"Out of the Six . . . "

7) It is the dynamics of these six factors (the two forces, or attitudes, and the four functions) which produces the seventh: the complex, transcendent function described by the "hidden magic number, seven." Jung's comment on his initial experience in working with the mandala form is prophetic, in this regard. He says: "I had painted the first mandala in 1916 after writing the Septem Sermones (Seven Sermons); naturally I had not, then, understood it." He refers to the Septem Sermones — a mystical work, spontaneously written in the language of

Gnosticism — as a "prelude" to the scientific work that was to come out of his discoveries about the mandala (1965, pp. 192-95). According to Jung, he began to understand the symbolism of his mandala drawings only after 1918. Since, through my own drawings, I have been able to share in that understanding, it is fitting that I conclude with an illustration of one of Jung's mandalas. It is the last one he painted, in 1928; the "so-Chinese" mandala described at the very beginning of this thesis.



Jung's Mandala of the Golden Castle Figure 7

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The original date of publication, for each work referenced, appears immediately after the author's name. References to several works by the same author are listed, chronologically, on this basis. Subsequent dates of publication, in cases where revised editions of the original works have been used, are given with the particulars of publication.

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APPENDIX A

List of Contents

Illustration of the Research Process

Note: 1) Excerpts from the major works of Jung, only, are referenced by paragraph number; e.g., (par. 845).

2) Shorter quotations, taken from the work of Jung and others, are referenced by page, number only; e.g., (276), (43), etc.

3) Appendix A material is identified in the lower, right-hand corner of each page; e.g., A II (4), A III (1.2), etc.

4) Diagrams — D4 through D16 — are adaptations, based on the descriptions/diagrams of the authors to whom they are attributed.

ARGUELLES (1975):

APPENDIX A

The Development of the Holocene Era

According to the Four Ages

10,000 BC	*Key*	
GOLDEN AGE	*Symbol*	
Sat Yuga		
Undifferentiated		
Psychotechnical	FIRE	
Continuum		
4,800 years	. . . . .	(4) Hindu Time Ratio
5,200 BC		
SILVER AGE		
Dwaipara Yuga	SEED	
Art-As-Ritual		
3,600 years	. . . . .	(3)
1,600 BC		
BRONZE AGE		
Treta Yuga	SWORD	
Art-As-Craft-Whole		
2,400 years	. . . . .	(2)
800 AD		
IRON AGE		
Kali Yuga	MACHINE	
Art-As-Technique		
1,200 years	. . . . .	(1)
2,000 AD		

A Metatheoretical Framework for the Development of Art Education
Technology and Psychotechnology as Sociogenetic Factors

Cycle I	Holocene Era		Oral Society	Cycle II	Modern Era		Visual Society
Historical Period	Time Ratio	Technology Symbol	Psychotechnology Art Continuum	Historical Period	Time Ratio	Technology Symbol	Psychotechnology Art Continuum
Golden Age 10,000 B.C.	(4)	Fire	Undifferentiated Psychotechnological	Medieval 1050-1450 A.D.	(4)	Clock	Idiosyncratic Factors TIME
4800 Years			Continuum	Quaternity		Mechanics	Art-Alchemy Continuum
Silver Age 5,200 B.C.	(3)	Seed		Classical 1450-1750	(3)	Word	Cultural Factors THOUGHT
3600 Years			Art-as-Ritual	Trinity		Typography	Arts-Letters-Sciences Ritual
Bronze Age 1,600 B.C.	(2)	Sword		Modern 1750-1950	(2)	Picture	Universal Factors VISION
2400 Years			Art-as-Craft Whole	Duality		Photography	Art-Technology Craft Whole
Iron Age 800 A.D.	(1)	Machine		Contemporary 1950-2050	(1)	Number	Unique Factors MEANING
1200 Years			Art-as-Technique	Unity		Electronics	Art-Psychotechnology Whole
(Dark Ages 476-1100 A.D.		Primordial Light	Pre-Technological Continuum	(Electric Age 1880-1980		Inner Light	Post-Technological Continuum
(Middle Ages 1100-1450		Tribal	Consciousness	(Electronic Age 1950-1980		Global	Consciousness
Oral Society				Visual Society			
•				•			
•				•			
• Decline (c. 1450)			. . . Art Separate *	• Decline (c. 1950)			. . . Art Participate *

(2) ∧

(Miller, 1973) *

QUATERNARY STRUCTURE II: Psychotechnological Correlations (Merging Points of View . . .

Art Education in Canada

Electronic Age (1950-1980)

	Media Effects	**TIME**	**THOUGHT**	**VISION**	**MEANING**
	McLUHAN (1964):	Pepper (1942)	Stapleton (1976)Hopi)	Jung (1921)	D. Feldman (1974)Piaget)
I. **RESEARCH** (1950-1962) (4)	CLOCK (Time)	Mechanism	Introspection	Sensation	Idiosyncratic

Beittel, 1961 -
Normative Group Studies
1966 -
Formative Case Studies
Beittel, at Concordia, 1978

"Time for them (the Hopi Indians) is not a uniform succession or duration, but a pluralism of many kinds of things coexisting. . . . This, also, is the kind of time-sense held by the modern physicist and scientist. . . . In the same way, the painter, since Cézanne, has recovered the plastic image by which all the senses coexist in a unified pattern (137)."

II. **EDUCATION** (1962-1971) (3)	WORD (Thought)	Formism	Wisdom	Thought	Cultural

Bruner, 1960 -
Process of Education
1971 -
Process of Learning
In Aoki, at Concordia, 1978

"Psychically, the printed book (the first 'teaching machine'), an extension of the visual faculty, intensified perspective and the fixed point of view. . . . Socially, the typographic extension of man brought in nationalism, industrialism, mass markets, and universal literacy and education. For print presented an image of repeatable precision that inspired totally new forms of extending social energies (157). . . . *Electric speed requires organic structuring (303)."

III. **TECHNOLOGY** (1971-1977) (2)	PICTURE (Vision)	Contextualism	Innocence	Feeling	Universal

McLuhan, 1962 -
Mechanical Gutenberg Galaxy
1964 -
Electronic Global Village
McLuhan, at CSEA, 1974

"Photography, by carrying the pictorial delineation of natural objects much further than paint or language could do, had a reverse effect. By conferring a means of self-delineation of objects, of 'statement without syntax,' photography gave the impetus to a delineation of the inner world. Statement without syntax or verbalization was really statement by gesture, by mime, and by gestalt (180-81). . . . Thus art moved from outer matching to inner making (174)."

IV. **TRANSFORMATION** (1977-1980) (1)	NUMBER (Meaning)	Organicism	Illumination	Intuition	Unique

MacGregor, 1979 -
CSEA Specialist Development
1980 -
CSEA Generalist Forecasts
MacGregor, at CSEA, 1980

"Just as writing is an extension of our most neutral and objective sense, the sense of sight, number is an extension and separation of our most intimate and interrelating activity, our sense of touch. . . . The faculty of touch, called the 'haptic' sense by the Greeks, . . . offering a kind of nervous system or organic unity in the work of art, has obsessed the minds of artists since the time of Cézanne (105). . . . Indeed, the mathematical Leibniz saw in the mystic elegance of the binary system of Zero and 1 the image of Creation (111)."

*(Emphasis added)

A (3)

Mechanical Age	Aztec Calendar	Electric Age
Mumford, 1934	A.D. 843-2039	(1880-1980)
Eotechnic (Early)	CYCLES:	Neotechnic
843-1519	(13) 676 Years	1883-1987
"Dimming of Radiant Light"	Heaven I-XIII	Age of Illumination
Eotechnic (Late)	(4) 208 Years	
1519-1727		
"Diffused Glow"	Hell I-IV	
Paleotechnic	(3) 156 Years	
1727-1883		
"Settled Gloom"	Hell V-VII	
Neotechnic	(2) 104 Years	
1883-1987		
"Settled Gloom"	Hell VIII-IX	
Psychotechnic	(1) 52 Years	
1987-2039		
"Dream Light"	Heaven I	
The Great Return	The Great Wheel	

THE AGE OF ILLUMINATION

Psychotechnological Correlations

Arguelles (1975):

RESEARCH: Psychophysics, Fechner (1860-61); and Jung

"The immediate effect of psychophysics on nineteenth-century thought and culture was to shift the emphasis of research — scientific and artistic — from a consideration of reality as something external to the perceiver to a consideration of reality as represented by the sensations and perceptions of the perceiver. . . . (I)ts fundamental premises were adopted by certain quantum physicists and the Jungian school of psychology (146)."

EDUCATION: Psychological Types, Jung (1921); and Read

"Jung placed art in the context of psychobiology and psychobiology in the context of the eternal. But with the exception of a few artists and aestheticians like Henry Moore and the late Sir Herbert Read, most observers did not appreciate the creative, artistically transformative value of Jung's vision until they were plunged into greater awareness by the psychedelic revolution of the 1960's (223)."

TECHNOLOGY: Technics and Civilization, Mumford (1934); and McLuhan

"Aesthetic confusion (consequent to the breakdown of a collective spiritual tradition) is what makes art as a specialized notion possible; it is what happens when the psychotechnical balance has been greatly disturbed. Such a disturbance occurred at the end of the Middle Ages; Marshall McLuhan attributes it largely to the invention of the printing press, with its overemphasis on the visual mode, a theory corroborated by Castaneda (18)."

TRANSFORMATION: The Phenomenon of Man, Teilhard de Chardin (1959); and Jung

"Like the previous 'early warning' mandalas of Jung, the mandalas of the 1960's and 70's are unique; embodying the archaic form-principle of the centered wheel or sphere, they derive from no particular past culture but from the realization of the immediate evolutionary condition of consciousness. . . . (In their focus on the universality of the center, the Omega point) the reference to the visionary philosophy of Pierre Teilhard de Chardin is clear (281)."

APPENDIX I

Research

JUNG (1952): Forerunners of the Idea of Synchronicity

The causality principle asserts that the connection between cause and effect is a necessary one. The synchronicity principle asserts that the terms of a meaningful coincidence are connected by simultaneity and meaning. So if we assume that the ESP experiments and numerous other observations are established facts, we must conclude that besides the connection between cause and effect there is another factor in nature which expresses itself in the arrangement of events and appears to us as meaning. Although meaning is an anthropomorphic interpretation it nevertheless forms the indispensable criterion of synchronicity. What that factor which appears to us as "meaning" may be in itself we have no possibility of knowing. As an hypothesis, however, it is not quite so impossible as may appear at first sight. We must remember that the rationalistic attitude of the West is not the only possible one and is not all-embracing, but is in many ways a prejudice and a bias that ought perhaps to be corrected. The very much older civilization of the Chinese has always thought differently from us in this respect, and we have to go back to Heraclitus if we want to find something similar in our civilization, at least where philosophy is concerned. Only in astrology, alchemy, and the mantic procedures do we find no differences of principle between our attitude and the Chinese. That is why alchemy developed along parallel lines in East and West and why in both spheres it strove towards the same goal with more or less identical ideas (par. 916).

In Chinese philosophy one of the oldest and most central ideas is that of Tao, which the Jesuits translated as "God." But that is correct only for the Western way of thinking. Other translations, such as "Providence" and the like, are mere makeshifts. Richard Wilhelm brilliantly interprets it as "meaning." The concept of Tao pervades the whole philosophical thought of China. Causality occupies this paramount position with us, but it acquired its importance only in the course of the last two centuries, thanks to the levelling influence of the statistical method on the one hand and the unparalleled success of the natural sciences on the other, which brought the metaphysical view of the world into disrepute (par. 917).

Lao-tzu (the founder of Taoism) describes Tao as "Nothing," by which he means, says Wilhelm, only its "contrast with the world of reality." . . . "Nothing" is evidently "meaning" or "purpose," and it is only called Nothing because it does not appear in the world of the senses, but is only its organizer (pars. 919, 920).

Jung (1952) . . .

Reality, thinks Wilhelm, is conceptually knowable because according to the Chinese view there is in all things a latent "rationality." This is the basic idea underlying meaningful coincidence: it is possible because both sides have the same meaning. Where meaning prevails order results (par. 922).

Chuang-tzu (a contemporary of Plato's) says of the psychological premises on which Tao is based: "The state in which ego and non-ego are no longer opposed is called the pivot of Tao." It sounds almost like a criticism of our scientific view of the world when he remarks that "Tao is obscured when you fix your eye on little segments of existence only," or "Limitations are not originally grounded in the meaning of life. Originally words had no fixed meanings. . . ." If you have insight, says Chuang-tzu, "you use your inner eye, your inner ear, to pierce to the heart of things, and have no need of intellectual knowledge." This is obviously an allusion to the absolute knowledge of the unconscious, and to the presence in the microcosm of macrocosmic events (par. 923).

JUNG (1952): On Meaning and Connection

If — and it seems plausible — the meaningful coincidence or "cross-connection" of (synchronistic) events cannot be explained causally, then the connecting principle must lie in the <u>equal significance</u> of parallel events; in other words, their <u>tertium comparationis</u> is <u>meaning</u>. We are so accustomed to regard meaning as a psychic process or content that it never enters our heads to suppose that it could also exist outside the psyche. But we do know at least enough about the psyche not to attribute to it any magical power, and still less can we attribute any magical power to the conscious mind. If, therefore, we entertain the hypothesis that one and the same (transcendental) meaning might manifest itself simultaneously in the human psyche and in the arrangement of an external and independent event, we at once come into conflict with the conventional scientific and epistemological views. . . . The great difficulty is that we have absolutely no scientific means of proving the existence of an <u>objective</u> meaning which is not just a psychic product. We are, however, driven to some such assumption if we are not to regress to a <u>magical causality</u> and ascribe to the psyche a power that far exceeds its empirical range of action. . . . Nor does tradition help us much in choosing between magical causality and transcendental meaning, because on the one hand the primitive mentality has always explained synchronicity as magical causality right down to our present day, and on the other hand philosophy assumed a secret correspondence or meaningful connection between natural events until well into the eighteenth century. I prefer the latter hypothesis because it does not, like the first, conflict with the empirical concept of causality, and can count as a principle <u>sui generis</u> (par. 915).

JUNG (1952): On Acausal Orderedness

A causalistic explanation of synchronicity seems out of the question for the reasons given above. It consists essentially of "chance" equivalences. Their tertium comparationis rests on the psychoid factors I call archetypes. . . . Archetypal equivalences are contingent to causal determination, that is to say there exist between them and the causal processes no relations that conform to law. They seem, therefore, to represent a special instance of randomness or chance. . . . It is an initial state which . . . is the precondition of law, the chance substrate on which law is based. If we consider synchronicity or the archetype as the contingent, then the latter takes on the specific aspect of a modality that has the functional significance of a world-constituting factor. The archetype represents psychic probability, portraying ordinary instinctual events in the form of types. It is a special psychic instance of probability in general, which "is made up of the laws of chance and lays down rules for nature just as the laws of mechanics do." We must agree with Speiser (here quoted) that although in the realm of pure intellect the contingent is a "formless substance," it reveals itself to psychic introspection — so far as inward perception can grasp it at all — as an image, or rather a type which underlies not only the psychic equivalences but, remarkably enough, the psychophysical equivalences too (par. 964).

The meaningful coincidence or equivalence of a psychic and a physical state that have no causal relationship to one another means, in general terms, that it is a modality without a cause, an "acausal orderedness." The question now arises whether our definition of synchronicity with reference to the equivalence of psychic and physical processes is capable of expansion, or rather, requires expansion. This requirement seems to force itself on us when we consider the above, wider conception of synchronicity as an "acausal orderedness." Into this category come all "acts of creation," a priori factors such as the properties of natural numbers, the discontinuities of modern physics, etc. . . . I incline in fact to the view that synchronicity in the narrow sense is only a particular instance of general acausal orderedness — that, namely, of the equivalence of psychic and physical processes where the observer is in the fortunate position of being able to recognize the tertium comparationis. . . . In this way we also avoid multiplying our principles of explanation illegitimately, for the archetype is the introspectively recognizable form of a priori psychic orderedness. If an external synchronistic process now associates itself with it, it falls into the same basic pattern — in other words, it too is "ordered." This form of orderedness differs from that of the properties of natural numbers or the discontinuities of physics in that the latter have existed from eternity and occur regularly, whereas the forms of psychic orderedness are acts of creation in time. That, incidentally, is precisely why I have stressed the element of time as being characteristic of these phenomena and called them synchronistic (par. 965).

The Jungian Quaternities

Worldviews:	Extraverted/Introverted	The Acausal Connecting Principle
Technology (Symbol)	Typology Jung (1921):	Synchronicity Jung (1952):
CLOCK	Sensing Type (4)	Time-Space Continuum
Mechanism	Perception (Conscious)	"Just as the introduction of time as the fourth dimension in modern physics postulates an irrepresentable space-time continuum, so the idea of synchronicity with its inherent quality of meaning produces a picture of the world that is completely baffling (97)."
Introspection	Irrational	
	Factual/Experiential	
WORD	Thinking Type (3)	Triadic Thought
Formism	Conception	"The decision in favour of the triad (space, time, and causality) which in certain respects ran counter to the alchemical tradition, was followed by a scientific epoch that knew nothing of correspondence and clung with passionate insistence to a triadic view of the world. . . . It is difficult to divest conceptual language of its causalistic colouring (98-9)."
Wisdom	Rational	
	Factual/Ideational	
PICTURE	Feeling Type (2)	Meaningful Coincidence
Contextualism	Valuing	"Although meaningful coincidences are infinitely varied in their phenomenology, as acausal events they nevertheless form an element that is part of the scientific picture of the world. Causality is the way we explain the link between two successive events. Synchronicity designates the parallelism of time and meaning between psychic and psychophysical events, which scientific knowledge has so far been unable to reduce to a common principle (114-15)."
Innocence	Rational	
	Sensitive/Emotional	
NUMBER	Intuitive Type (1)	Meaning as Acausal Orderedness
Organicism	Perception (Unconscious)	"Remarkably enough, the psychic images of wholeness which are spontaneously produced by the unconscious, the symbols of the self in mandala form, also have a mathematical structure. They are as a rule quaternities (or their multiples). These structures not only express order, they also create it. . . . From this it follows irrefutably that the unconscious uses number as an ordering factor. . . . Accordingly it would seem that natural numbers have an archetypal character (41)."
Illumination	Irrational	
	Idiosyncratic/Visionary	

The Process of Individuation depends upon

ART	BALANCE	SCIENCE
Visual/Haptical	Rational/Irrational	Relativity/Synchronicity

JUNG:	Psychodynamic Process	Typology	*Symbology	Phases in the Process of Individuation
Creatio Continua	Psychic Life	Formative Organicism		Growth (Age) Creative Continuum
1) PSYCHE	Meaningful Orientation	SENSATION		CHILD (-10)
Structure	Self-Organizing System	(Irrational)	"Trickster"	Natural Phase *Universal
Imagination	Pattern-Seeking	*Mechanism		Psychophysical .... Imperatives
*Introspection	[Piagetian Stages (1-4)	- Didactic Organicism]		Education through Example
2) SYNCHRONICITY	Meaningful Connection	FEELING		YOUTH (15-35)
Principle	Self-Creation	(Rational)	"Hare"	Cultural Phase *Cultural
Felt Meaning	Pattern-Seeing	*Contextualism		Aesthetic .... Imperatives
*Innocence	[Piagetian Stage Advance	- Reductive Organicism]		Collective Education
3) TRANSFORMATION	Meaningful Adaptation	THOUGHT		ADULT (40-60)
Process	Self-Education	(Rational)	"Red Horn"	Personal Phase *Idiosyncratic
Felt Thought	*Systems Thinking	*Formism		Spiritual .... Imperatives
*Wisdom	[Universal (Mass) Education	- Rational Organicism]		Individual Education
4) INDIVIDUATION	Meaningful Integration	INTUITION		ELDER (65-)
Process	Self-Transcendence	(Irrational)	"Twins"	Transpersonal *Unique
Insight	*Unitary Operational Thought	*Organicism		Metaphysical .... Imperatives
*Illumination	[Aesthetic (Art) Education	- Progressive Organicism]		Self-Education
Wholeness	*Meaning in Life (Tao)	Transformative Organicism		Visionary Mode Cosmic Consciousness

*Hopi Worldviews (in Stapleton, 1976): Complexity in the experiencing of meaning.

*Koplowitz, H. (in Ferguson, 1980): Two higher levels of Piagetian stage advance.

*Pepper, S. (1942): Worldviews of the West.

*Henderson, J.L. (in Jung, 1964): Hero cycles of the Winnebago tribe.

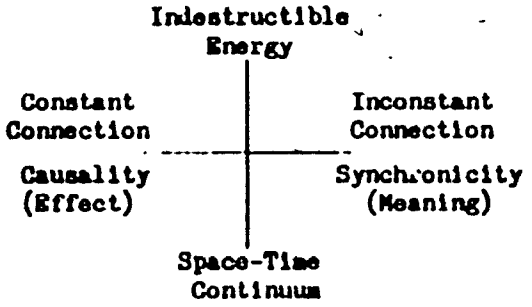
*Feldman, D. (in Rosner & Abt, 1974): Conditioning factors in Piagetian stage advance.

(3) 4-13

Jung (1973): The Unconscious Matrix

Number helps more than anything else to bring order into the chaos of appearances. It is the predestined instrument for creating order, or for apprehending an already existing, but still unknown, regular arrangement or "orderedness." It may well be the most primitive element of order in the human mind, seeing that the numbers 1 to 4 occur with the greatest frequency and have the widest incidence. In other words primitive patterns of order are mostly triads or tetrads. That numbers have an archetypal foundation is not, by the way, a conjecture of mine but of certain mathematicians. . . . Hence it is not such an audacious conclusion after all if we define number psychologically as an archetype of order which has become conscious. Remarkably enough, the psychic images of wholeness which are spontaneously produced by the unconscious . . . are as a rule quaternities (40).

The modern discovery of discontinuity (e.g., the orderedness of energy quanta, of radium decay, etc.) has put an end to the sovereign rule of causality and thus to the triad of principles (101). . . . Space, time, and causality, the triad of classical physics, would then be supplemented by the synchronicity factor and become a tetrad, a quaternio which makes possible a whole judgment (96). . . . The problem that runs like a red thread through the speculations of alchemists for fifteen hundred years thus repeats and solves itself: "Out of the Third comes the One as the Fourth (97)."



Jung-Pauli Quaternio D1

(1952)

Burnham (1973): The Structural Matrix

So far it has been hypothesized that all art is based on a quaternary structure where two terms are analogously equal to two other terms. . . . We might call this the matrix of logic modes controlling the making of art. Twenty years ago the Bourbaki mathematicians (under Klein) developed a group of theorems pertaining to the algebra of sets. . . . The universality of Klein Group mathematics leads one to suspect that the human brain possesses an innate faculty for partitioning meaningful relations into groups of four. . . . Klein Groups are four-part structures: an identity transformation plus three permutative transformations (56).

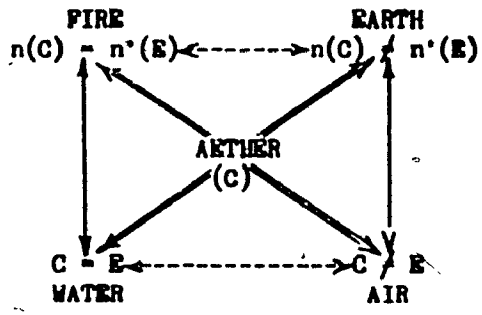
Given the semiotic equation $n(C) = n'(E)$, there is its opposite $n(C) \neq n'(E)$; there is also the omission of coefficients, $C = E$, and finally the product of these two operations, $C \neq E$. In the following analyses we have substituted the alchemical agents for the equations and the structure they represent. There is reasonable evidence for this alignment in the alchemical literature (57).

——→ means "taking the opposite of the coefficients"

-----→ means "taking the opposite of the joining sign"

⟶ means "taking the product of the above two operations"

(Cultural) Permitted Relations — Unacceptable Relations (Natural)



Burnham-Klein Quaternio D2

(1971)

A I (4)

APPENDIX II

Education

JUNG (CW. 17, 1954): "The Development of Personality"

Nowadays, "personality training" has become an educational ideal that turns its back upon the standardized, mass-produced, "normal" human being demanded by the machine age. . . . The yearning for personality has therefore become a real problem that occupies many minds today, whereas in former times there was only one man who had a glimmering of this question — Friedrich Schiller, whose letters on aesthetic education have lain dormant, like a Sleeping Beauty of literature, for more than a century. We may confidently assert that the "Holy Roman Empire of the German Nation" has not taken much notice of Schiller as an educator. On the other hand, the furor teutonicus has hurled itself upon pedagogics (in the strict sense of the education of children), delved into child psychology, ferreted out the infantilism of the adult, and made of childhood such a portentous condition of life and human fate that it completely overshadows the creative meaning and potentialities of adult existence. Our age has been extravagantly praised as the "century of the child." This boundless expansion of the kindergarten amounts to complete forgetfulness of the problems of adult education divined by the genius of Schiller. Nobody will deny or underestimate the importance of childhood; the severe and often life-long injuries caused by stupid upbringing at home or in school are too obvious, and the need for more reasonable pedagogic methods is far too urgent. But if this evil is to be attacked at the root, one must in all seriousness face the question of how such idiotic and bigoted methods of education ever came to be employed, and still are employed. Obviously, for the sole reason that there are half-baked educators who are not human beings at all, but walking personifications of method. Anyone who wants to educate must himself be educated. But the parrot-like book-learning and mechanical use of methods that is still practised today is no education either for the child or for the educator (par. 284).

It is presumed that the youthful persons who have picked on education as a career are themselves educated; but nobody, I daresay, will venture to assert that they are all "personalities" as well. By and large, they suffer from the same defective education as the hapless children they are supposed to instruct, and as a rule are as little "personalities" as their charges. Our whole educational problem suffers from a one-sided approach to the child who is to be educated, and

Jung (1954) . . .

from an equally one-sided lack of emphasis on the uneducatedness of the educator. Everyone who has finished his course of studies feels himself to be fully educated; in a word, he feels grown up. He must feel this, he must have this solid conviction of his own competence in order to survive the struggle for existence. . . . The professional man is irretrievably condemned to be competent (par. 284).

Everyone knows that these conditions are not ideal. But, with reservations, we can say that they are the best possible under the circumstances. We cannot imagine how they could be different. We cannot expect more from the average educator than from the average parent. If he is good at his job, we have to be content with that, just as we have to be content with parents bringing up their children as best they can (par. 285).

The fact is that the high ideal of educating the personality is not for children: for what is usually meant by personality — a well-rounded psychic whole that is capable of resistance and abounding in energy — is an <u>adult ideal</u>. It is only in an age like ours, when the individual is unconscious of the problems of adult life, or — what is worse — when he consciously shirks them, that people could wish to foist this ideal on to childhood (par. 286).

No one can train the personality unless he has it himself. And it is not the child, but only the adult, who can achieve personality as the fruit of a full life directed toward this end. The achievement of personality means nothing less than the optimum development of the whole individual human being. It is impossible to foresee the endless variety of conditions that have to be fulfilled. A whole lifetime, in all its biological, social, and spiritual aspects, is needed. Personality is the supreme realization of the innate idiosyncrasy of a living being. It is an act of high courage flung in the face of life (par. 289).

What is it, in the end, that induces a man to go his own way and to rise out of unconscious identity with the mass as out of a swathing mist? Not necessity, for necessity comes to many, and they all take refuge in convention. Not moral decision, for nine times out of ten we decide for convention likewise. What is it, then, that inexorably tips the scales in favour of the <u>extraordinary</u> (par. 299)?

It is what is commonly called <u>vocation</u>: an irrational factor that destines a man to emancipate himself from the herd and from its well-worn paths. . . . The fact that many a man who goes his own way ends in ruin means nothing to one who has a vocation. He <u>must</u> obey his own law, as if it were a daemon whispering to him of new and wonderful paths (par. 300).

Creative life always stands outside convention (par. 305).

READ (1958): On Aesthetic Education

The thesis which is put forward in this book is not original. It was very explicitly formulated by Plato many centuries ago. . . . It is surely one of the curiosities of the history of philosophy that one of the most cherished notions of this great man has never been taken seriously by any of his followers, Schiller alone being an exception.

The thesis is: that art should be the basis of education (1).

It must be understood from the beginning that what I have in mind is not merely 'art education' as such, which should more properly be called visual or plastic education: the theory to be put forward embraces all modes of self-expression, literary and poetic (verbal) no less than musical or aural, and forms an integral approach to reality which should be called aesthetic education — the education of those senses upon which consciousness, and ultimately the intelligence and judgment of the human individual, are based. It is only in so far as these senses are brought into harmonious and habitual relationship with the external world that an integrated personality is built up (7).

The integral education which I conceive is relatively indifferent to the fate of individual subjects, since its underlying assumption is that the purpose of education is to develop generic qualities of insight and sensibility, which qualities are fundamental even in mathematics and geography (221).

MASLOW (1971): On Education through Art

My feeling is that the concept of creativeness and the concept of the healthy, self-actualizing, fully human person seem to be coming closer and closer together, and may perhaps turn out to be the same thing (55).

Another conclusion that I seem to be impelled toward, even though I am not quite sure of my facts, is that creative art education, or better said, Education-Through-Art, may be especially important not so much for turning out artists or art products, as for turning out better people. . . . So I am thinking of education through art not so much because it turns out pictures but because I think it may be possible that, clearly understood, it may become the paradigm for all other education. That is, instead of being regarded as the frill, the expendable kind of thing which it now is, if we take it seriously enough and work at it hard enough and if it turns out to be what some of us suspect it can be, then we may one day teach arithmetic and reading and writing on this paradigm. So far as I am concerned, I am talking about all education. This is why I am interested in education through art — simply because it seems to be good education in potential (55-6).

Mathematics can be just as beautiful, just as peak-producing as music (e.g.). . . . I had no glimpse of mathematics as a study in aesthetics until I was thirty years old, until I read some books on the subject (171).

Toward Aesthetic Education in Canada

Art Education History (Logan, 1976)

(4) Progressive Education

Logan (1955) finds it significant that early gains, influenced by the theory of Dewey and the Gestalt psychologists, are most apparent at the elementary level: "Only very young artists are almost unaware of social pressures in their work." Logan (1965/1976) emphasizes that it is the creative element in the teaching which allows the fundamental principles of such theory to "work," whatever the age-group. (Examples of "creative teaching," at various levels, are described to support this point).

(3) Creative Education

According to Logan (1976), it took five years to dispel the notion, based on exaggerated interpretations of Lowenfeld's theory, that the power to stimulate creativity in the minds of students was something unique to art: "In retrospect, it seems almost incredible that so many people wrote so many busy, busy articles about creativity in those terms. It was a popular myth for art education at that time."

(2) Perceptual Aesthetics

Logan attributes the accelerated interest in perceptivity to Gestalt psychologists, such as Arnheim, and to one of his students, June McFee; in turn, to the circulation of her students and the publication of her book on the subject. Thus, the link between perceptivity and creativity was finally made. Of the delayed correlation with perceptivity, Logan explains, simply, that no one had previously "gotten around to that particular element to any great extent."

(1) Phenomenological Aesthetics

Logan traces the phenomenological aesthetics of Madenfort, Tsugawa, and Flannery to the humanistic-environmental aesthetics of Barkan, Feldman, and Eisner. Logan's concern here is that the phenomenological scholars' way of writing presents art teachers, faced with some thirty students at a time, with an extremely difficult task of translation: "how they are going to persuade all these little rummies that life is aesthetic and beautiful, in terms such as Madenfort puts down in the journal; I'm not so sure about that."

History of the CSEA (MacGregor, 1979)

Education through Art

(1952) Gaitskell gains adoption of Read's philosophy for the CSEA

(1955) First National Assembly

Lismer Inaugural Address: "So Little for the Soul"

(Cf: "So Little for the Mind" Neatby's published criticism of Progressive Education)

Creativity v. Copying

(1958) Lowenfeld Address: Traits of Creative Behavior Visual and Haptical Types (Edict against Coloring Books)

(1958) Assembly Commissions: Proposed study for improved art teacher training facilities; the concept of the artist-teacher (Antidote to "School Arts")

Universality of Art (Gestalt Principle)

(1961) Schaeffer-Simmern Address: Perceptual Development of Child

(1962) McFee Address: Alternatives for the Child

(1963) Read Address: Universality of Child Art

(1969) Gaitskell Address: The Child's Perception

Humanistic Aesthetics

(1962) Maslow Address: Art as Self-Actualization

(1967) Black recommends adoption of Carl Rogers' philosophy of Self-Determination, for CSEA

(1971) Taylor Address: Humanistic Principles and Transformation in the Arts

Art Education in the 1980's

(1980) MacGregor Presentation

Art Education	Aesthetic Education Theory		Development of Personality		Education Theory
Creative Process	Read-Jung Typology		Great Individuals	Individuation Process	Learning Process
Progressive	Extraverted - Introverted		Formative Organicism (Pattern-Seeking)		Progressive
1) Child Art (Natural)	Expressionism	(4)	Child Artist	Infantile Psyche	1) Child Studies
Creative Imperatives	SENSATION		Creative Imagination	Education by Example	Developmental Approach
Lowenfeld (Visual/Haptic Types)	Empathic - Haptic		Self-Expression (Autographic)	Universal Factors (Psychogenetic)	Dewey (Qualitative Thought)
2) Youth Art (Perceptual)	Superrealism	(3)	Youthful Artist	Developing Psyche	2) Program Studies
Aesthetic Imperatives	FEELING		Felt Meaning	Collective Education	Structural Approach
Ehrenzweig (Unconscious Matrix)	Decorative - Imaginative		Self-Creation (Iconographic)	Cultural Factors (Sociogenetic)	Bruner (Intuitive Thinking)
3) Adult Art (Modernist)	Realism	(2)	Mature Artist	Adult Psyche	3) Humanistic Studies
Humanistic Imperatives	THOUGHT		Felt Thought	Individual Education	Personal Approach
Maslow (Self-Actualization)	Enumerative - Organic		Self-Knowledge (Iconoclastic)	Idiosyncratic Factors (Mythogenetic)	Feldman (Perceptual Thinking)
4) Elder Art (Academic)	Constructivism	(1)	Visionary Artist	Mature Psyche	4) Heuristic Studies
Therapeutic Imperatives	* INTUITION		Creative Insight	Self-Education	* Transpersonal Approach
Jung (Creative Transformation)	Rhythmic Pattern - Formal Structure		Self-Transcendence (Transpersonalistic)	Unique Factors (Psychosynthetic)	Ferguson (Originating Thought)
			Transformative Organicism (Pattern-Seeing)		

* Aesthetic Education Potential
Read (1943)

Universal Aesthetic Education

* Universal Education Potential
Ferguson (1980)

Psychological	Read-Jung Typology (1943)	- Alchemy -	Burnham-Klein Topology (1973)	Mathematical
Sets	Extraverted - Introverted		Expression (E) ⟷ (C) Content	Sets
	SENSATION	(1)	EARTH ⟶ FIRE ⟶ AIR	
	Empathic - Haptic		Natural Mechanism	
Sensational (Qualities) Rubens Rembrandt Renaissance Arch.	Expressionism	Expressionist German Art Grunewald El Greco Soutine	Introspection ⟶ Much of Surrealism, Dadaism, Conceptual, Ecological Art of the 20th century	Environmental Art Flavin Judd Morris Andre
	FEELING	(2)	WATER ⟶ FIRE ⟶ EARTH	
	Decorative - Imaginative		Cultural Contextualism	
Objet Trouvé Dada Primitive (Mystique) Feminine	Superrealism	Automatism Pollock Blake Redon Gothic Arch.	Innocence ⟶ Figurative Avant-Garde Art of the 19th and 20th centuries	Abstract Expressionism Gestural Pollock de Kooning Kline
	THOUGHT	(3)	AIR ⟶ EARTH ⟶ FIRE	
	Enumerative - Organic		Profane Formism	
Naturalism (Photographic) Aesthetic Standard Western Art	Realism	Impressionism Constable, Delacroix Caravaggio, Tiepolo Chinese Painting Cave Paintings	Wisdom ⟶ All Nonobjective Art — Suprematism, Constructivism, Color Field, Op, Process Art	Abstract Expressionism Chromatic Seurat Albers Riley
	INTUITION	(4)	FIRE ⟶ EARTH ⟶ WATER	
	Rhythmic Pattern - Formal Structure		Sacred Organicism	
(Objective) Cubism Léger Functional Arch. Pottery P. d. Francesca	Constructivism	Cubism (Subjective) Picasso Nonobjective Art 'Pure' Abstraction Music	Illumination ⟶ Some Surrealism, Dadaism, Pop; Hermetic and Religious Art — medieval and modern	Hermetic Art Gauguin Klee Haacke Segal
	MANDALA (Center)	[See A II(5)]	AETHER (Zero)	Duchamp Ready-Mades

A II (F)

Read-Jung Typology (1943)

Extraverted - Introverted

SENSATION (1)

Empathic - Haptic

Expressionism (1) + (4) / (3)

FEELING (2)

Decorative - Imaginative

Superrealism (2) / (4) + (1)

THOUGHT (3)

Enumerative - Organic

Realism (3) / (1) + (4)

INTUITION (4)

Rhythmic Pattern - Formal Structure

Constructivism (4) + (1) / (2)

Center (C) ⟵ MANDALA

The Quaternity

thought (3)

(1) sensation — intuition (4)

(2) feeling

D3

Alchemical Equation

Balance

Rational / Irrational (2) + (3) / (1) + (4) = (C)

Burnham-Klein Topology (1973)

Expression (E) ⟷ (C) Content

EARTH ---> FIRE ⟶ AIR

Natural — Mechanism

Introspection (West) n(C) ≠ n'(E)

WATER ⟶ FIRE ---> EARTH

Cultural — Contextualism

Innocence (South) C = E

AIR ⟶ EARTH ---> FIRE

Profane — Formism

Wisdom (North) C ≠ E

FIRE ---> EARTH ⟶ WATER

Sacred — Organicism

Illumination (East) n(C) = n'(E)

AETHER ---> (C) Content

Art Degree Zero

air (N)

(W) earth — fire (E)

(S) water

[Cf: A IV (7) Fire]

D4 (Adaptation of D2)

Student Drawing Serials (Secondary Level 5)

Starting Points -	Series of Transformations*	Cf.: Synectics Method**
1. familiar (simple) imagery (e.g.) student's own initials	- familiar medium/technique unfamiliar instruction to de-familiarize images through increased complexity	1. Personal Analogy - Depersonalized
2. familiar (complex) imagery (e.g.) clump of weeds (student-found)	- familiar medium/technique unfamiliar instruction to re-familiarize images through decreased complexity	2. Direct Analogy - Redirected
3. unfamiliar (simple) imagery (e.g.) string-drawn ink blot (student-made)	- familiar medium unfamiliar technique to familiarize images through suggestively complex development (See Fig. 3)	3. Fantasy Analogy - Empathized
4. familiar (complex) imagery (e.g.) photo-detail drawing (student-selected)	- familiar medium unfamiliar technique to re-familiarize images through selectively complex development	4. Symbolic Analogy - Realized

Cf.: Ehrenzweig (1967): Teaching Principle — "every student deserves to be treated as a potential genius (122)"

Gordon (1961): Synectics Principle — "making the familiar strange and making the strange familiar (35)"

*See, also, Appendix A III (8)

**Four mechanisms of metaphor, above

Cf.: Jung (1971):

Two Modes of Artistic Creation: Psychological and Visionary Art

A. The psychological (i.e., personalistic) mode works with materials drawn from man's conscious life . . . . raised from the commonplace to the level of poetic experience, and expressed with a power of conviction that gives us a greater depth of human insight by making us vividly aware of those everyday happenings which we tend to evade or to overlook because we perceive them only dully or with a feeling of discomfort. . . . There is no work left for the psychologist to do (89).

B. (In the visionary, or transpersonalistic, mode of artistic creation) everything is reversed. The experience that furnishes the material for artistic expression is no longer familiar. It is something strange that derives its existence from the hinterland of man's mind. . . . This disturbing spectacle (glamorous, daemonic, and grotesque) of some tremendous process that in every way transcends our human feeling and understanding makes quite other demands upon the powers of the artist than do the experiences of the foreground of life. These never rend the curtain that veils the cosmos. . . . But the primordial experiences rend from top to bottom the curtain upon which is painted the picture of an ordered world, and allow a glimpse into the unfathomable abyss of the unborn and of things yet to be (90).

APPENDIX III

Technology

JUNG (1947): Active Imagination (as Psychotechnology)

We have stated that the lower reaches of the psyche begin where the function emancipates itself from the compulsive force of instinct and becomes amenable to the will, and we have defined the will as disposable energy. But that, as said, presupposes a disposing subject, capable of judgment and endowed with consciousness (par. 397).

In view of the structure of the body, it would be astonishing if the psyche were the only biological phenomenon not to show clear traces of its evolutionary history, and it is altogether probable that these marks are closely connected with the instinctual base. Instinct and the archaic mode meet in the biological conception of the "pattern of behaviour." There are, in fact, no amorphous instincts, as every instinct bears in itself the pattern of its situation. Always it fulfills an image, and the image has fixed qualities. . . . We may say that the image represents the meaning of the instinct (par. 398).

Although the existence of an instinctual pattern in human biology is probable, it seems very difficult to prove the existence of distinct types empirically. For the organ with which we might apprehend them — consciousness — is not only a transformation of the original instinctual image, but also its transformer. It is therefore not surprising that the human mind finds it impossible to specify precise types for man similar to those we know in the animal kingdom. I must confess that I can see no direct way to solve this problem. And yet I have succeeded, or so I believe, in finding at least an indirect way of approach to the instinctual image (par. 399).

In what follows I would like to give a brief description of how this discovery took place. I had often observed patients whose dreams pointed to a rich store of fantasy-material. Equally, from the patients themselves, I got the impression that they were stuffed full of fantasies, without their being able to tell me just where the inner pressure lay. I therefore took up a dream-image or an association of the patient's, and, with this as a point of departure, set him the task of elaborating or developing his theme by giving free rein to his fantasy. This, according to individual taste and talent, could be done in any number of ways, dramatic, dialectic, visual, acoustic, or in the form of dancing, painting, drawing, or modelling. The result of this technique was a vast

Jung (1947) . . .

number of complicated designs whose diversity puzzled me for years, until I was able to recognize that in this method I was witnessing the spontaneous manifestation of an unconscious process which was merely assisted by the technical ability of the patient, and to which I later gave the name "individuation process." But, long before this recognition dawned upon me, I had made the discovery that this method often diminished, to a considerable degree, the frequency and intensity of the dreams, thus reducing the inexplicable pressure exerted by the unconscious. In many cases, this brought a large measure of therapeutic success, which encouraged both myself and the patient to press forward despite the baffling nature of the results (par. 400).

The chaotic assortment of images that at first confronted me reduced itself in the course of the work to certain well-defined themes and formal elements, which repeated themselves in identical or analogous form with the most varied individuals. I mention, as the most salient characteristics, chaotic multiplicity and order; duality; the opposition of light and dark, upper and lower, right and left; the union of opposites in a third; the quaternity (square, cross); rotation (circle, sphere); and finally the centering process and a radial arrangement that usually followed some quaternary system. . . . The centering process is, in my experience, the never-to-be-surpassed climax of the whole development, and is characterized as such by the fact that it brings with it the greatest possible therapeutic effect. The typical features listed above go to the limits of abstraction, yet at the same time they are the simplest expressions of the formative principles here at work. In actual reality, the patterns are infinitely more variegated and far more concrete than this would suggest. Their variety defies description (par. 401).

These experiences and reflections lead me to believe that there are certain collective unconscious conditions which act as regulators and stimulators of creative fantasy-activity and call forth corresponding formations by availing themselves of the existing conscious material. They behave exactly like the motive forces of dreams, for which reason active imagination, as I have called this method, to some extent takes the place of dreams. The existence of these unconscious regulators — I sometimes refer to them as "dominants" because of their mode of functioning — seemed to me so important that I based upon it my hypothesis of an impersonal collective unconscious. The most remarkable thing about this method, I felt, was that it did not involve a reductio in primam figuram, but rather a synthesis — supported by an attitude voluntarily adopted, though for the rest wholly natural — of passive conscious material and unconscious influences, hence a kind of spontaneous amplification of the archetypes. The images . . . make their appearance only in the course of amplification (par. 403).

JUNG (1921): The Indirect Approach

The unconscious functions likewise group themselves in patterns correlated with the conscious ones. Thus, the correlative of conscious, practical thinking may be an unconscious, intuitive-feeling attitude, with feeling under a stronger inhibition than intuition. These peculiarities are of interest only for one who is concerned with the practical treatment of such cases, but it is important that he should know about them. I have frequently observed how an analyst, confronted with a terrific thinking type, for instance, will do his utmost to develop the feeling function directly out of the unconscious. Such an attempt is foredoomed to failure, because it involves too great a violation of the conscious standpoint. . . . But the approach to the unconscious and to the most repressed function is disclosed, as it were, of its own accord, and with adequate protection of the conscious standpoint, when the way of development proceeds via the auxiliary function — in the case of a rational type via one of the irrational functions (par. 670).

ARGUELLES (1975): Art as Internal Technology

Once he is attuned to the psychological and spiritual nature of the world crisis, the internal technologist must first seek to transcend the ceaseless intellectual thinking principle upon which material progress depends. Because the practice of seeing through thought is fundamental to all experience of a cosmic nature, the mandala and other primary geometrical forms have persisted throughout human culture. Transcending the grip of intellectualization, rationalization, or conceptualization, one will almost certainly experience the mandalic nature of the primordial. Second, in whatever form the sacred is experienced there must be a complete identification of self with the object of experience. At its most primary level, art is not a thing done but a dissolution of the ego; nor is anything "created." Whereas the materialistic view is that creation is an addition to reality, from the point of view of internal technology, creation is actually a dissolution of duality and a merging into a unitive state, producing a transformation of reality (284).

The rediscovery of Tantra art by the technological world and its subsequent popularity are further signs that the circle is completing itself. In Tantra, as in certain American Indian rituals, art is not a specialized profession or a particular style but a path to a greater self-realization open to anyone willing to cast aside the mind-forged manacles of man. Of course, to choose this path requires the reversal of all historical and logical processes. The extent to which individuals are capable of undergoing this initial transformation is the extent to which a new world view is being brought forth (284).

Toward an Understanding of Media in Canada

The Electric Age (McLuhan, 1964):

(4) The TV Image: The Sensuous Revolution

"It is not hard to explain this sensuous revolution to painters and sculptors, for they have been striving, ever since Cézanne, . . . to bring about the change that TV has now effected on a fantastic scale. TV is the Bauhaus program of design and living, or the Montessori educational strategy, given total technological extension and commercial sponsorship (280)."

(3) Gutenberg 1: Revolution in Expression (161)

"Literate man is not only numb and vague in the presence of film or photo, but he intensifies his ineptness by a defensive arrogance and condescension to 'pop kulch' and 'mass entertainment.' It was in this spirit of bulldog opacity that the scholastic philosophers failed to meet the challenge of the printed book (175). . . . the favorite stance of literary man has long been 'to view with alarm' or 'to point with pride,' while scrupulously ignoring what's going on (179)."

(2) Art as Anti-Environment: Civil Defense (267)

"Each new technology creates an environment that is itself regarded as corrupt and degrading. Yet the new one turns its predecessor into an art form. . . . (T)he industrial age turned the Renaissance into an art form as seen in the work of Jacob Burckhardt. Siegfried Giedion, in turn, has in the electric age taught us how to see the entire process of mechanization as an art process. . . . Art as anti-environment (i.e., civil defense against media fallout) becomes more than ever a means of training perception and judgment (ix)."

(1) Gutenberg 2: Self-Defense (Our Cooling System)

"For many people, this cooling system brings on a life-long state of psychic rigor mortis . . . particularly observable in periods of new technology (37). . . . Those who panic now about the newer media and about the revolution we are forging, vaster in scope than that of Gutenberg, are obviously lacking in cool detachment and gratitude for that most potent gift bestowed on Western man: his power to act without reaction. . . . Print taught men to say, 'Damn the torpedoes. Full steam ahead!' (162)."

Cf: "Gutenberg 2: Communication Revolution" -

History of the CSEA (MacGregor, 1979)

A New Image of Art Education in Canada

(1955) Martin Address:
Film and TV in Art Education

Jaques Address:
Environment and Expression

(1958) Assembly Commissions: Urged artist-teacher training school modelled after the Bauhaus.

Aesthetic Education 1

(1958) Lowenfeld Address:
Traits of Creative Behavior

Inspired a "watchdog attitude" against coloring book practices in art education.

(1959) Assembly Commissions: On art history, for primary and secondary grades; led by J. R. Ostiguy, of the National Gallery.

Environmental Aesthetics

(1961) Gaitskell Address:
Visual Corruption and Urban Blight

Assembly Commissions:
Stressed the need for public awareness of the role of art in environmental design.

(1967) Preusser Address:
Mutual Design Benefits of an Art-Technology Partnership.

Aesthetic Education 2: Cooling . . .

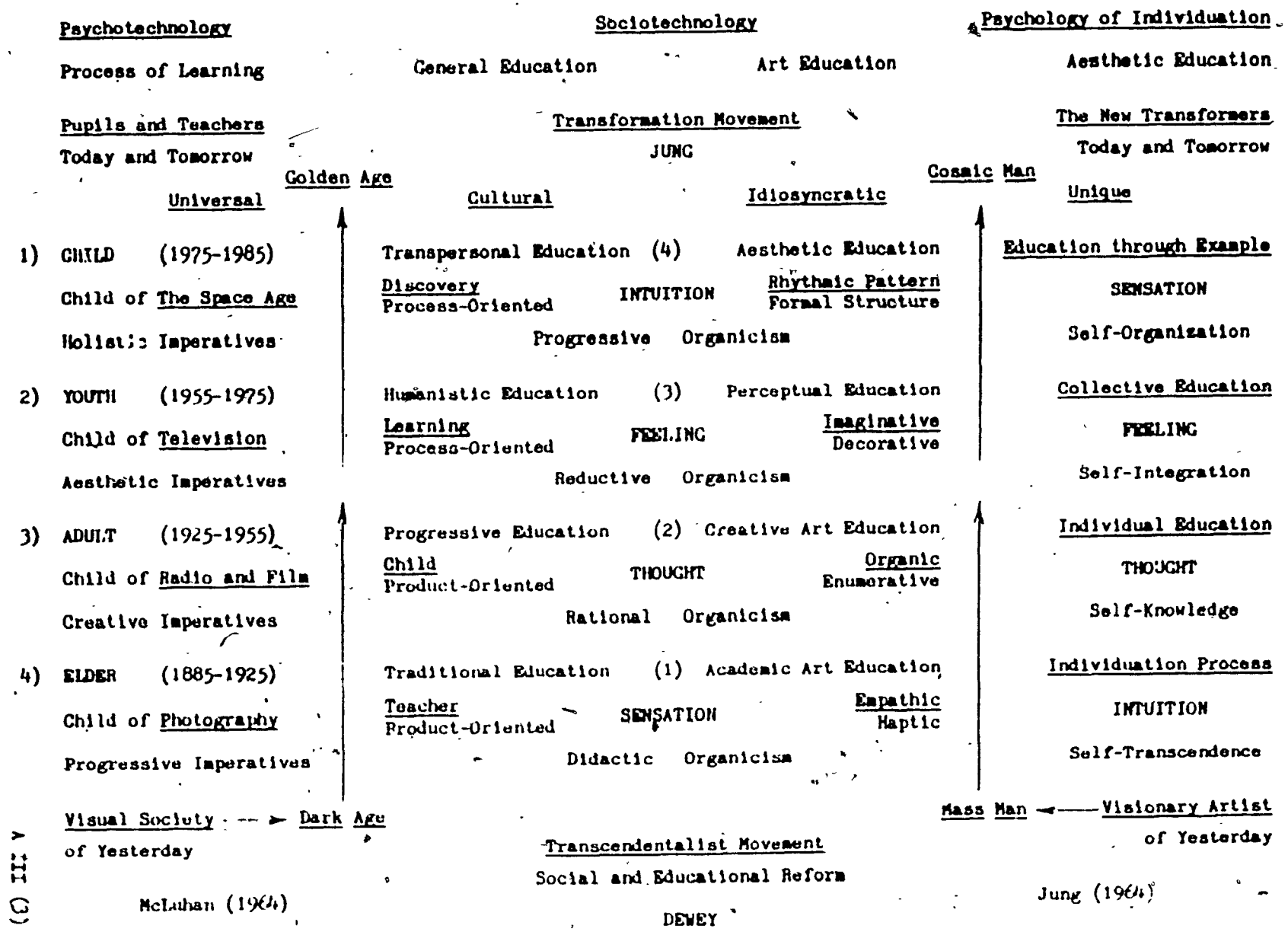
The Image in Art Education in Canada

(1971) Culkin Address
(A "quiet alternative" to McLuhan)

(1973) Fuller Address
(A fascinating alternative)

(1974) McLuhan Address
(A predictable reaction to his disquieting message)

(1980) Godfrey Address


Psychotechnology
Process of Learning
Pupils and Teachers
Today and Tomorrow
Universal
1) CHILD (1975-1985)
Child of The Space Age
Holistic Imperatives
2) YOUTH (1955-1975)
Child of Television
Aesthetic Imperatives
3) ADULT (1925-1955)
Child of Radio and Film
Creative Imperatives
4) ELDER (1885-1925)
Child of Photography
Progressive Imperatives
Visual Society of Yesterday
McLuhan (1964)
Golden Age
Dark Age
Sociotechnology
General Education
Art Education
Transformation Movement
JUNG
Cultural
Transpersonal Education (4) Aesthetic Education
Discovery Process-Oriented
INTUITION
Rhythmic Pattern Formal Structure
Progressive Organicism
Humanistic Education (3) Perceptual Education
Learning Process-Oriented
FEELING
Imaginative Decorative
Reductive Organicism
Progressive Education (2) Creative Art Education
Child Product-Oriented
THOUGHT
Organic Enumerative
Rational Organicism
Traditional Education (1) Academic Art Education
Teacher Product-Oriented
SENSATION
Empathic Haptic
Didactic Organicism
Transcendentalist Movement
Social and Educational Reform
DEWEY
Psychology of Individuation
Aesthetic Education
The New Transformers
Today and Tomorrow
Cosmic Man
Unique
Education through Example (1
SENSATION
Self-Organization
Collective Education (2
FEELING
Self-Integration
Individual Education (3
THOUGHT
Self-Knowledge
Individuation Process (4
INTUITION
Self-Transcendence
Mass Man
Visionary Artist of Yesterday
Jung (1964)

(C) III A

Electric Age
(1880-1980)

VISUAL Perception

Art Education Theory

(4) Progressive Education
Qualitative Thought
(Dewey)

(3) Creative Education
Creative Thinking
(Lowenfeld)

(2) Visual Education
Visual Thinking
(Arnheim)

(1) Aesthetic Education
Originating Thought
(Read)

The EXTERNAL TECHNOLOGY:

Aesthetic Education I
(Read - Jung Typology)

Extraverted - Introverted

(4) Sensing
Empathic - Haptic

(3) Thinking
Enumerative - Organic

(2) Feeling
Decorative - Imaginative

(1) Intuiting
Rhythmic - Formal
Pattern Structure

Container Concepts in Art Education Theory and Practice
Formative Aspects of the Creative Process (in Research)

Multiplicative	**World View**	**Correlations**
Causal Connections		Stapleton (1976):
	(Pepper) (Jung)	(Hopi)
(4) Mechanism	Sensation	Introspection
Normative Analytic	**Conditioned**	(West)
(3) Formism	Thought	Wisdom
Normative Analytic	**Consensual**	(North)
(2) Contextualism	Feeling	Innocence
Formative Synthetic	**Reductive**	(South)
(1) Organicism	Intuition	Illumination
Formative Synthetic	**Mediated**	(East)

Synthetic .... Wholeness of Experience ..... **The Great Wheel**

Electronic Age
(1950-1980)

HAPTIC Perception

Art Education Metatheory

Phenomenological Aesthetics

Felt Meaning in Aesthetics
(Hadenfort)

The INTERNAL TECHNOLOGY:

Aesthetic Education II
*(Gendlin - Castaneda)

Meaning and **Knowing**

Experiencing

Felt Meaning in Cognition
(Gendlin)

Process Concepts in the History of Human Expression
Transformative Aspects of the Creative Process (in History)

Unitive	**World View**	**Correlations**
Acausal Connections		Arguelles (1975):
	(Jung)	(Yeats)

Synesthetic ... Psychophysical Continuum .... **The Great Return**

Integration

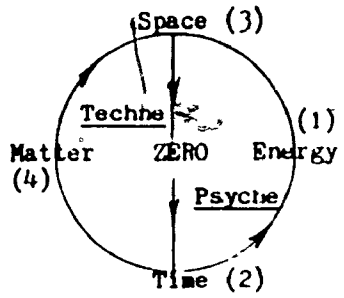
(Techne) External - Internal (Psyche)

*[See Appendix A IV (4)]

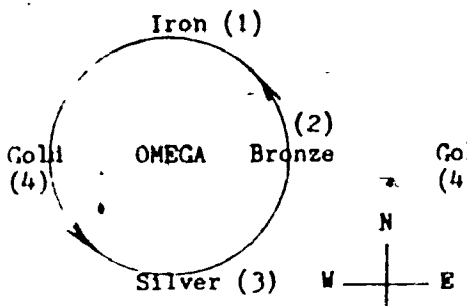
A III (4)

QUATERNARY STRUCTURE I: Technological and Cosmological Correlations (Archaic . . .

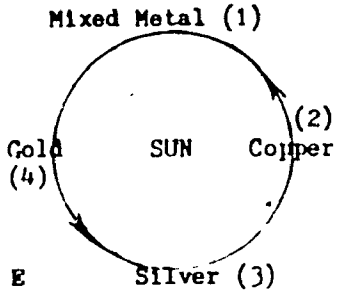
	Art Education in Canada			Iron Age	Aztec (5th) Sun		Hopi (4th) World	Alchemy	Paleontology
	Electric Age (1880-1980)			800 A.D.	813 A.D.		(Evolution of Human Consciousness)		
I.	RESEARCH	1880-1920	(4)	CLOCK	Heaven V	(4)	Introspection	EARTH	Biogenesis
	Psychophysical Thesis			1000	1051		West (1st World)	Chaos	Life-Matter
	Jung (via Fechner, Hartmann)							Matter	
II.	EDUCATION	1920-1950	(3)	WORD	Heaven XIII	(3)	Innocence	WATER	Phylogenesis
	Psychophysical Aesthetic			1450	1467		South (2nd World)	Cosmos	Homo Sapiens
	Read (via Jung, Worringer)							Microcosmic Man	
III.	TECHNOLOGY	1950-1970	(2)	PICTURE	Hell VIII	(2)	Illumination	FIRE	Psychogenesis
	Psychotechnological Antithesis			1839	1883		East (3rd World)	Cosmos	Hominisation
	McLuhan (CSEA Reactions)							Microcosmic Mind	
IV.	TRANSFORMATION	1970-1980	(1)	NUMBER	Hell IX	(1)	Wisdom	AIR	Noogenesis
	Psychotechnological Synthesis			1944	1935		North (4th World)	Chaos	Life-Force
	MacGregor (CSEA Forecasts)							Energy	
	AESTHETIC EDUCATION	1980-		"Implosion"	1987				"Involution"
	Synesthetic Metathesis			ZERO	Heaven I (6th Sun)		(5th-6th-7th Worlds)	AETHER	OMEGA
	CSEA (MacGregor)	(Yeats)		(McLuhan)	(Arguelles)		(Waters - Stapleton -	Burnham -	Teilhard de Chardin)
	1979,1980	1925		1964	1975		1963 1976	1973	1959



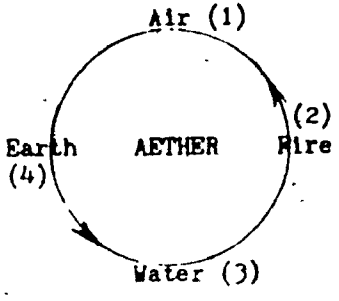
Modern (Split) D5



Holocene Era D6



Hopi Worlds D7



Alchemy (Agents) D8

A III (5)

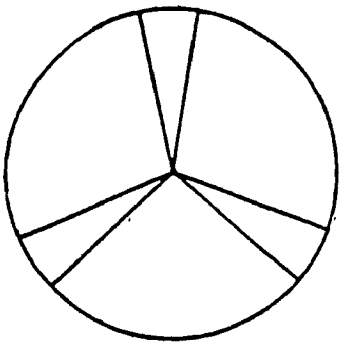
Summary of Reports

On Artistic Vision

"Studies in Creation" (Sakurabayashi's title)

Observation

1.



Gestalt Test Circle (1)
HB Pencil on Gray Paper

Arnheim, Rudolf. (1966)
Toward a Psychology of Art, the essays "On Inspiration" and "Contemplation and Creativity", pp. 285-301.

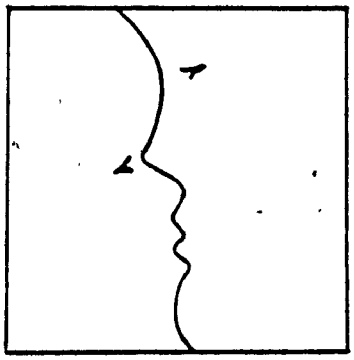
Active contemplation, requisite to all creative work, results in restructuring, invention and discovery of new configurations; i.e., Gestalt disintegration. The theory is discussed in relation to Sakurabayashi's study (IV) on prolonged inspection:

over-exposure (10 min.) of relatively simple geometric patterns, of the kind on which Gestalt studies had based their conclusions, showed fundamental structural changes. Phenomenal results were seen to have direct bearing on artistic vision and the creative process.

- and -

Ehrenzweig, Anton. (1967)
The Hidden Order of Art, pp. 37, 46-47, 281-282.

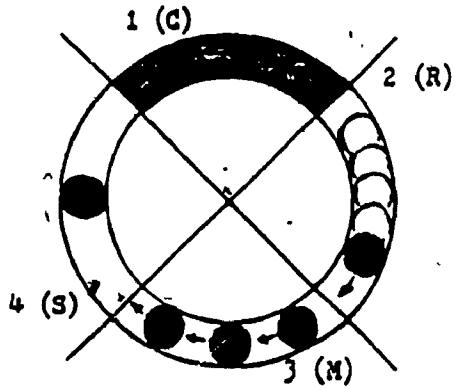
Unconscious scanning (as with the "vacant stare") attends both figure and ground, breaking the 'good' Gestalt and widening the choices essential to creative search. Unconscious or subliminal perception admits peripheral distortions such as displacement, condensation, fragmentation, etc.,- characteristic of primary process imagery. By its total range, peripheral vision provides the vivid plastic effects necessary to the conscious perception of reality. The theory is substantiated by the Fisher-Paul validation study on subliminal visual stimulation, by tachistoscopy:



Rubin Test Figure (1)
Line Drawing (Pencil)

under-exposure (1/100 sec.) of the Rubin double-profile, shown, produced a variety of transformations and distortions of the stimulus in subsequent drawings, confirming the phenomenality of subliminal registration.

2.



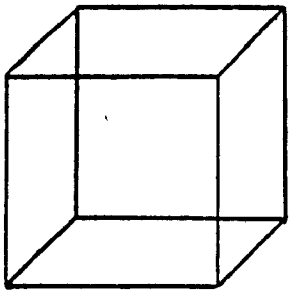
Duncan Test Figures (1-4)
(Sectional Illustration)
Black Ink on White Card

Duncan, C.P.
"Figural displacement with quasi-circular stimuli", Perceptual and Motor Skills, 1958, 8, 295-305. A study on the apparent expansion of an outline circle under prolonged inspection; a recurrent issue in neural satiation theory.

Prolonged and direct fixation of the center of: 1) a complete (C) outline circle; 2) a dot rotating (R) continuously in a circular path; 3) a dot moved (M) step-wise around a circular path; 4) a stationary (S) dot. The diameter of each circle/path was 6 3/8 in.; of the fixation point, 1/8 in.; of each dot, 3/4 in.; the width of the circle outline, also 3/4 in. Subjects made a total of 42 verbal judgments, against comparison circles of slightly varied diameters, presented in varied sequences, over a period of nine minutes. Only the outline circle showed no outward displacement under any conditions. Only the step-wise moved dot showed outward displacement without prolonged fixation.

Observation . . . "Studies in Creation"

3.



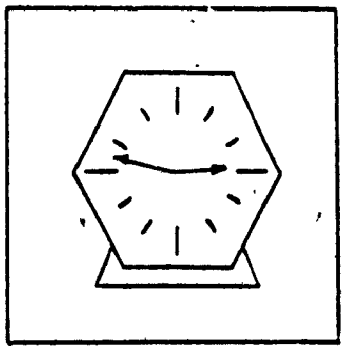
Necker's Cube
Figure No. 2 (of 12)

Sakurabayashi, Hitoshi.
"Studies in Creation: IV. The meaning of prolonged inspection from the standpoint of creation." Japanese Journal of Psychology, 1953, 23, 207-216, 286-287.

Prolonged inspection (PI) is related to records of the working habits of Cézanne (Quoted: "Time and reflection change the sight little by little . . .") and Rodin (Quoted: "The prolonged inspection of the figure will fill me with inspired imagination . . ."). Results of the study confirm the validity and effectiveness of PI as a technique for visual creation. During the ten-minute period of PI, new configurations appeared spontaneously several times, the minimum recording time being 40 seconds; as a result of PI, visual plasticity occurred and voluntary figures were created with ease, actively and intentionally, within 5 to 20 seconds.

- and -

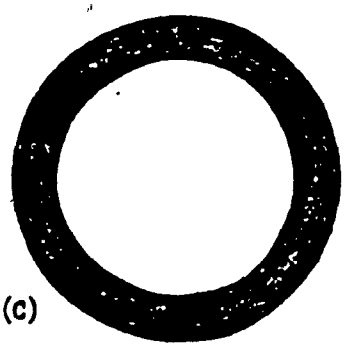
Fisher, C., and Paul, I. H.
"The effects of subliminal visual stimulation on images and dreams: A validation study." Journal of the American Psychoanalytic Association, 1959, 7, 35-83. Methodological deficiencies of previous research were corrected by additional checks and controls. Subjects produced a total of thirty drawings; five, for each of six separate conditions, over a period of two months.



Clock Test Figure (2)
(Differential Stimulus)

Subliminal registration was demonstrable in the drawings: elements of the completely subliminal exposures (double-profile and clock) appeared, variously transformed, in post-exposure images. Qualitative analyses indicated the Gestalt laws of continuation, closure, figure-ground, etc., may hold only for conscious perception, not for subliminal perception. The study concludes that subliminal registration is a genuine phenomenon, and subliminal visual stimulation may influence subsequent dreams and images.

4. Observation-Interview



1 (C)

Closure: An Example
(Ref. Duncan Study, above)

Getzels, J. W., and Associates.
"Problem-finding: correlation between success in the fine arts and the ability to ask new questions."
Leading Edge Bulletin, Sept. 28, 1981, vol. II, no. 3.

Thirty-one, male, fine arts majors were instructed to select from twenty-seven assorted objects to create a still life drawing. They were observed and photographed throughout the process of selection and creation; individually interviewed, as follow-up. Later, the drawings were rated, as to degree of success, by experts.

Delayed closure proved the crucial difference between 'successful' and 'unsuccessful' work: the more successful artists took longer to start - handling many objects, choosing more unusual items, often including a humanoid element. The interview revealed the more successful artists to be more process-oriented in their work - more open and flexible in attitude, expressing a stronger sense of personal engagement and commitment.

Observation-Interview . . . "Active Contemplation" (Arnheim's description)

5. Observation of an experienced sculpture student, at work, in class. One session.

> Movements to judge progress in the work, almost constant during periods of concentration, followed no particular sequence but appeared as three distinct forms of the contemplative stance and stare (i.e., assuming the "vacant stare" of Ehrenzweig's description):
>
> periodic judgments, from a distance of a few steps back - for the whole view - occurring about every five minutes, sometimes repeated from various positions around the piece; more frequent judgments, from shorter distance, usually one step back - for the part to whole view - occurring about once a minute; most frequent judgments, remaining close to the piece - for the part view - occurring every few seconds, and visible only as a slight backward tilt of the head.

6. Interview with an experienced sculpture instructor. Two sessions.

> Two main points came through very clearly from this interview: call it what you will, there is a special way of seeing that is essential to all creative work; it is not the 'normal' way of seeing and must, therefore, be learned; 'preconceived' notions about art only make the learning that much more difficult. Of beginning students in sculpture, the instructor says: "They are unable to focus their creative energy three-dimensionally." He makes this suggestion: "Concentration on a small detail is a way of revealing problems in the whole. Once relaxed, peripheral vision takes over the task. Conversely, over-concentration on the whole will distort, even delude; for example, if roundness is sought, the form may appear perfectly round, when actually it is not." (Note, in the latter case, that the 'good' Gestalt takes over. Note also, that 'concentration' and 'peripheral vision', above, equate with the terms used by Arnheim and Ehrenzweig, respectively.)

7. Interviews (published) . . . "Active Imagination" (Jung's description)

Encounters with Carl Jung: Synchronicity, his creative principle of meaningful connections

1951 After thirty years of development, Jung made his first formal presentation on Synchronicity at the Eranos Conference of 1951. The English transcript became available only in 1957.

1953 Ira Progoff, following publication of his book on Jungian theory, was granted the privilege of studying with Jung. The book which records this experience, Jung, Synchronicity, and Human Destiny (1973), emphasizes the more advanced concepts of Jung's later years, summarizing discussions with Jung and including relevant conversation and correspondence. Jung was working on the Synchronicity transcript at this time.

1957 Richard I. Evans was granted a series of four, one-hour, filmed interviews with Jung. Intended for introductory psychology courses in U.S. colleges, the interviews deal with basic concepts only. The full text of these interviews is published under the title: Jung on Elementary Psychology (1976).

1959 John Freeman was granted a filmed interview for television. Viewer response finally elicited Jung's collaboration on the book, Man and His Symbols (1964), presenting his ideas to the lay reader for the first time. He completed the keynote chapter just prior to his death.

1980 Marilyn Ferguson' new book, The Aquarian Conspiracy, takes up the story of the extent of Jung's ever-widening influence today.

ARNHEIM (1966): Aesthetic Imperatives for the Artist of Today

Four Essays on the Psychology of Art — Cf.: Four Phases of Analysis (Part III)

Perceptual Reasoning

1. On Inspiration (1957)

"(In) our modern thinking — inspiration is no longer considered to come from the outside but from the inside, not from above but from below (286). . . . (However) we must not assume that unconscious functioning is different in principle from conscious functioning. In fact, if . . . we assume that what we call creativity is a kind of reasoning, such reasoning can be either intellectual or perceptual — and, of course, is mostly a combination of both (287)."

2. Perceptual Abstraction and Art (1947)

"The psychology of artistic abstraction involves not only problems of perception but also of representation (34). . . . analysis shows that pictorial representation presupposes more than the formation of a perceptual concept. A way must be found to translate the percept into tangible form. . . . (In drawing, e.g.) translation of perceptual concepts into patterns that can be obtained from the stock of available forms in the particular medium will precede the actual drawing, continue during the drawing, and then again be influenced by what shows up on paper (36)."

Intellectual Reasoning

3. Accident and the Necessity of Art (1957)

"Accident is a shrewd helper, and the unconscious is a powerful one. Art has always profited from both. . . . Some relatively self-contained mechanisms, such as motor behavior and perception, can operate practically on their own. When released from control, they will rely on routine reactions and automatic skills. . . . We can thus account for the weave of strokes, which is surely not constructed but is rather the largely spontaneous product of what a pair of hands and a pair of eyes felt like doing at a given time in a given material (178)."

4. Contemplation and Creativity (1961)

"Undoubtedly, a thorough contemplation of the object to be depicted or interpreted as well as of the work itself at every stage is an essential requisite of all creation (297). . . . True contemplation is not mere waiting and gathering; it is essentially active (298). . . . When it assumes the task of uniting the complexity of the world with the complexity of the mind, it must attain the higher simplicity of profusion organized by form. This simplicity is no mere gift of the senses (but a) blend of freedom and disciplined concentration (301)."

(B) Active Imagination

1. Inspiration (Reality Level)*

Aesthetic Perception

Sensation

Haptic Expression

Jung, quoted (288)
Read, quoted (176)

2. Organization (Abstraction Level)

Synesthetic Impression

Thought

Dynamic Structure

Lowenfeld, noted (30)

Active Contemplation

3. Development (Integration Level)

Kinesthetic Impression

Feeling

Dynamic Process

Jung, quoted (177)
Ehrenzweig, noted (178)

4. Contemplation (Meaning Level)

Subliminal Perception

Intuition

Symbolic Expression

Sakurabayashi (Commentary)

*(Arnheim: Levels of Expression)

EHRENZWEIG (1967): Aesthetic Imperatives for the Youth of Today

Practical Hints for Art Teachers	Cf.: Practical Analysis (Part III)
The Subjective Elements: Unconscious Scanning	(A) Active Contemplation *
1. The Fertile Motif	1. Inspiration (Projection)
"A truly fertile 'motif' . . . bears the imprint of the undifferentiated vision which created it in the first place and which guides its use (64). . . . Superficially significant or accidental looking detail may well carry the most important unconscious symbolism (35)."	Aesthetic Perception Superrealism
2. The Happy Accident	2. Organization (Dynamic)
"Good art teaching has always intuitively disrupted the student's over-precise visualization (71). . . . Perhaps disruption as a teaching technique has had its cutting edge worn off and should (now) be discarded (77). . . . A more constructive approach is needed, a determined and sustained search for a really significant image and idea (62)."	Symbolic Transformation Constructivism
Includes: a) change to unfamiliar medium or technique b) change in scale or dimension c) development of the motif in stages (See Appendix A II, 6)	Excludes: x) use of schema, formal abstraction, mannered expressionism; disruptive devices, per se
The Spontaneous Elements: Unconscious Handwriting	Active Imagination
3. The Dynamics of Pictorial Space	3. Development (Haptic)
"The importance of teaching awareness of pictorial space can hardly be exaggerated. . . . Once the student has made himself sensitive to the dynamic instability of pictorial space he has also made contact with art's substructure (74)."	Aesthetic Feeling Expressionism
Includes: a) awareness of the unpredictable impact of the simplest element — like a single brush stroke — on the flat picture plane b) awareness that the smallness of the micro-elements, like the breadth of the macro-elements, defies conscious articulation	Excludes: x) any switch of conscious attention towards these minute distortions, scribbles, and textures which interferes with their unconscious order and significance
4. Training Spontaneity through the Intellect	4. Contemplation (Introjection)
"The students must be kept intellectually aware of their power to bring an idea unscathed and indeed fortified through such drastic transformation. The intellect must be enlisted as a potent helper of spontaneity (164)."	Symbolic Meaning Realism
Includes: a) an appeal to the student's interest in ideas behind the pattern b) the student's recognition of the image as a point of departure c) assurance to the student that sustained effort on tasks that call upon the intellect to motivate the powers of spontaneity will eventually pay off	Excludes: x) aimless, non-productive waiting for inspiration and rushes of spontaneity
	* (Note: designated phases of creative work are interactive; not discrete, as shown)

APPENDIX IV

Transformation

JUNG (1965): On Psychic Transformation

A subject with which I had been deeply concerned ever since my book Wandlungen und Symbole (i.e., Symbols of Transformation) was the theory of the libido. I conceived the libido as a psychic analogue of physical energy, hence as a more or less quantitative concept, which therefore should not be defined in qualitative terms. My idea was to escape from the then prevailing concretism of the libido theory — in other words, I wished no longer to speak of the instincts of hunger, aggression, and sex, but to regard all these phenomena as expressions of psychic energy (208).

What I wished to do for psychology was to arrive at some logical and thorough view such as is provided in the physical sciences by the theory of energetics. This is what I was after in my paper "On Psychic Energy" (1928) (208).

As I worked with my fantasies, I became aware that the unconscious undergoes or produces change. Only after I had familiarized myself with alchemy did I realize that the unconscious is a process, and that the psyche is transformed or developed by the relationship of the ego to the contents of the unconscious. In individual cases that transformation can be read from dreams and fantasies. In collective life it has left its deposit principally in the various religious systems and their changing symbols. Through the study of these collective transformation processes and through understanding of alchemical symbolism I arrived at the central concept of my psychology: the process of individuation (209).

My life is what I have done, my scientific work; the one is inseparable from the other. The work is the expression of my inner development; for commitment to the contents of the unconscious forms the man and produces his transformations. My works may be regarded as stations along life's way (222).

NEUMANN (1959): On Creative Transformation

Creative transformation: each of these two words embraces a mysterious, unknown world. Transformation alone — the whole work of C.G. Jung, from his early Wandlungen und Symbole der Libido (i.e., Symbols of Transformation) to Psychology and Alchemy and the most recent work on the transformation symbolism of the Mass, is an untiring attempt to encompass the meaning of this word (149).

A IV (1.1.)

Neumann (1959) . . .

The separation between the psychic systems, which becomes intensified in the course of development, leads more and more to a defensive attitude of consciousness over against the unconscious, and to the formation of a cultural canon that is oriented more toward stability of consciousness than toward the transformative phenomena of possession. Ritual, which may be regarded as a central area of psychic transformation, loses its regenerative significance. With the dissolution of the primitive group and the progress of an individualization dominated by ego consciousness, religious ritual and art become ineffectual; and we approach the crisis of modern man, with his sharp separation of systems, his split between consciousness and unconscious, his neurosis, and his incapacity for total creative transformation (159).

The problem of individual transformation arises. But here we shall not be concerned with the transformative process that takes place in individuation, with its relation to the universal creative principle and its deviations from it. These matters have been treated exhaustively by Jung (160).

The modern turn toward creative transformation is manifested not only in analytical psychology but also in the efforts of educators to develop the creative faculty both of children and adults. Domination by our one-sided culture of consciousness has led the individual almost to a sclerosis of consciousness; he has become well-nigh incapable of psychic transformation (160).

ARGUELLES (1975): On the Transformative Vision

In order for us to transcend the combative dualism that is the very essence of our condition, there must be a unitive experience of the world that can be achieved only through a major collective catharsis. And it may be that we are already in the throes of such an event (292).

So we are already changing, mutating, whirling around the center, at the very least, of an apocalypse of consciousness. To pass through the center of this apocalypse is to embark on a new stage of growth. Once the test of personal and historical catharsis is met, true individuation becomes possible. . . . The road is hard, and only those who are ready for individuation, the reunion of psyche and techne, will themselves become the path that must be traveled in order for humans to realize their full humanity. The vision-seed has already been planted in their fertile consciousness. Through these beings of transformed vision the earth and the heavens may experience reunion, and the world may be returned to a mythic space to be divined and explored by humanity in full consciousness (293).

Any further culture that may develop will do so only through the fully realized individual, and not through a collectivity based on race, religion, political affinity, or the like (293).

Arguelles (1975) . . .

If we carefully follow the path of consciousness, which is the same as the process of individuation in which everything is brought to light, the Road of Life itself, our rebirth into this new world is inevitable. To attain this rebirth only one thing is required — that we die to our frozen identities — scientist and artist alike. This is the true art, the art of transformation (294-95).

FERGUSON (1980): On the Transformation Process

In its early stages, transformation may seem easy, even fun, not at all stressful or threatening. We may enjoy an intensified sense of connection, vocation, freedom, peace (361).

Gradually there is a sense that we have been betraying some sort of harmonious inner universe by our attitudes, behavior, and beliefs. A realm of exquisite order, intelligence, and creative potential begins to reveal itself (361).

Inexorably, direct experience of a larger reality demands that we change our lives. We can compromise for a time, but eventually we realize that ambivalence is like deciding to recognize the law of gravity only sometimes and in certain places. This transformation of transformation, with its acceleration of connections and insights, can be a frightening period. Eventually, in stages, there is action. We must make our lives congruent with our consciousness: "A condition of utmost simplicity," said T.S. Eliot, "costing not less than everything (363)."

The spiritual quest begins for most people as a search for meaning. At first this may be only a restless desire for something more (363). . . . Western psychologists like William James, Carl Jung, Abraham Maslow, and Robert Assagioli focused their mature powers on trying to understand transcendent needs and the irrepressible hunger for meaning (365).

Although there is reason to believe that we all have an innate capacity for mystical experience — direct connection — and although about half the population reports having had at least one spontaneous experience, never before has this capacity been explored by people in great numbers. Historically, even in those parts of the world where the most sophisticated techniques were available — India, Tibet, China, Japan — only a tiny minority undertook the systematic search for spiritual understanding (366).

Among the millions now engaged in this search, many, if not most, were drawn in almost unawares, like the good-natured Hobbits drawn into cosmic quests in J.R.R. Tolkien's Lord of the Rings. Quite innocently they found themselves beyond their familiar haunts (366).

MASLOW (1971): Aesthetic Imperatives for Education Today

Four Essays on Creativity — Cf.: Four Phases of Synthesis (Part IV)

Primary Process: Peak Experiences — Meaningful Connections

1. The Creative Attitude (1963) — 1. Inspiration and Research

"The primary . . . inspirational phase of creativeness must be separated from the working out and the development of the inspiration. This is because the latter phase stresses not only creativeness, but also relies very much on just plain hard work, on the disciplines of the artist who may spend half a lifetime (in becoming technically) ready for a full expression of what he sees (57). . . . it seems to me a better strategy to turn more attention to the inspirational phase (95)."

A Metatheory of Creativity

Jung - Maslow

Transpersonal Psychology

Introspection

2. A Holistic Approach to Creativity (1971) — 2. Organization and Education

"this more holistic, organismic point of view would suggest the more likely question: 'And why should not every course help toward creativeness?' Certainly this kind of education of the person should help create a better type of person . . . a person who, incidentally, would be more creative as a matter of course in all departments of life (71). . . . It just happens to be a historical accident that the art educators are the ones who went off in this direction first. It could just as easily be true of mathematical education (96)."

A Universal Creative Principle

Jung - Read

Education through Art

Intuition

Secondary Process: Self-Actualization — Creative Transformation

3. Emotional Blocks to Creativity (1958) — 3. Development and Technology

"In the healthy person, and especially the healthy person who creates, I find that he has somehow managed a fusion and a synthesis of both primary and secondary processes (85). . . . This is the person who can live with his unconscious; live with, let's say, his childishness, his fantasy, his imagination (86). . . . (Practically speaking . . .) Any technique which will increase self-knowledge in depth should in principle increase one's creativity by making available to oneself these sources of fantasy (89). . . . why not a technology of joy (169)?"

Art as a Transformative Technology

Jung - Progoff

Self-Education through Art

Illumination

4. The Need for Creative People (1965) — 4. Contemplation and Transformation

"This new kind of human being that we would need even if there were no cold war . . . is needed simply to confront the new kind of world in which we live. . . . We must become more interested in the creative process, the creative attitude, the creative person, rather than in the created product alone (95). . . . in this respect education through art is a kind of therapy and growth technique, because it permits the deeper layers of the psyche to emerge . . . and be educated (97)."

A Systems View of Education

Jung - Capra

Aesthetic Education of Educators

Insight

Ferguson (1980):

The Transformation Movement

The Age of "Mass" Education
(1880-1980)

RESEARCH (4)

The Transcendentalist Dream:

"These spokesmen for a larger worldview pointed out how our institutions were violating nature: Our education and philosophy failed to value art, feelings, intuition (48)."

Ref: John Dewey, his impact on educational reform.

EDUCATION (3)

Pedogenic Illness:

"The greatest learning disability of all may be pattern blindness — the inability to see relationships or detect meaning (298)."

Ref: Jerome Bruner, on the power of intuition in the learning process.

TECHNOLOGY (2)

The Tools of Transformation:

"Amplified by electronic communications, freed from the old restraints of family and culture, the network is the antidote to alienation (213)."

Ref: Marshall McLuhan, on the power of media in the transformation process.

TRANSFORMATION (1)

Extending the Dream:

"The scientific validation of intuition . . . has shaken science and is just now having an impact on education (296)."

Ref: Teilhard de Chardin, on the power of the evolutionary principle.

"Synthesis and pattern-seeing are survival skills for the twenty-first century (300)."

LEARNING

The Emergent Paradigm

The Age of "Universal" Education
(1950-1980)

Brain Research: A Holographic World

"Recently a Stanford neuroscientist, Karl Pribram, proposed an all-encompassing paradigm (the hologram) that marries brain research to theoretical physics; (incorporating both the Gestalt principle of isomorphism and the Jungian principle of synchronicity) it accounts for normal perception and simultaneously takes the 'paranormal' and transcendental experiences out of the supernatural by demonstrating that they are a part of nature (180-82)."

Transpersonal Education: Whole-Brain Learning

"Merely humanizing the educational environment was still something of a concession to the status quo. In too many cases the reformers were afraid to challenge the learner. . . . Transpersonal education is more humane than traditional education and more intellectually rigorous than many alternatives in the past. It aims to add transcendence, not furnish mere coping skills. It is education's counterpart to holistic medicine: education of the whole person (287)."

Communications: Our Nervous System

"Just as transformation builds on wider awareness and connection in the individual brain, so our social imagination has been painfully, exquisitely enlivened by a nerve network of electronic sensing. . . . And just as modern physics and Eastern (psycho)technologies are introducing a more integrated worldview to the West, our fluent media nervous system is linking our social brain. . . . If we let it, our technology can shock us out of the sleepwalking of centuries (129)."

Transformative Principles: The Need for Connection

"In the midst of a wealth of information, we may be moving toward an economy of learning — a few powerful principles and theories making sense across many disciplines (305). . . . Perhaps (for example) the back-to-basics movement could be channeled deeper — to bedrock fundamentals, the underlying principles and relationships, real 'universal' education (281)."

"Having no alternative, we were born creative. . . . For the first time, if we're very lucky . . . . (o)ur schools may gradually stop trying to row sailboats (303)."

The Process of Learning
STRUCTURAL COMPARISON

	A Yaqui Way of Knowledge (The Sorcerer's Philosophical Frame)	A Contemporary Theory of Meaning (The Psychiatrist's Philosophical Frame)	
	The Teachings of Don Juan (1968) CASTANEDA	Experiencing and the Creation of Meaning GENDLIN (1962)	
I.	Knowledge as a Way of Learning	Felt-Meaning Functions in Cognition	.I
	The operative order in becoming a man of knowledge was a matter of:	The functional order of creative modifications in felt meaning is:	
	the act of learning (1)	(1) direct reference	
	an unbending intent (2)	(2) recognition	
	a clarity of mind (3)	(3) explication	
	a strenuous labor (4)	(4) metaphor	
	being a warrior (5)	(5) comprehension	
	unceasing process (6)	(6) relevance	
	having an ally (7)	(7) circumlocution	
	An ally was perceived as a quality	All continuity of meaning has an aspect of relevance	
	Thus:	That is:	
II.	A man of knowledge had an ally	Idiosyncratically conditioned	.II
III.	The ally had a rule	Culturally conditioned	.III
IV.	The rule was corroborated by special consensus	Universally conditioned	.IV *

Don Juan's root metaphor
was the path with a heart

A man of knowledge would follow such a path

* D. Feldman, The Developmental Approach (1974)

The concept of a creative continuum, marked by four sets of crystallizing conditions — universal, cultural, idiosyncratic, unique — applied to the question of stage advance in Piagetian theory.

A IV (4)

ARCHAIC (Quaternary Structures)

CYCLE I

Arguelles (1975): Hindu and Aztec Cosmologies

	Holocene Era	Time Ratio	Key Symbol	Art-Life System
	B.C. 10,000	Hindu		
(4)	Golden Age -5,200	(4) 4800 Years	Fire	Undifferentiated Psychotechnological Continuum
(3)	Silver Age -1,600	(3) 3600 Years	Seed	Art-as-Ritual
(2)	Bronze Age A.D. - 800	(2) 2400 Years	Sword	Art-as-Craft Whole
(1)	Iron Age - 2000	(1) 1200 Years	Machine	Art-as-Technique

Waters (1963): Hopi Cosmology

	Hopi Road of Life		Power Source	Symbol
(4)	Gold Bear Clan Natural Way of Life	(1st World) (Emergence - West	Germination - Introspection) Harmony	Earth
(3)	Silver Parrot Clan Village Life	(2nd World) (Emergence - South	Moisture - Innocence) Contentment	Water
(2)	Copper Eagle Clan Hopi Civilization	(3rd World) (Emergence - East	Heat - Illumination) Dissention	Fire
(1)	Mixed Metal Badger Clan Western Civilization	(4th World) (Emergence - North	Magnetism - Wisdom) Encroachment	Air

CYCLE II

MODERN (Extensions)

Arguelles (1975):

	Iron Age	Time Ratio	Key Symbol	Yeats	Mumford
	A.D. 1050			1050	843
(4)	Medieval 1050 - 1450	(4) 400 Years	Clock	Thesis 1050 *(1)	Eotechnic - 1519
(3)	Classical 1450 - 1750	(3) 300 Years	Word	Thesis 1680 (20)	Eotechnic - 1727
(2)	Modern 1750 - 1950	(2) 200 Years	Picture	Antithesis 1875 (22)	Paleotechnic - 1883
(1)	Contemporary 1950 - 2050	(1) 100 Years	Number	Synthesis 1987 (26)	Neotechnic - 1987
	New Golden Age		Zero	Metathesis *Phase(28)	Psychotechnic - 2039

Stapleton (1976):

	Pepper	Jung	(Hopi)	Alchemy
(4)	Mechanism	Sensation	(West)	Earth
(3)	Formism	Thought	(North)	Air
(2)	Contextualism	Feeling	(South)	Water
(1)	Organicism	Intuition	(East)	Fire
	Hopi 5th -6th -7th Worlds Heaven Cycles of Aztec 6th Sun			Aether

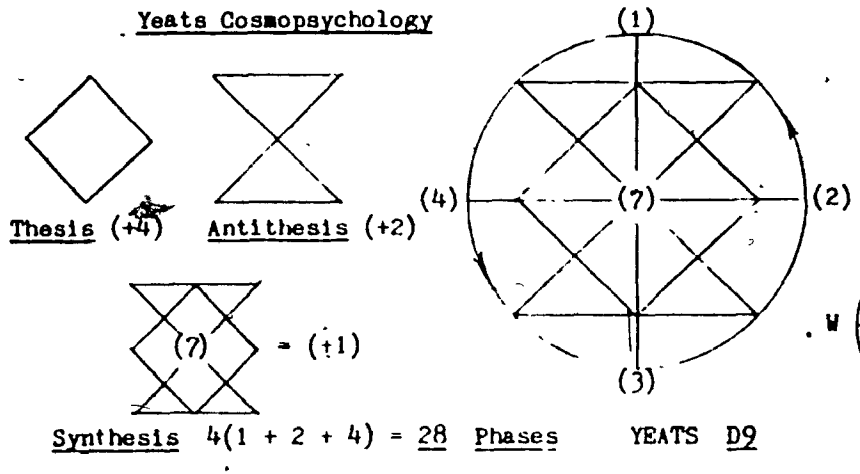
Reintegrated Psychotechnological Continuum

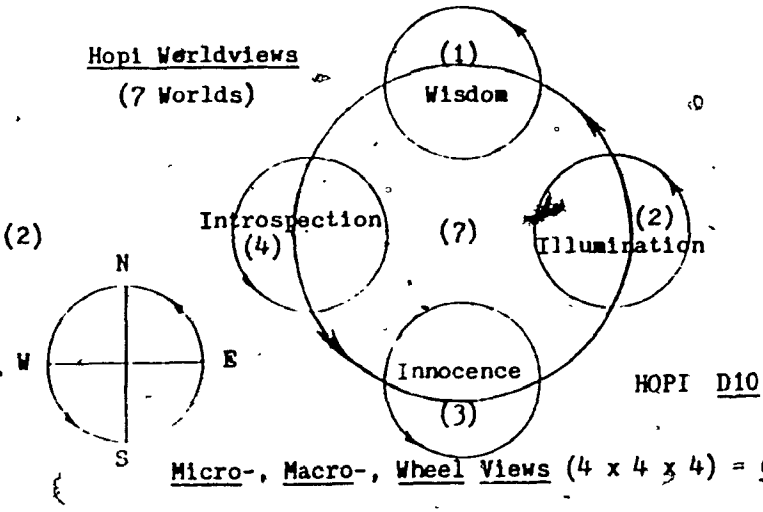
ARGUELLES (1975, p. 224):

Yeats' symbol must be conceived as a sphere or a cylinder . . . composed of two interpenetrating cones, the apex of each being the center of the base of the other. One of these cones represents the primary force, and the other the antithetical force. Yeats did not seem to comprehend clearly the dynamics of these two forces, though he did refer to the dialectical philosophy of Hegel. At any rate, the two obviously relate to the Chinese principles of Yin (primary) and Yang (antithetical). From the interaction of the three sets of principles — the two forces, the four faculties and their corresponding principles, and the cycle of 28 Phases of the Great Wheel — Yeats developped a complex, quasi-astrological system of cosmopsychology, in which the history of an individual through various lives recapitulates the history of civilization, and vice versa. Because of the close identification of the development of the individual, and the history of the race, the entire vision borders on the mythological; what was absurd and arbitrary is suddenly transformed into the detail that gives meaning to the whole.

STAPLETON (1976, p. 269):

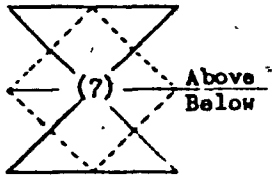
The Sundance Wheel is at the same time a Medicine Wheel because the individual may look into the mirror which reflects everything and grasp himself anew. In the mirror he perceives the possibility of wholeness that is available to him only when he learns to Give-Away his determining position. . . . The interpretive movement around the event of meaning is more than a lesson in giving away the determining position. It provides the opportunity to look deeply within the Medicine Wheel to find out the position from which one is looking. The Hopi identifies four positions in the Great Sundance Wheel. To the east is the power of illumination; to the north is the power of wisdom; to the west is the power of introspection; and to the south is the power of innocence. At birth, each person is given a starting place along the wheel. The starting place is the first way of perceiving things. That is the easiest way of perceiving things for the remainder of one's life. But the whole person must move around the entire wheel. Around each of the four positions on the wheel revolves a microwheel of the same positions, describing the complexity of human meaning as it is produced in a life-being-lived-forward.



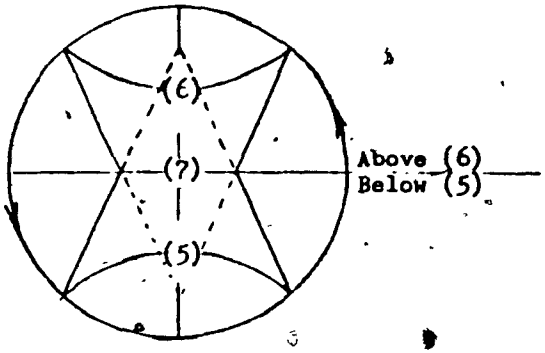


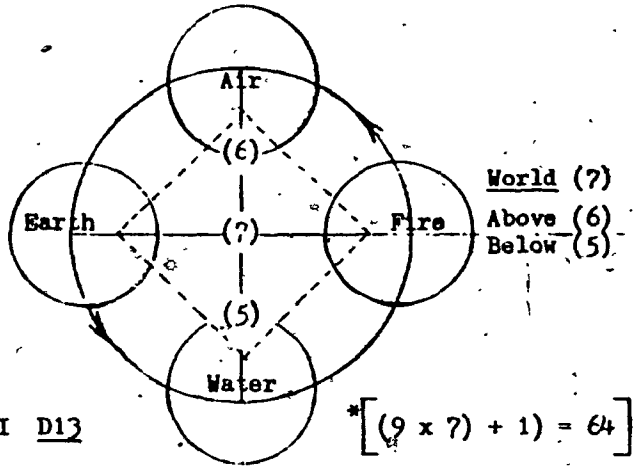
SYMBOLS OF TRANSFORMATION (Septenary Models): The "Hidden Magic Number, Seven"

Rotational Models:



Synthesis



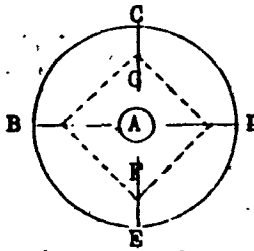


YEATS D11 YEATS D12 *[(4 x 7) = 28] HOPI D13 *[(9 x 7) + 1) = 64]

*[See: A IV (9)]

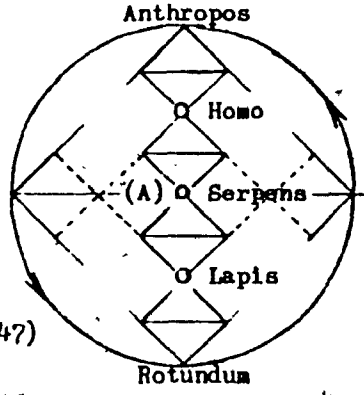
Vertical Models:

MAGIC "7" (as "A")



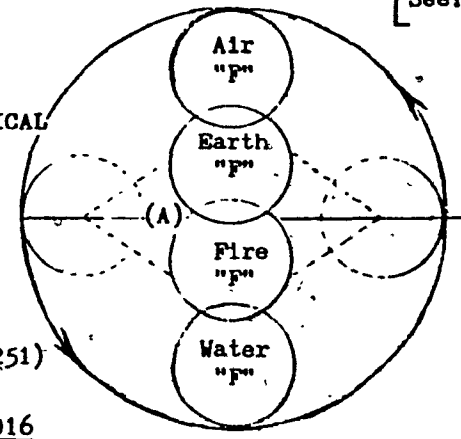
(Aion: 240)

GNOSTIC



(Aion: 247)

ALCHEMICAL



(Aion: 251)

JUNG D14 JUNG D15 JUNG D16

Creative Complex
Self-Transcendence
Magic Center

Uroboros (Tail-Biting Serpent)
Symbolic of Synthesis/Wholeness
Magic Circle

Aether ("F" as Fire of Illumination)
Symbolic of Psychic Energy
Magic Force ("F")

JUNG (1921): Criteria of the Creative Complex (7)

The Basic Attitudes (2)

The names and concepts by which the mechanisms of extraversion and introversion have been grasped are extremely varied. . . . But despite the diversity of the formulations the idea common to them all constantly shines through: in one case an outward movement of interest towards the object, and in the other a movement of interest away from the object to the subject and his own psychological processes (par. 4).

These contrary attitudes are in themselves no more than correlative mechanisms: a diastolic going out and seizing of the object, and a systolic concentration and detachment of energy from the object seized. Every human being possesses both mechanisms as an expression of his natural life-rhythm, a rhythm which Goethe, surely not by chance, described physiologically in terms of the heart's activity. A rhythmical alternation of both forms of psychic activity would perhaps correspond to the normal course of life. But the complicated outer conditions under which we live and the even more complicated conditions of our individual psychic make-up seldom permit a completely undisturbed flow of psychic energy. Outer circumstances and inner disposition frequently favour one mechanism and restrict or hinder the other. One mechanism will naturally predominate. . . . (But) there can never be a pure type in the sense that it possesses only one mechanism with the complete atrophy of the other. A typical attitude always means merely the relative predominance of one mechanism (par. 6).

The Basic Functions (4)

Experience has taught me that in general individuals can be distinguished not only according to the broad distinction between introversion and extraversion, but also according to their basic psychological functions. For in the same measure as outer circumstances and inner disposition cause either introversion or extraversion to predominate, they also favour the predominance of one definite basic function in the individual. I have found from experience that the basic psychological functions, that is, functions which are genuinely as well as essentially different from other functions, prove to be thinking, feeling, sensation, and intuition. If one of these functions habitually predominates, a corresponding type results. I therefore distinguish a thinking, a feeling, a sensation, and an intuitive type. Each of these types may moreover be either introverted or extraverted, depending on its relation to the object as we have described above (par. 7).

The Auxiliary Functions (Secondary)

Closer investigation shows with great regularity that, besides the most differentiated function, another, less differentiated function of secondary importance is invariably present in consciousness and exerts a co-determining influence (par. 666).

Jung (1921) . . .

Its secondary importance is due to the fact that it is not, like the primary function, valid in its own right as a reliable and decisive factor, but comes into play more as an auxiliary or complementary function. Naturally only those functions can appear as auxiliary whose nature is not opposed to the dominant function. For instance, feeling can never act as the second function alongside thinking, because it is by its very nature too strongly opposed to thinking. Thinking, if it is to be real thinking and true to its own principle, must rigorously oppose feeling (par. 667).

Experience shows that the secondary function is always one whose nature is different from, though not antagonistic to, the primary function. Thus, thinking as the primary function can readily pair with intuition as the auxiliary, or indeed equally well with sensation, but, as already observed, never with feeling (par. 668; see also par. 670, quoted in A III, 1.3).

The Transcendent Function (1)

Since life cannot tolerate a standstill, a damming up of vital energy results, and this would lead to an insupportable condition did not the tension of opposites produce a new, uniting function that transcends them. This function arises quite naturally from the regression of libido caused by the blockage. All progress having been rendered temporarily impossible by the total division of the will, the libido streams backwards, as it were, to its source. In other words the neutralization and inactivity of consciousness bring about an activity of the unconscious, where all the differentiated functions have their common, archaic root (par. 824). . . . From the activity of the unconscious there now emerges a new content, constellated by thesis and antithesis in equal measure and standing in a compensatory relation to both (par. 825).

If the mediatory product remains intact, it forms the raw material for a process not of dissolution but of construction, in which thesis and antithesis both play their part. In this way it becomes a new content that governs the whole attitude, putting an end to the division and forcing the energy of the opposites into a common channel. The standstill is overcome and life can flow on with renewed power towards new goals (par. 827).

I have called this process in its totality the transcendent function, "function" being here understood not as a basic function but as a complex function made up of other functions, and "transcendent" not as denoting a metaphysical quality but merely the fact that this function facilitates a transition from one attitude toward another. The raw material shaped by thesis and antithesis, and in the shaping of which the opposites are united, is the living symbol. Its profundity of meaning is inherent in the raw material itself, the very stuff of the psyche, transcending time and dissolution; and its configuration by the opposites ensures its sovereign power over all the psychic functions (par. 828; see also par. 915, quoted from Synchronicity, in A I, 1.2).

Models of the Creative Complex

The "Magic Circles" and the "Magic Numbers"

References: Description of Part III (4); description and diagrams of Appendix A IV (6), (7), (8); structure of Figure 4 (p. 128), based on the Jungian model, and identified below simply as "Mandala."

Axiom: "Out of the Third comes the One as the Fourth" . . .

Computations: Based on the dynamics of the One (more); shown as (+1)

	Tetrads (4) in "28"	Triads (3) in "64"
Plus One	4 (4 + 3) = 28	9 (3 + 4) + 1) = 64
	Mandala (6) Yeats (6)	I Ching (6) 3-Yin (6)
Two	(4) + 2)	(3) + 2) + 1)
	4 x 6 = 24 + (1 x 4) = +4) = 28	24 x 2 = 48 (+4 x 4 = 16) = 64
	Mandala (7) Jung (7)	I Ching (7) Hopi (7)
Three	(4) + 3)	(3) + 3) + 1)
	4 x 7 = 28	28 + 36 = 64 = 4 (7 + 9)
	Factors (4) of 28: 2, 4, 7, 14	Factors (6) of (28 x 2) = 56: 2, 4, 7, 8, 14, 28
	Sum of Factors = 27 (3 x 9) + 1) = 28	Sum of Factors = 63 (7 x 9) + 1) = 64
	Mandala (8) Read (8)	I Ching (8) Drawings (8)
Four	(4) + 4)	(3) + 4) + 1)
	4 x 4 = 16 4 + 4 = 8) = 28 + (1 x 4) = +4)	16 x 3 = 48 (8 + 8 = 16) = 64 8 x 8 = 64
	Mandala (9) Burnham (9)	I Ching (9) 3-Yang (9)
Five	(4) + 5)	(3) + 5) + 1)
	4 x 5 = 20 4 + 4 = 8) = 28	3 (4 x 5) = 60 + (1 x 4) = +4) = 64

The "Hidden Magic Number Seven" of the Jungian Mandala
"Out of the Six comes the One as the Seventh" . . .

The Six: the Mandala (6) Structure of the Creative Complex, (4) + 2) —
i.e., the Functions (4) plus the Attitudes (2)

4 x 6 = 24 + (1 x 4) = 28 (24 x 2) + 4(1 x 4) = 64

Seven: the Mandala (7) Dynamics of the Creative Complex, (4) + 2) + 1) —
i.e., the Functions (4), plus the Attitudes (2) plus the One

4 x 7 = 28 Phases (Drawing) 2(4 x 7) + (1 x 8) = 64 (Serial)

One: the Complex (1) Transcendent Function of the Creative Process
i.e., the "oneness" of Synchronicity, as the Creative Principle
represented by the odd "magic numbers" 3, 5, 7, 9 . . .

. . . the Mandala (7) Dynamics of Figure 4, as the Meaning-Complex
of the Drawing Serial, based on the numbers 4, 8, 2; and 3 —

The Four: the Phases (4) of the Micro-Gesture Drawing Process (cf., Seven)

4 x 7 = 28 Phases (Drawing) 2(4 x 7) + (1 x 8) = 64 (Serial)

Eight: the Drawings (8) of the New Micro-Gesture Drawing Serial

4 x 8 = (28 + 4) = 32 2(4 x 8) = 64 Phases (Serial)

Two: the Alternate (2) Schemes of the New Drawing Serial

A. 4 x 7 = 28 Phases + (1 x 4) Drawings = 32
B. 7 x 4 = 28 + (1 x 4) = 32) = 64 (Serial)

Three: the Functional (3-Term) Equations of each Drawing Phase, in which each Function is assigned an "order-value" — i.e., Sensation (1), Feeling (2), Thought (3), and Intuition (4) — cf., assigned values for Yin (2) and Yang (3), in the I Ching

	I Ching (9) and (6)		Mandala (8) and (7)	
	9 = (3 x 3)	(3 x 2) = 6	8 = (4 + 1 + 3)	7 = (1 + 4 + 2)
	9 x 9 = 81	= (3 x 27)	8 x 8 = 64	7 x 7 = 49 + 15 = 64
	9 + 6 = 15	= (3 x 5)	8 + 7 = 15	7 x 8 = 56 + 8 = 64
	9 x 6 = 54	= (3 x 18)	8 + 1 = 9	7 + 1 = 8
	6 x 6 = 36	= (3 x 12)	32 x 2 = 64	28 x 2 = 56 + 8 = 64
Sums	3 /189	15 64		
	= 63 + 1)	= 64		

A IV (9.2)

APPENDIX B

List of Contents

Illustration of the Drawing Process

Micro-Gesture Drawing No. 1.	Found-Object (Man-Made) Old Silvermine Shoe Selective Development	Process-Photos 1st Sequence Slides (1 - 5)
No. 2.	Found-Object (Natural) Joshua Tree Stump Suggestive Development	2nd Sequence Slides (6 - 10)
No. 3.	Creek-Bed Slides (Composite) Emergence Single-Image Development	3rd Sequence Slides (11 - 15)
No. 4.	Creek-Bed Slides (Composite) Horror Vacui Multiple-Image Development	4th Sequence Slides (16 - 20)
No. 5.	Micro-Gestural Scribbles Inner Landscape Spontaneous Drawing	5th Sequence Slides (21 - 25)
No. 6.	Macro-Gestural Scribbles Inner Imagery Spontaneous Drawing	6th Sequence Slides (26 - 30)
No. 7.	Process-Recall Observations First Impressions Feedback Drawing	7th Sequence Slides (31 - 35)
No. 8.	Process-Recall Reflections Final Impressions Feedback Drawing	8th Sequence Slides (36 - 40)

Note: Visual Presentation (Non-Typescript Material)

The slides for each drawing are arranged in clear plastic folders (2) so that the sequences may be viewed even without projection. Instructions, and additional material, for two methods of projection are also included:

sequential projection, using only one projector; or, dissolve projection, using two projectors as described.

The slides are appropriately numbered for both methods.