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ADAPTIVE REGRESSION AND ARTISTIC PREFERENCES
AMONG VISUAL ARTISTS
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Martha Orrick

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Master of Arts degree in Psychology

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ADAPTIVE REGRESSION AND ARTISTIC PREFERENCES  
AMONG VISUAL ARTISTS

By

Martha Orrick

A THESIS

Submitted to  
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## ABSTRACT

### ADAPTIVE REGRESSION AND ARTISTIC PREFERENCES AMONG VISUAL ARTISTS

By

Martha Orrick

Kris's theory of regression in the service of the ego identifies two stages in artistic creation: emergence into consciousness of drive-dominated material, followed by its rational evaluation. It was hypothesized that artists showing this positive response to internal disorder will also respond positively to external disorder in the form of complex or asymmetrical designs. Forty painters and potters were administered the Revised Barron-Welsh Art Scale and the Holtzman Inkblot Technique. Holt's system for scoring primary process in Rorschach responses was adapted to the HIT. Contrary to predictions, scores on the art scale did not correlate significantly with adaptive regression scores on the HIT. An interesting finding was that there were no differences on these measures between male and female artists. Speculations focused on the homogeneity of the sample and changes in artistic tastes since the construction of the art scale. Suggestions for future research were discussed.

For Joyce

## ACKNOWLEDGMENTS

I was told when I embarked on this study that artists were a hard group to involve in research, notoriously suspicious of psychologists and their intentions. They may have good reason to be. But I would like to put it on record that I found the community of artists in and around Lansing, where this study was conducted, to be very welcoming. The percentage of acceptances to my letter soliciting their participation (67%) testifies to that. Subjects in the study traveled to the interview and gave two hours of hard-working time, without compensation. They were good-humoured, open, and as curious about the creative process as I was. I am in their debt for what they taught me and I hope they found some rewards in the experience, too.

The person I have most to thank for my introduction to this community is Eileen McCollough, a gifted artist in her own right. It was her interest in the project that first encouraged me to believe that it would be acceptable to the people I wanted to do it with. Polly Freeman and Beverly Rollins also shared their enthusiasm and experience with me at a critical juncture.

I would especially like to thank Dr. Roger Funk for providing me with a congenial space for interviewing. Others who assisted along the way with various needs and tasks included Andrew Foster, Roger Halley, Jane Harrington, Frear Simons, and Zoli Zlotogorski.

I could not have completed the study without the help of Dr. Robert R. Holt. It was very gratifying to discover that the author of much of the work which had inspired me was himself so generous with his time and critical attention. His willingness to advise me on my use of his scoring system and his offer to check over some of my material himself was crucial. This does not necessarily imply, of course, that he endorses the study.

I have been very fortunate in my relations with my committee. Dr. Robert A. Zucker and Dr. Albert Aniskiewicz are men for whom I have great liking and respect. Their perceptive criticisms of my work have been offered in a spirit which makes me look forward to doing further research--something I have not always assumed I would feel at this stage. The chairman, Dr. Norman Abeles, a man whom one of his students called "a professional's professional," has been my mentor since I first came to Michigan State. He knows, I think, how grateful I am for the steadfast way in which he has shared his expertise with me, but it is a pleasure to have the opportunity to thank him formally.

For years I have been reading Acknowledgments which end with a tribute to the author's spouse. Now I know why. But I find it hard to believe many women in training for a new profession have the degree of undiluted support I have from my husband, James Malcolm.

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I. INTRODUCTION AND OVERVIEW:  
THE STUDY OF CREATIVITY

Fascination with the person of the artist and the way in which a work of art comes into being must be almost as old as the activity of art itself. The reason for this fascination, no doubt, is that creativity is mysterious. Neither artists nor laymen have ever been able fully to trace the sources of the artist's ideas, which seem to lie outside ordinary awareness. The artist has therefore been called either divinely inspired or insane, or, very frequently, both. Plato, for example, wrote that a poet was "a light and winged thing, and holy, and never able to compose until he has become inspired, and is beside himself, and reason is no longer in him." The purpose of this, he continues, is "in order that we listeners may know that it is not the poets who utter these precious revelations while their mind is not within them, but that it is the god himself who speaks, and through them becomes articulate to us" (The Ion, in Rothenberg & Hausman, 1976, p. 32).

Over the centuries since Plato this image of the artist has changed remarkably little. The 19th century physician Lombroso agreed that the artist is not in his right mind--but he attributed it to congenital insanity

rather than to the voice of God (1891). The Romantic era glorified the artist in his vivid relation to the irrational. In popular culture the composer seeking inspiration at the piano, or the painter attacking his canvas, remains a familiar stock figure, as any number of Hollywood film biographies can demonstrate. Perhaps one reason this picture of the artist persists is that, distorted as it may be, it matches at some points the artist's own experience. Anthologies of creators' descriptions of the creative process, such as those by Ghiselin (1952) or Rosner and Abt (1970) yield abundant testimony to the feeling that images or ideas often appear suddenly and unpredictably, with the quality of having arrived from outside consciousness.

A picture comes to me from far off, who knows  
how far, I divined it, I saw it, I made it, and  
yet next day I myself don't see what I have done.

(Picasso, in Ghiselin, 1952,  
p. 60)

With the advent of psychoanalysis, interest in the artist was intensified, if not, in some ways, essentially altered. The unconscious replaced the deity as the source of inspiration but the process remained ineffable. "Before the problem of the creative artist," said Freud, "analysis must, alas, lay down its arms" (1928/1961). In spite of this disclaimer, early analysts found the artist relevant to their explorations in several ways. It was evident to them that the productions of artists had much in common

with dreams and fantasies and could be studied in the same way for clues to the operations of elusive regions of the mind. As the complexities of human motivation unfolded before them, they also recognized that great artists had anticipated their insights. Freud, for example, drew freely on literary works to supplement his clinical material, as in his analysis of Shakespeare's Macbeth and Ibsen's Rosmersholm (1916/1957b). In other instances Freud treated a work of art as a symptom, a reflection of the infantile conflicts of its creator, as in his study of Leonardo da Vinci's painting "Virgin and Child with St. Ann" (1910/1957a).

Psychoanalytic and neo-psychoanalytic theories on art, with their accompanying case studies, therapeutic concerns, and critical essays, represent a continuous tradition from Freud to the present. Major trends in this tradition will be outlined in the following chapter.

Gestalt psychology promised a different approach, defining the creative experience in terms not of individual psychodynamics but of cognitive processes (e.g., Wertheimer, 1945) which resolve a problem by reorganizing elements in its field--a reorganization which takes place instantaneously, in a manner similar to the "flash" of inspiration or insight. Arnheim's work has contributed more specifically to the conceptualization of the perceptual processes of the visual arts (1954, 1969). His theories, however, have rarely been translated into experimental investigations.

Prior to 1950, psychoanalysis and Gestalt theory seem to have accounted between them for the attempts of psychologists to understand and explicate the creative process in the arts. Only three empirical studies of visual artists appear before this date: Patrick, 1937; Prados, 1944; Roe, 1946. The only other source regularly cited in the literature is the work of Wallas (1926), whose intuitively derived phases of the creative process were for some time widely accepted as an accurate description.

By all accounts, 1950 was a watershed year in the study of creativity. Guilford's presidential address to the American Psychological Association (1950) served to announce, if not exclusively to inspire, the wave of investigations which followed. Several explanations have been offered for this burgeoning of interest in a previously neglected area. Barron (1969, p. 1) attributes it to the destructiveness of World War II and the subsequent urgency of the need to understand and develop man's potential for constructive, creative behavior. Stein (1969, p. 909) identifies three sources: (1) the "cold war" and the availability of government funds for research leading to the identification and development of creativity in the sciences; (2) concern over an ethos of conformity, as exemplified by Whyte's "organization man"; (3) a general movement in psychology away from the preoccupation with pathology and toward the study of health and superior functioning. This last has continued to expand, its major spokesman

being Maslow (1959) with his concept of the self-actualizing person.

A distinguishing characteristic of Maslow's work and of most of the post-World War II research is a broadening of the definition of creativity, leading to its separation from the province of the arts. Earlier speculations on the creative person, such as Galton's work on inherited abilities (1870), or even Lombroso's ideas on insanity and creativity (1891), may be subsumed under the more general heading of genius. Terman's monumental study of gifted individuals (1925-1959) also belongs to this tradition, a tradition which is consistent with the time-honored view of the artist as set apart. By contrast, in many studies of the 50's and 60's which used artists as subjects, the tenor of the research was to regard them either as carriers of certain traits believed to be factors in all creativity, or as criterion groups for the development of tests designed to identify creative individuals. Even the investigators at the Institute for Personality Assessment and Research at Berkeley, who sought--and gained--the participation of highly successful and eminent creators, applied their findings toward a generalized portrait of the creative person rather than toward an analysis of unique achievement. A democratic attitude toward creative abilities was clearly articulated by Guilford in his presidential address, when he cited as one of the reasons for the neglect of creativity by psychologists the difficulty of studying the

phenomenon if research subjects are restricted to superior performers. He went on to say,

It is probably only a layman's idea that the creative person is peculiarly gifted with a certain quality that ordinary people do not have. This conception can be dismissed by psychologists, very likely by common consent. The general psychological conviction seems to be that all individuals possess to some degree all abilities, except for the occurrence of pathologies. Creative acts can therefore be expected, no matter how feeble or infrequent, of almost all individuals. The important consideration here is the concept of continuity. Whatever the nature of creative talent may be, those persons who are recognized as creative merely have more of what all of us have. It is this principle of continuity which makes possible the investigation of creativity in people who are not necessarily distinguished.

(1950, p. 446)

One outcome of this change of focus from the exceptional to the less-than-distinguished creator was a widespread series of attempts to develop tests for identifying potential creativity in individuals who had not produced anything obviously creative. The major work in this field has been done by Torrance (1962) on the identifying of talent in school settings; by Getzels and Jackson (1962) on the relation of creativity to intelligence; and by Guilford himself (1959), using factor analysis to isolate the cognitive abilities associated with creative thinking.

Nicholls (1972) suggests that there are two major approaches to the study of creativity in normal populations: Guilford's approach, in which a trait (or traits) of creativity is assumed and its distribution is examined, and a product-based approach, in which individuals ranked

according to criteria of creative achievement are examined on a number of psychological dimensions, without making the assumption that these dimensions in themselves constitute creativity. An example of the product-based approach is the long-term project undertaken at the Institute of Personality Assessment and Research (IPAR) on the campus of the University of California at Berkeley. The project lasted a dozen years, and over the course of it hundreds of people believed to be creative were tested, interviewed, and observed, many of them in the course of weekends spent "living-in" with the research staff in a house set aside for this purpose. Among the groups studied were architects, writers, mathematicians, industrial researchers, physical scientists, and engineers. The results of these assessments have been extensively reported in the literature (e.g., Barron, 1969; Crutchfield, 1962; Gough, 1961; Helson, 1961, 1967; MacKinnon, 1961, 1962). Although the IPAR investigators started from no theoretical premise regarding the creative person, Barron's portrait summarizing their findings gives support to the psychoanalytic view, and returns us to the image of the artist as one who operates outside the bounds of conventional reality:

The creative individual, in his generalized preference for apparent disorder, turns to the dimly realized life of the unconscious, and is likely to have more than the usual amount of respect for the forces of the irrational in himself and in others.

This respect consists in a faith that the irrational itself will generate some ordering principle if it is permitted expression and admitted to conscious scrutiny. To put the matter more strongly,

I believe that the creative individual not only respects the irrational in himself, but courts it as the most promising source of novelty in his own thought. He rejects the demands of society that he should shun in himself the primitive, the uncultured, the naive, the magical, the nonsensical; that he must be a "civilized" member of the community. Creative individuals reject this because they want to own themselves totally, and because they perceive a shortsightedness in the claim of society that all its members should adapt themselves to a norm for a given time and place.

When an individual thinks in ways which are customarily tabooed, his fellows may regard him as mentally unbalanced. In my view this kind of imbalance is more likely to be healthy than unhealthy. The truly creative individual stands ready to abandon old classifications and to acknowledge that life, particularly his own unique life, is rich with new possibilities. To him, disorder offers the potentiality of order.

(1958, pp. 163-164)

Couched in the psychological terminology of the twentieth century, Barron's description seems an echo of Plato's belief that the poet composes by forsaking reason and that although the state of inspiration may be abnormal through it can come revelations with value for the entire community.

---

This brief overview can do no more than set a context for a study of artists. For more comprehensive reviews and bibliographies of creativity research, the reader is referred to Golann, 1963; Mackler and Shontz, 1965; Rothenberg and Greenberg, 1974(a), 1974(b); Rothenberg and Hausman, 1976; Stein, 1969; Stein and Heinze, 1960.

## II. PSYCHOANALYTIC THEORIES OF ARTISTIC CREATIVITY

Freud himself articulated no comprehensive general theory of art or the creative process. There are, however, two sources in his works for adumbrating such a theory: remarks on art scattered through his theoretical essays, and papers analyzing individual artists and their works. Summaries of Freud's writings on art are offered by Fraiberg (1956), Jones (1957), and Sterba (1940). Sterba points to the paradox that it is Freud's work on neurosis which carries the ingredients of an art theory, while the studies on art actually function to illustrate more general psychoanalytic ideas. For example, his psychosexual analysis of an early memory of Leonardo da Vinci (1910/1957a) traces the etiology of sublimated homosexuality, not the creative process, while his theoretical works on primary and secondary process are more applicable to the production of a work of art.

According to the orthodox psychoanalytic view, art, like the neurotic symptom, is born of conflict. In Formulations on the Two Principles of Mental Functioning (1911/1958), Freud outlines the course of development. The earliest way of functioning, the "primary" process, follows

the pleasure principle. The infant turns toward pleasure and away from pain. When pleasure is not forthcoming, the infant is presumed to attempt to regain it by hallucinating satisfaction, a tactic whose insufficiency compels the formation of a concept of the real world and the adaptive development of an ability to interact with it. This is the "secondary" process, which follows the reality principle. Motor activity, which previously served to discharge tension, is now restrained and converted to thought. One type of thought is split off from this sequence and remains subject to the pleasure principle: fantasy. The essence of Freud's idea of art is that it reconciles the two principles of reality and pleasure. The artist is one who has resisted the necessity of renouncing gratification in favor of reality and who continues to satisfy his desires in his fantasies. Without resting there, however, the artist

finds a way back from this world of phantasy by making use of special gifts to mould his phantasies into truths of a new kind, which are valued by men as precious reflections of reality.

(1911/1958, p. 224)

Yet the truth is that the appeal of art is in its reflection not of real life but of the forbidden fantasy life, which the artist's audience has not wished to renounce any more than he.

In Creative Writers and Daydreaming (1908/1959), Freud explores this idea further. Popular fiction makes the origin in fantasy plain through its obvious similarity

to the daydream. The popular writer allows us to enjoy his daydreams--which are also ours--without shame. Sachs (1942) elaborates on this "community of daydreams" in his work on the creative unconscious.

There are problems with these suggestions, as Jones (1957) makes clear. First, the motivations Freud attributes to artists are insufficient, especially when he reduces them to "honour, power, and the love of women." Second, his speculations are prompted by the art of fiction and are less applicable to the visual arts. In this connection, Jones quotes Fry's critique of Freud's neglect of the aesthetic factor.

With the exception of Sachs, psychoanalytic theorists following Freud have not pursued the problem of aesthetics, but have built on one or the other of his original ideas: art as a solution to conflict, namely the binding of sexual energy, and art as a reflection of the psychosexual history of the individual artist.

Rank (1932), although he elaborates his portrait of the artist considerably with the addition of such concepts as that of will, and although he contrasts rather than identifies the artist with the neurotic, still agrees with Freud that sexual impulses are the root of conflict and that art represents sexual energy transformed. Sachs (1942) identified guilt over forbidden impulses as the artist's motivation to create and the relief of guilt as the reward of creating. This theme of guilt persists in the theories

of other analysts such as Lee (1940) or Fairbairn (1938), who repudiate the idea of sublimation altogether and interpret the making of a work of art as an act of restitution.

Havelka (1968, p. 67) ascribes the somewhat negative or reductionistic trend of psychoanalytic explanations to a dichotomy in Freud's work similar to that noted by Sterba (1940): the distinction between Freud's psychopathology, (which Havelka calls "a moral position on mental health") and his metapsychology, or psychology of mental functions. It is the psychopathological theory, he says, which has led to oversimplifications regarding art and to an unfortunate tradition of "detective work" on artists' neuroses, on the assumption that these are the determining factors in their work--in spite of the fact that the making of a work of art requires a level of both spontaneity and control not usually available to the neurotic. Freud's metapsychology, on the other hand, provides the basis for a general theory of artistic creativity through its treatment of imagination and the articulation of symbols, processes which, in Havelka's phrase regarding the unconscious, assume "the property of what might be termed an operational control function rather than that of a mysterious, hidden repertory of violent but unknown mental events" (1968, p. 37).

Freud, while he initiated the ideas of the conscious, unconscious, and preconscious systems, never fully pursued their implications. This development has taken place in recent years through the work of the ego psychologists,

especially Kris, whose concept of regression in the service of the ego appears to have fulfilled some of the implications of the original theory. Kris restates Freud's assertion regarding fantasy, while placing it in the context of neutralized and non-neutralized energy at the disposal of the ego:

Fantastic, freely wandering thought processes tend to discharge more libido and aggression and less neutralized energy; purposeful reflection and solving problems, more neutralized energy. In fantasy, the processes of the ego are largely in the service of the id . . . In reflective thinking the contrary is likely. Reflective thinking, according to Freud (problem solving as we would prefer to say) serves to a higher degree the autonomous ego interests. Discharge of libido and aggression is therefore likely to be minimized, and that of neutralized ego energy to be of greater relevance.

(1952, pp. 311-312)

Fantasy and the creative process are not synonymous for Kris.

Topographically, ego regression (primitization of ego functions) occurs not only when the ego is weak--in sleep, in falling asleep, in fantasy, in intoxication, and in the psychoses--but also during many types of creative processes. This suggested to me years ago that the ego may use the primary process and not only be overwhelmed by it. This idea was rooted in Freud's explanation of wit (1905) . . . according to which a preconscious thought is "entrusted for a moment to unconscious elaboration," and seemed to account for a variety of creative or other inventive processes.

(Ibid, p. 312)

The experience of creative inspiration takes place during the phase of creation in which the ego withdraws its counter-cathexis of id impulses and allows them, or their derivatives, to enter preconscious thought. The sense of

revelation attested to by so many creative people is, in Kris's view, linked with the passivity of this phase.

"The feeling of triumph and release from tension remind the individual of a phase in his development in which passivity was a precondition of total gratification, and in which the hallucinated wish fulfillment became reality: the period of nursing" (p. 317). The preconscious thought is sexualized at the level of oral gratification.

The creative act, however, does not end with inspiration. A phase follows which Kris calls "elaboration." Countercathexis is re-established and energy is directed to the ego functions of reality-testing--or secondary process--by which the artistic work is formulated, criticized, and prepared for communication to others. These two phases are not simply sequential but are repeated in an oscillation which may recur repeatedly over a varying length of time.

Schafer (1954, 1959) has further explicated the concept of regression in the service of the ego and has related it to performance on projective tests. Ambiguous stimuli require what may be called a creative act. A Rorschach or TAT card is the raw material which must be shaped into an image or story. Regression is facilitated, in that subjects are encouraged to take a non-critical, playful attitude toward the task and to say whatever occurs to them. The situation is passive; the percept is experienced as outside, existing in the stimulus, and

responsibility for it need not be fully assumed. Responses will show to what extent regression occurs or is prevented from occurring, to what extent primary process material arises and is expressed, and to what extent these primitive operations are brought, or not brought, under control. Schafer discusses in general terms how this regression may be analyzed, and Holt has provided a detailed scoring system for measuring it in the Rorschach (Holt, 1970; Holt & Havel, 1960).

Perhaps the earliest to reject the major premise of Freud's theory was Jung, who drew a distinction between the personal and the collective unconscious. The personal unconscious he defined as the repository of psychic processes and contents repressed by reason of their unacceptability. While acknowledging that this level may exert influence over some artists, he called the products of its influence "symptomatic art" and considered it an appropriate object of reductive Freudian analysis (1928). The more significant works, which he called "symbolic art," he believed had their source in a collective unconscious, a stratum of the personality common to all human beings. Symbols formed at this level are no longer merely personal in their genesis or their import; it is their universality which accounts both for the power of great artists and the depth of the response which their work awakens in others.

Other contemporary writers also find the hypothesis of regression unnecessary or inappropriate, but for

different reasons than Jung. Schachtel, for example, taking a more existential view, proposes the idea of auto-centric, or subject-oriented, and allocentric, or object-centered, perception as a more parsimonious explanation for creative experience (1959). The motivation for art, in his view, is not the discharge of tensions generated by libidinal drives but the free play of attention, thought, feeling, and perception in an "open encounter" with the world. His version of the stages of creating is that a period of immersion in the various aspects of the object is followed by a period in which the resulting insights or perceptions are articulated, assimilated and given form in the work. He compares the attitude of the artist with the intensity of interest and the spontaneity of vision of the child.

An especially outspoken critic of the concept of regression in the service of the ego is Kubie (1958). In his view, conscious and unconscious processes alike tend toward rigidity: the conscious processes by virtue of their literal and convention-bound relation to reality; the unconscious processes because they are unconscious and are therefore by their nature unmodifiable and unrelated to the external world. Only preconscious processes are flexible enough to serve as the basis of creative activity.

In between [the conscious and unconscious] come the preconscious functions with their automatic and subtle recordings of multiple perceptions, their automatic recall, their multiple and overlapping linkages, and their direct connections

to the automatic processes which underlie affective states. The rich play of preconscious operations occurs freely in states of abstraction, in sleep, in dreams, and as we write, paint, or allow our thoughts to flow in the nonselected paths of free association.

(Kubie, 1958, p. 44)

Creativity, in fact, depends on free association, which Kubie calls analogous to the creative process--"an analogy which is so close as to be almost an identity" (ibid, p. 54). In order to promote free association he agrees that controls must be relaxed, but in the act of relaxing them the creative process is exposed to the influence of the unconscious by which it can only be deformed and distorted.

What Jung, Schachtel and Kubie have in common seems to be the desire to divorce the creativity of the artist altogether from its Freudian connection with sexuality, aggression and conflict. Art is more than primitive wishes or sublimated drives, they are saying, it is a superior form of functioning in its own right, in which any personal neuroses of the artist can only be a hindrance, never an intrinsic factor. Others have sought a similar formulation. Arieti (1976), for instance, although he retains the concepts of primary and secondary process (redefined without dependence on the structural concepts of id, ego and super-ego) does not consider them adequate to describe creativity, and proposes the term "tertiary process" to suggest the unique quality of the activity by which archaic and obsolete processes combine with others which are normal and

logical in what he calls "the magic synthesis" (1976, pp. 12-13). Arieti's emphasis is on cognition rather than on libido. In this sense, it is similar to Kubie's and Schachtel's definitions of creativity as the making of associative connections.

Schafer himself speaks of a "progression in the service of the ego," suggesting that a

. . . progression of psychic functioning to a level more advanced than the individual's usual level may also be involved in the creative process. The progression of psychic functioning will be evident in the critical, elaborative, analytic and synthetic manipulations of artistic images, scientific concepts, or any creative material demanding intense, hyperacute concentration, rationality or sensitivity. We do rise above ourselves at times too.

(1954, p. 81)

Whatever the theorist's orientation, there appears to be little disagreement on the requirement for creative work of a temporary loosening of controls, the suspension of criticism, and the ability to permit a fluid connecting and disconnecting of associations, similarities, analogies, and the like, without premature closure into familiar or conventional configurations. Whether this process is given the psychoanalytic title "preconscious," or is described in terms of cognition or perception, its qualities appear to be the same. Where disagreements occur is in regard to what is probably the major unresolved problem for a general theory of artistic creativity: the question of whether primitive sexual and aggressive drives are an

inextricable or incidental component of the process. Whether, to put it another way, the processes of problem solving are a sufficient description of what occurs in the production of a work of art, or whether additional motivational or genetic considerations must be taken into account.

### III. EMPIRICAL STUDIES OF VISUAL ARTISTS

#### Observational Studies

Only three attempts have been made to observe artists' behavior directly while they are engaged in creating. In the earliest, Patrick (1937) visited 50 artists in their studios and asked each to draw a picture about, or suggested by, Milton's poem "L'Allegro." She found that the sequence of work generally followed Wallas' (1926) four stages of creative thought: preparation, incubation, illumination, and verification. Eindhoven and Vinacke (1952) questioned Patrick's use of a priori categories and conducted their own observation of 13 artists (comparing them to 14 non-artists). After watching the artists develop drawings on a set theme over a period of weeks, following a self-chosen schedule, these experimenters concluded that the so-called stages are "not stages at all, but processes which occur during creation" in patterns which are complex and which may vary according to individual differences (p. 161). More recently, Getzels and Csikszentmihalyi (1964), as part of a series of studies of students at the Art Institute of Chicago, have made detailed observations of 31 of these young artists as they selected, arranged, and made drawings of objects

from an array provided by the experimenters. Photographs were taken of the drawings as they developed and final products were judged for aesthetic value, originality, and craftsmanship. One of the authors' premises was that the first step in creativity is the formulation of the problem itself. The results of their study supported this: the drawings rated most original and valuable were those by the artists who had spent the most time in exploring the objects available before making their selections and beginning to draw. The conclusion: "here, in what we have labelled 'discovery-oriented behavior,' seems to lie a key to the creative process." This behavior seems consistent with the theories on preconscious processes described above, in that flexibility and fluidity of association appears to have been maintained by the artist. It also illustrates Schachtel's "open encounter with the world," with its resistance to quick or conventional solutions.

### Personality Studies

In contrast to this observational approach, are two studies by Drevdahl (Drevdahl, 1956; Drevdahl & Cattell, 1958) in which the attempt to understand the creative process is made by way of the personality and intelligence of artists. In the 1956 study, 64 graduate and undergraduate art and science students, divided into creative and non-creative subgroups on the basis of faculty ratings, were

given Cattell's 16 Personality Factor Questionnaire, Thurstone's Primary Mental Abilities Test, and tests from Guilford's Factor Analytic Study of Creative Thinking. According to the results, the more creative students (in both art and science) scored higher on verbal facility, fluency, flexibility, and originality. They were also more withdrawn and quiescent. Creative art students were more radical and self-sufficient, and both creative and non-creative art students were more sensitive emotionally and more bohemian.

In the 1958 study, Drevdahl and Cattell initially contacted 356 "active and productive" artists and writers (as judged by such evidence as listings in Who's Who and ratings by a committee of experts). Of those contacted, 153 eventually completed and returned the Cattell 16 PF Test. Their responses were compared to normative data for the general population. The artists and writers scored significantly higher on intelligence, ego strength, dominance, adventurousness, emotional sensitivity, and radical self-sufficiency, and were less subject to group standards and control. The authors suggest that the findings that creative people are neither conformist nor well-adjusted should have implications for academic selection criteria and for the goals of therapy.

### Rorschach Studies

The majority of studies of visual artists have used the Rorschach, many of them in the hope of identifying responses which might later serve as measures of artistic, or other, creativity. Rorschach's own hypothesis was that the protocols of creative individuals should show (1) a high number of human movement responses, (2) a high number of good form responses, (3) a high number of organized whole responses, (4) a high number of original responses, and (5) a low number of animal responses. The human movement, or M response, in particular, he identified as an indicator of imagination and the potential for creative productivity (1942). Without attempting to review the literature on these response variables, Rorschach studies of artists will be summarized, with attention to the above hypotheses.

The earliest Rorschach study of artists is that of Prados (1944). His subjects were 15 male and 5 female painters, professionals at varying levels of success, working in a variety of styles. In his summary of results, he shows generally high totals of M responses, whole responses, and good form responses--all agreeing with Rorschach's hypotheses. He found "nothing striking," however, in the number of original responses. His conclusions were that artists do share personality traits which give common characteristics to their Rorschach records. He suggests that the individual study of outstanding artists

may give a more detailed understanding of artistic creativeness.

Roe's study (1946) of 20 successful male painters is frequently cited in the literature, both as a pioneering attempt to analyze the personality structure of creative artists and as proof that the Rorschach cannot identify creative ability. Summarizing her results, she gives as the most consistent finding a high number of whole responses. Form responses were not unusually high, and in 7 of the 20 artists' protocols the form responses were poor or vague in quality. She also found in many of the protocols a low number of human movement responses and a high number of animal responses--the reverse of Rorschach's expectations. Her conclusion was as follows:

For a number of these subjects there are in their Rorschachs no indications of creative ability, as this has usually been estimated. In view of the fact that these men are all at the top of a creative profession this is a very striking finding. Some of the protocols, of course, abound in elements which have been interpreted as indicating creative ability, but so many of them had few or none of these that it seemed important to have another opinion than my own.

(p. 403)

She therefore sent the protocols to Dr. Bruno Klopfer for blind analysis. He found evidence of creative ability in only 5 of the 20 records and in no case did he identify the subject as a successful artist.

Roe's study has been criticized by Dudek (1968) on the basis of the special nature of her subjects, who were

taking part in a study of creativity and alcohol at Yale and were all chronic alcoholics, with a mean age of 51. Dudek cites her own study of a younger, non-alcoholic group of writers and painters (1968, p. 539) in which she obtained a high number of M responses. Cohen (1960), in a later study of adaptive regression in artists, finds a different kind of significance in Roe's work. To him "it appears that the very material which so disturbed her (presence of primary process, 'overproduction of responses with sexual content,' etc.), combined with the adequacy of popular responses and 'unusually great W' are some of the same variables which present theory holds are determining factors for creative productivity" (pp. 25-26). We will return to this point later.

As part of a study of the use of the Rorschach in industry, Steiner (1947) administered the Rorschach to 10 commercial artists. Due to the small number of subjects, she does not generalize her findings from this group but she notes, among other tendencies, a high number of M responses (average: 7).

Andersen and Munroe (1948) compared the Rorschach responses of three groups of students at Sarah Lawrence College: 20 students of creative painting, 20 students of composition and design, and 40 students in liberal arts courses. They then compared the responses of the painting students with the results of the Roe (1946) and Prados (1944) studies. The protocols of both groups of art

students were also examined according to Rorschach's original assumptions regarding creative potential. On the variables of interest to this discussion, they found a higher percentage of human movement responses among the painting group and a lower number of animal responses. The design group showed a higher percentage of form responses characterized as constricted. No significant differences were found in the number of popular or original responses. These findings contradict those of the Roe study but are similar to those of the Prados study. They also appear to bear out Rorschach's assumptions concerning the proportion of human movement and animal responses.

Eiduson (1958) compared artists and non-artists to test the hypotheses (a) that artists are significantly different from non-artists in characteristics of thinking and perception, personality, and motivation; (b) that artists who have sought help for psychological problems are not significantly different from artists who have not sought help. Her 65 subjects were divided into three groups: (a) the experimental group, composed of a mixed group of 20 professional artists who had been engaged for at least five years in literature, music, theatre, or visual and graphic arts, all of whom had been studied as outpatients at a psychiatric clinic; (b) control group I, 25 non-artists admitted to the same clinic, selected for their similarity to the experimental group on the variables of age, education, intelligence, sex, diagnostic classification,

and stability of vocation; (c) control group II, 15 artists drawn from the same fields as those in the experimental group and similar to them in stability of vocation, who had never sought psychiatric help. All subjects were given the Rorschach and TAT. Responses were rated globally and scores are not included in the report. Eiduson gives summary data showing that on variables of thinking and perception, emotion, and motivation, both groups of artists differed significantly from non-artists but not from each other. In addition, she concludes that the characteristics common to the artist groups do not fit the common stereotype of artists as neurotic. Among these are the search for originality, responsiveness to sense data, tolerance for ambiguity, and the ability to "relax their thinking without accompanying personality disorganization" (p. 25). Eiduson's study is one of the first in which this question of the pathological sources of artistic activity is directly addressed.

Hersch (1962) presents a developmental analysis of the cognitive functioning of creative artists. He compares Rorschach data from three groups: a "creative" group of eminent artists, a "normal" group of individuals not distinguished for creativity in any form, and a schizophrenic group of hospitalized patients. Basing his study on Werner's comparative developmental theory, he hypothesized that the artists would show a greater availability of both "mature" and "primitive" operations than

non-creative normals, and that the artists would also show more mature responses than the schizophrenics. No hypothesis was stated regarding a comparison of primitive responses in artists and schizophrenics. Among the characteristics defined as mature are: a high number of Movement (i.e., human movement) responses, and a higher number of Form Dominant responses. Primitive characteristics included Form Subordinate responses and a category of "Primitive Thought" (including contaminations, confabulations, and the like). The major hypothesis of the study--that artists will show greater availability of both mature and primitive operations--is generally supported by the results.

The Hersch study is of special interest for two reasons. First, it foreshadows the more recent "adaptive regression" studies which have proven fruitful in the study of artistic creativity. Although Hersch did not use the Holt system for scoring primary and secondary process in the Rorschach (Holt & Havel, 1960), his "primitive and mature operations" are conceptually similar to Holt's categories and are clearly related to the idea of regression in the service of the ego. A second feature of interest in this study is the fact that for his creative group Hersch utilized the data from the controversial Roe study (1946). In the same artists' responses in which Roe failed to find corroboration of creative ability according to the traditional assumptions of Rorschach scoring, Hersch is now able, using a somewhat different set of assumptions,

to identify some of the cognitive processes which distinguish creative artists from non-creative normals. This contrast in interpretations serves to illustrate the progress made in the years from 1946 to 1962 in the understanding of how creative processes function in artists, and supports Cohen's speculation (1960, pp. 25-26) that the very material which disturbed Roe might, in the light of later theory, be considered evidence in favor of creativity.

Two later studies of artists which follow this approach of looking for creativity through isolated categories of Rorschach responses are those by Rawls and Boone (1967) and Rawls and Slack (1968). Citing earlier work to show that the production of whole responses held up better than any other variable as an indicator of artistic creativity, the first study was designed (1) to verify this statistically, and (2) to evaluate the effect of instructions designed to increase the number of whole responses on their ability to distinguish artist from non-artist groups. The artist group consisted of 16 male and 8 female art teachers; the non-artist group was selected from a pool of graduate students. Discrimination on the basis of whole responses was statistically verified, as predicted. In regard to the second hypothesis, it was found that an instructional set to produce whole responses did not improve discriminatory power. The artist group increased their production only slightly, while such

responses on the part of the non-artists almost doubled. The authors interpret this to mean that artists have a predisposition to produce whole responses whether instructed to do so or not.

The second of these studies (Rawls & Slack, 1968) was intended to clarify some of the inconsistencies in the literature implied by the use of different scoring systems. Scoring the protocols of an artist group (painting and sculpture teachers) and a non-artist group (other teachers), they found that both the Beck and Klopfer systems discriminated the groups on the basis of variables associated with creativity, including whole and human movement responses.

#### Other Instruments

Very few studies of artists have employed instruments other than the Rorschach. Munsterberg and Mussen (1953) used the Thematic Apperception Test for a study of the personality structure of art students. Deriving a set of hypotheses from analytic writings, they matched them with variables on the TAT. Using this method, they found support for beliefs that artists are more introverted, more aggressive, suffer more from guilt feelings and are more concerned with the acceptance of their work than with personal acceptance or recognition. Although Munsterberg and Mussen appear to have found it satisfactory, there are indications elsewhere that the TAT may be ineffective with

professional artists. Roe's sample of painters, for example, found it difficult to respond to, due to what they considered the poor artistic quality of the pictures (1946). Writers, as well as visual artists, have made the same complaint (Rexroth, 1959; Wilson, 1958).

The Barron-Welsh Figure Preference Test, or its derivative the Barron-Welsh Art Scale, has also been used in studies of creativity. This test, which figured prominently in the IPAR studies of creative people, is presumed to measure the preference for complexity and asymmetry over simplicity and symmetry, a preference which has been found to be more common among artists than non-artists (Barron & Welsh, 1952).

For the most part, visual artists have served as criterion groups in the development of the Barron-Welsh scale, rather than as a focus in themselves. Some of the correlates of high scores on this instrument, however, seem relevant to the processes of adaptive regression. The Berkeley researchers found, for example, that a high degree of preference for complex and asymmetrical designs was negatively associated with rigidity, conformity, and constricted interaction with the environment (Barron, 1953). Barron's description of the modal high scorer on the art scale might serve as well for a description of high scorers on a measure of adaptive regression:

The decision in favor of complexity, at its best, makes for originality and creativeness, a greater tolerance for unusual ideas and formulations. The

sometimes disordered and unstable world has its counterpart in the person's inner discord, but the crucial ameliorative factor is a constant effort to integrate the inner and outer complexity in a higher order synthesis. The goal is to achieve the psychological analogue of mathematical elegance: to allow into the perceptual system the greatest possible richness of experience, while yet finding in this complexity some over-all pattern. Such a person is not immobilized by anxiety in the face of great uncertainty, but is at once perturbed and challenged.

(1952, p. 400)

Barron's conclusion is clearly that a positive response to complex and asymmetrical designs is a marker for the ability to regress constructively. This assumption and the instrument itself are discussed further below, in the Methods section.

Finally, Holtzman, Swartz and Thorpe (1971) tested a carefully selected group of advanced art students on the Holtzman Inkblot Technique and compared them with advanced students in architecture and engineering drawing. They found the artist group to be less concerned with details of form and structural organization, more open to percepts showing sex and anatomy, and more apt to produce deviant or bizarre verbalizations. As with the Barron-Welsh studies of artists, this investigation was conducted primarily for purposes of validating the test, rather than to explore hypotheses about artists. This instrument is also discussed below in the Methods section.

Studies of Adaptive Regression  
in Artistic Creativity

Kris' ideas on regression in the service of the ego (1952) have provided the conceptual base for a number of the empirical studies of artistic creativity. Tests of the validity of the construct have been greatly facilitated by the development of a method for scoring the operations of primary and secondary process in the Rorschach by Holt (Holt & Havel, 1960). Not all investigations of adaptive regression have depended on this system, however.

Myden (1959) made a study of the personality characteristics of creative people which pre-dates publication of the Holt system but which draws on Schafer's suggestions concerning use of primary and secondary process and shifts of level in Rorschach responses (Schafer, 1954). Myden's creative sample consisted of 20 subjects (16 male and 4 females) described as "well known" and "from the top ranks of diverse fields in the arts" (p. 142). Painters were represented in this group, as well as theatrical and literary artists. These were compared with 20 equally successful men and women from business or non-artistic professions such as medicine or law. Myden gave each of his subjects a test battery consisting of the Rorschach, TAT, Bender-Gestalt, Human Figure Drawings, and Vigotsky Concept Formation Test. Rorschach Responses were scored quantitatively by one of the traditional scoring systems. They were also analyzed qualitatively for evidence of the

sequence of levels suggested by Schafer: the appearance of regressive, primitive material followed by progressive, critical, and reality-oriented content. Both quantitative and qualitative analysis supported Myden's hypotheses that creative individuals would make greater use of primary process and, at the same time, show less evidence of repression. In regard to a third hypothesis, that the creative group would show a lesser degree of psycho-sexual adjustment, Myden found that there were evidences of homosexual experience in both groups but that its emergence in the non-creative group was accompanied by increases in anxiety not seen in the creative group.

A study by Hersch, based on research for a doctoral dissertation completed in 1957 and published in an article in 1962, has already been referred to. While Hersch does cite Kris in his discussion, the framework for his investigation of cognitive functioning in the creative person is based on Werner' comparative developmental theory, a theory which shows similarities to Kris' ideas. Hersch quotes Werner:

Now, creativity, in its most general meaning is an essential feature of emergent evolution, and this, in turn, implies progression through reorganization. Since we assume that such progress through reorganization cannot be achieved without "starting anew," that is, without regression, it follows that a person's capacity for creativity presupposes mobility in terms of regression and progression.

(Hersch, 1962, p. 193)

Hersch found support for his hypothesis that artists'

Rorschach responses would show a greater use of both primitive and mature thought operations than those of non-creative normals. He also discovered that the artists gave an unusually high number of a type of response designated as Physiognomic. Hersch's definition:

This category includes those responses in which the blots themselves, and not something seen on the blots, are considered as having affective or symbolic qualities, dynamic properties, the attributes of living things and the like. The usual interpretation of the blot as "looking like" a certain object or thing is minimal, and the blot itself is described as being "gay," "vicious," "troubled," and so on . . . Such responses reflect a syncretic relationship between the self and the external world, and are therefore considered primitive.

(p. 195)

Although a small number of such responses were also given by schizophrenic subjects, in their case the percepts were reacted to emotionally as objective reality. In the artists' protocols Hersch finds that although the subject attributes characteristics directly to the inkblot--such as saying that it is "quivering"--he then proceeds to reflect upon the perception. Hersch describes this as a biphasic process consistent with the regression-progression sequence presumed to be essential for creative activity, and he concludes that "it is this response, more than any other, which distinguishes the Rorschach protocols of creators from those of the other two groups," (p. 197). Hersch's comparison of the artists to schizophrenics as well as normals is particularly useful since it will be remembered that these artists are the ones whose responses

were evaluated as non-creative by Roe (1946) and as pathological by Dubek (1968).

Cohen (1960) applied the Holt system of analysis to two groups of 20 advanced art students rated by their teachers as high or low on creative ability. He found that there were significant differences between the two groups, not on the amount of primary process material produced but in the degree of effective control exercised over such material. The creative group was also found to have a lower score on the Rokeach Dogmatism Scale. Cohen's study is of interest in that it represents one of the early confirmations of the usefulness of the Holt system as an operational measure of adaptive regression (or regression in the service of the ego).

Dudek (1968) compared the Rorschach records of artists defined as either successful or unsuccessful. Her "successful" group included 22 writers, 3 sculptors, and 16 painters, who met the criterion of "acknowledged stature." There were 19 artists in the "unsuccessful" groups (not specified as to media). She also compared both of these groups to a group of non-artists who had given a high proportion of human movement responses to Rorschach stimuli. Responses were scored for regressive content by categorizing them according to criteria adapted from Holt: responses showing primitive expressions of drive, confabulatory responses, and responses showing autistic elaboration. The protocols were also scored by a

traditional method. Neither the quantity nor quality of M responses was found to discriminate between groups. Dudek did find evidence that the successful artists projected more regressive content and appeared to shift easily from regressive to normal levels. Although the unsuccessful artists showed less of this fluidity and less regressive content, when this type of material did emerge they were able to use it constructively. By contrast, the non-artist group was not able to integrate primary process material into their responses or to re-establish defenses following its appearance.

#### Comments

With the exception of a few observational studies, the major investigations of artistic creativity have employed projective techniques, primarily the Rorschach. The initial approach taken by investigators was to attempt to substantiate assumptions made by Hermann Rorschach as to the type, quality, and frequency of particular responses associated with creative ability. Emphasis was strongest on the human movement, or M, response, with some attention also being paid to Whole responses and to the level and quality of Form responses. Although some support has been found for Rorschach's assertions, the sum total of results has been equivocal at best (see Rabin, 1968, pp. 590-594). Beyond this, it must be said that this atomistic approach has advanced our conceptual

understanding of the creative process only to a very limited degree.

Psychoanalytic insights into the regressive aspect of the creative process remain intuitively convincing and are consistent with artists' introspections. The difficulty, as has always been the case with psychoanalytic theory, has been in devising measures by which the propositions can be objectively tested. Kris's theory of regression in the service of the ego, by specifying more closely the functional processes involved in the creative act, has provided a firmer base for testing than earlier theories which concentrated on the personal history of the artist. Holt's application of this theory to a quantifiable scoring system for primary process in the Rorschach has made it possible to begin to accumulate findings with greater confidence that we are observing the substrates of creativity rather than merely personal qualities of the artist.

A flaw in some studies of creative artists is the pooling of subjects from a variety of fields, on the apparent assumption that all artistic activity is equivalent. An example of this practice is seen in the study by Eiduson (1958), who included in her experimental group writers, painters, musicians, actors, and directors. While it may be true that the creative process is similar in all the arts, at least at the level at which we are presently able to measure it, this has not been clearly

demonstrated, nor has the influence of the chosen medium on the artist's internal processes been explored. It may be that some of our conclusions about artists are in fact more typical of the samples most commonly tested (such as painters and writers) than of artists in general or artists working in other media. The present study attempts to address this question by including both painters, a group on whom a limited but cohesive body of data has been accumulated, and potters, who have not so far been the subject of published research.

A second set of distinctions which have not always been attended to are those among famous artists, lesser-known artists, art students, and art teachers. Rawls and Boone (1967), for example, appear to make the assumption--like the assumption of homogeneity across fields--that an art instructor is psychologically equivalent to a working artist. Once again, this has not been demonstrated. Other investigators, in search of what they take to be the purest examples of the phenomena of interest, seek out for their sample artists who are particularly renowned (cf. Drevdahl & Cattell, 1958). While the assumption that these creators have more of the creativity trait may be well founded, the possibility needs to be considered that celebrity may have its own correlates, which function independently of talent in gaining fame. Studies such as the one by Dudek (1968), which makes distinctions in levels of success, help to clarify these questions. For the

present study, subjects were enlisted from the ranks of working artists at an intermediate level of attainment--past the student level but not, at this point in their careers, nationally famous.

Finally, it is rare to find a consideration of possible sex differences in artists' approaches to the task of creating. Many reports fail even to specify the sex of the subjects used in the study (e.g. Eiduson, 1958; Eindhoven & Vinacke, 1952). The most typical research strategy is probably that used by Munsterberg and Mussen (1953) and Myden (1959): both males and females, in unequal numbers, are included in the artist group, which is then compared to a control group matched on sex as on other variables. No analysis is offered which differentiates results according to sex. Only Getzels and Csikszentmihalyi (1964) report reasonably equivalent numbers of males and females, and their comparisons do reveal some differences between males and females within fields of specialization. In this study, therefore, while no predictions were made as to their potential differences, equal numbers of male and female artists were included so as to make post hoc comparisons possible.

#### IV. HYPOTHESES AND PREDICTIONS

The stance of the creative artist has been described as one of openness to complexities and irregularities in experience. On the aesthetic plane, this is seen in a preference for designs which are complex and asymmetrical over those which are simple and symmetrical. Perhaps this is because complex, irregular stimuli do not present a ready-made synthesis but require the viewer to perceive or to construct some pattern of relationships which brings the elements into a satisfying equilibrium.

On the plane of inner experience, a parallel may be drawn. When confronted with the ambiguous, provocative stimulus of an inkblot, the creative artist will not try to suppress or deny awareness of bizarre projected images, nor become unduly disturbed by them. Ideas or feelings which are highly charged with sexual or aggressive themes, or which appear in a fantastic or illogical form, can be organized into a coherent construct. What is deviant or eccentric can be included, bound, in a new synthesis. The challenge of disequilibrium is accepted and met.

Hypothesis 1: Artists generally, as compared with non-artists, will tend to prefer visual stimuli which encourage them to resolve the problem of a disequilibrium.

Prediction 1: This sample of artists will score significantly higher than non-artists, using the norms derived for the Barron-Welsh Art Scale.

If the appearance of primary process material may be considered to create a temporary state of disequilibrium, then bringing it under control by giving it a coherent form may be considered to be the restoration of balance. In response to inkblot stimuli, the combination of sexual or aggressive content and/or primitive or illogical thinking with good formal organization of percepts is considered to constitute an operational definition of adaptive regression. The second hypothesis relates the ability to regress adaptively to the aesthetic preferences stated in Hypothesis 1.

Hypothesis 2: A high degree of adaptive regression will be associated with a high degree of preference for designs which are complex and asymmetrical.

Prediction 2: Results will show a significant positive correlation between high scores on the Revised Art Scale and high adaptive regression scores on the Holtzman Inkblot Technique.

Hypothesis 3 is the corollary of Hypothesis 2.

Hypothesis 3: A low degree of adaptive regression will be associated with a low degree of preference for designs which are complex and asymmetrical.

Prediction 3: Results will show a significant positive correlation between low scores on the Revised Art

Scale and low adaptive regression scores on the Holtzman Inkblot Technique.

No hypotheses are stated and no predictions are made concerning potential differences between painters and potters. Since no studies of potters appear in the literature, their inclusion must be considered exploratory. If significant differences do appear, then we may speculate on distinctions in the nature of creativity or the creative process required by the two fields or in the personality patterns of those who are drawn to specialize in one field or another.

## V. METHODS AND PROCEDURES

### Subjects

Previous studies of artistic creativity have generally drawn their subjects from the ranks of either eminent artists or art students. Although these populations may tell us something about artists as compared to non-artists at a similar level of achievement, neither may be typical of artists in general--people who are motivated to work at their craft over a period of years without the rewards of celebrity or the incentives of academic grades and deadlines. Subjects for this study were drawn from this latter population. They may be characterized as "working artists," serious professionals who have not, for the most part, achieved national reputations but who are committed to their work and for whom there is some evidence of local or regional recognition.

Potential subjects were identified through three channels: newspaper announcements of current shows, gallery records, and survey data gathered by a regional artists' association. Once a list of names of artists meeting the criteria had been compiled, a letter was mailed to each by the experimenter, followed by a phone call. None of the subjects in the study was a volunteer. The

rate of acceptance was 66.6%; 60 artists were contacted, of whom 40 agreed to participate.

Subjects were divided equally between two areas of specialization: painting and pottery. The intention here was to avoid the uncertainties inherent in studies in which creators from different fields are lumped together under the single name "artist" (e.g. Eiduson, 1958). Such specification also provided the opportunity to explore the possibility that the creative process might vary with the medium. Half the artists in each group were male and half female. Criteria for inclusion in the study were (1) that the artist should have been working for at least three years in the chosen field, not including time spent in training, and (2) that there should be evidence of a professional level of achievement recognized by others, such as having exhibited works in at least two juried shows or gallery exhibitions. Virtually all the artists in the study exceeded these criteria by a wide margin. It was not required that the artists be self-supporting through the sale of their work. A number of those who took part derive or supplement their main income through teaching. While teaching did not disqualify an artist whose work appeared in exhibitions, no artist was considered eligible on the basis of teaching alone. No attempt was made to evaluate the artists' work for excellence.

Ages of subjects ranged from 26 to 61. The mean age for the total group was 40, with the mean for the females

(42) somewhat higher than for the males (38). Twenty-nine of the artists were married (3 were currently divorced) and 26 had children.

### Instruments

Two instruments were used as means of observing the artists' responses to disorder: the Holtzman Inkblot Technique and the Revised Art Scale of the Welsh Figure Preference Test.

#### Holtzman Inkblot Technique (HIT)

Background. The HIT was developed by Wayne Holtzman and his associates at the University of Texas at Austin to meet the need for a research instrument incorporating the principles of the Rorschach while improving on its quantifiability. In place of the ten inkblots of the Rorschach, to which the subject may give an unlimited number of responses, the HIT provides a series of 45 cards (plus two practice cards) to which the subject gives one response apiece. The examiner's inquiry follows the response to each card and is limited to a few standard questions. These limitations provide for equivalence in the numbers of responses across subjects; lengthening the test improves the reliability of scores. For purposes of re-testing, the HIT is available in two forms, drawn from the original pool of 135 items and matched on criteria of "goodness." Form A alone was used in the present study.

For a more detailed description of the development

of this measure, see Holtzman, Thorpe, Swartz and Herron (1961).

Reliability. Standardization of the HIT was initially carried out in a program involving 15 sample groups of school children, normal adults, and institutionalized patients, for a total of 1334 subjects. Holtzman et al. (1961, p. 104) report intra-scorer consistencies on 9 of the test variables ranging from .89 to .97 and inter-scorer consistencies averaging from .73 to .89. Split-half reliabilities are also reported for each of the 22 variables in the standard scoring system. Among those given, the most relevant for the scoring system used in this study are those pertaining to the variables of Form Definiteness and Form Appropriateness. Using 15 samples, Holtzman reports split-half reliability coefficients for Form Definiteness ranging from .81 to .96 with a median of .88 (1968, p. 149). For Form Appropriateness, the average intra-scorer consistency is given as .92 and the average inter-scorer consistency as .73 (*ibid*, p. 104). These figures indicate that the test is acceptably reliable. Holtzman also cites support for his contention that situational influences such as examiner differences or tone of administration have less effect on HIT responses than they have been shown to have with the Rorschach (1968, p. 148).

The HIT and the study of artists. Two pairs of researchers have used the HIT to obtain measures of creativity: Lake and Telford (1970) and Bowers and van der

Meulen (1970). In both cases, the creativity index was based on Rorschach's assumptions that Human Movement (M) responses represent the capacity for inner creation. A high score on this variable on the HIT was presumed to indicate a high level of creativity.

Only one reported study of artists to date has used the HIT. Holtzman, Swartz and Thorpe (1971) gave the HIT to three groups of advanced students in art, architecture, and engineering as one of a series of studies aimed at extending the construct validity of standard scores for the test. While primary process is not a variable in the standard scoring system, it was found that the artists produced significantly higher scores on variables of Sex, Anatomy, and Pathognomic Verbalization. This was interpreted by Holtzman, et al. to indicate greater comfort with irrational feelings. The artists did not differ from other groups on Form Definiteness, indicating that admission of more highly charged material involved no loss of clarity in their percepts. The finding that artists' inkblot responses show both a high level of primitive content and good form has implications for the scoring system used in this study (see Scoring method, below).

Advantages of the HIT. The value of inkblot stimuli in the testing of artists has been demonstrated (see Empirical Studies, above). By their ambiguity, they require what may be considered a creative act in the organizing of visual data into a coherent percept. An increasing number

of studies also show that responses to inkblots can be analyzed for operational evidence of the theoretically postulated primary and secondary processes. That is, primitive sexual and aggressive content can be identified and its constructive utilization evaluated (see Cohen, 1960; Dudek, 1968; Hersch, 1962; Myden, 1959). All such studies, however, have used the Rorschach.

In spite of the neglect of the HIT as an instrument for the testing of artists, it would appear to have several potential advantages over the Rorschach. First, it was designed with serious attention to its aesthetic quality and should have a high degree of acceptability to artists as a visual stimulus. This proved to be the case with the subjects in this study. Aesthetic acceptability can be a significant factor, as attempts to test artists with the TAT have demonstrated (see Roe, 1946). Second, control over the total number of responses reduces the effect of a variable which may inflate or skew other scores. Cronbach (1949, pp. 409-410) gives examples of how productivity alone may account for differences between groups on Rorschach scores.

Scoring method. The HIT responses were scored according to the procedures outlined in Holt's Manual for the Scoring of Primary Process Manifestations in Rorschach Responses (1970). Although this system was not developed for the HIT, there is no inherent incompatibility between Holt's scoring method and the Holtzman stimuli, which

closely follow the Rorschach model as a projective test. Indeed, Holt specifically states that his system is applicable to a variety of verbal productions:

Drawing on Freud's general descriptions of unconscious processes and on Rapaport's "verbalization scores" for the Rorschach, we tried to frame scoring categories that would fit the unique situation presented by this test. Yet when my colleagues... and I have turned to other types of data and have attempted to see how far we could go in applying the manual to samples of free speech, to dream texts, and to TAT stories, we have found that relatively few changes had to be made--mostly a few additions, in order to cover problems posed by a discursive or narrative format, which Rorschach responses do not have...

(1970, p. v)

Gray (1969) has applied Holt's operational definitions of primary process to the HIT in a study of the effects of productivity on creativity scores. The complete scoring system was not used; he simply summed the number of responses giving evidence of primary process.

In transferring the Holt ratings to the Holtzman blots, only one of the four categories contributing to an Adaptive Regression Score required special adjustments. This is the Form Level score, which draws on Rorschach tables of F+ and Popular responses. The Holt manual includes, however, a 7 point scale, developed by Mayman, for rating the clarity and appropriateness of the percepts. Mayman's criteria were used in rating the responses to the HIT. The Holtzman manual provides categories for judging Form Appropriateness and these were incorporated into the Mayman ratings. The HIT Form Appropriateness

scores are restricted to three points, which would reduce variability in deriving an Adaptive Regression Score. For the complete rating scale used in this study, see the Appendix.

Following Holt's system, each response was rated on three dimensions in addition to Form Level: Content, Formal, and Control and Defense. Content scores rate the expression of libidinal or aggressive drives through the activities or objects referred to in the response. Formal variables are those related to the fluidity or disorder in thinking which can be inferred from the subject's verbalizations. Control and Defense ratings take into account the extent to which drive expression is bound by making it appear reasonable or socially acceptable. The first two categories, Content and Formal, can be thought of as those involving primary process, while secondary process, or ego functions, are at work in the operations of Control and Defense. Within the Content and Formal categories distinctions are also drawn between Level 1 ("crude, direct and primitive" expressions) and Level 2 ("indirect, controlled and socialized"). For example, a simple reference to a crocodile, without the mention of teeth, would get a Level 2 Oral Aggressive score of 1; if teeth were mentioned, the percept would be given a Level 2 score of 2; if the crocodile were seen tearing a person or other animal apart with its teeth, this would receive a Level 1 score of 4. Level 1 scores are generally seen only in psychotic

records; they were rare in the responses of the present sample.

Content and Formal subscores are then used to obtain a rating of Defense Demand (DD). Holt offers two options. In the first, a global DD rating is made of the response as a whole, using a 6 point scale ranging from a score of 1, indicating "virtually no apparent need for defense," to 6, "greatest need for defense." In the second option, the DD values in the Content and Formal categories are simply added together. The second alternative was selected for the present study. In a system which relies so heavily on judgments, it seemed desirable wherever possible to use automatic methods of arriving at a score. Moreover, the summation method provides what is essentially a weighted score, taking into account the number as well as the level of primary process elements appearing in each response.

Form Level ratings establish a tentative score for Defense Effectiveness (DE), which is then adjusted according to the apparent operations of Control and Defense. A summary score rating the degree of adaptive or maladaptive regression implied in each response is figured as the product of these two scores (DD X DE). An overall score for each subject is then computed on the formula  $ARS = \sum (DD \times DE) / R$ , where ARS = Adaptive Regression Score, DD = Defense Demand, DE = Defense Effectiveness, and R = the total number of responses given. In the case of the HIT, R is constant at 45.

To sum up the meaning of the final score, Adaptive Regression is considered to be represented by an averaging of the demand for defense generated by the percepts which the subject sees in the inkblots multiplied by the effectiveness with which the subject handles this potentially threatening material.

Validity and reliability of the scoring method.

Since no manual or other published guide exists for scoring the Holtzman inkblots by the Holt method, a representative protocol was submitted to Dr. Holt for his comments and critical evaluation. The author selected this protocol on the basis of two criteria: (1) it fell in the upper range of the sample with regard to the percentage of responses showing primary process (76% for this subject vs. a mean of 60% for the total sample); (2) the variety of scoring subcategories represented was wide in comparison with other protocols. The protocol was rescored by Dr. Holt. The product moment correlation was then computed for the 34 responses showing scorable primary process. For the 34 pairs of scores,  $r = .89$ . There is therefore reason to believe that the scoring method used in this study is an acceptable application of the Holt system.

The Revised Art Scale of the Welsh  
Figure Preference Test

Background. The Welsh Figure Preference Test (WFPT) grew out of an attempt to construct a picture test for detecting psychiatric abnormality which could be easily

and validly responded to by patients who did not speak English, merely by indicating "Like" or "Dislike" to a series of black and white designs. Factor analysis of subjects' preferences on the initial version of this test revealed a bipolar factor of simplicity-symmetry and complexity-asymmetry (Barron and Welsh, 1952). Qualities which appeared to characterize high and low scorers on these poles suggested that these preferences were associated with artistic taste and possibly also with related personality variables. The 400 items from the original test were therefore administered to a sample of 37 art students and a larger group of 137 "people in general." The scale derived from an item analysis of the preferences exhibited by subjects in this study, which is known as the Barron-Welsh Art Scale, consisted of 40 items disliked more often by artists than non-artists and 25 items liked significantly more often by artists. The items more often disliked by the artists were found to be of the simple-symmetrical type, while those more often liked were of the complex-asymmetrical type. However, since the uneven numbers of items in each category allowed a negative response set to be confused with a complexity-asymmetry preference, the test was re-edited. The latest version, the Revised Art Scale (RA), consists of 60 items, 30 keyed in the "Like" and 30 in the "Dislike" direction. It is this revised scale which was used in the present study.

The RA scale is empirically derived and, in this

study, no assumptions were made as to personality variables the scale may draw upon, beyond the original preference for complexity and asymmetry over simplicity and symmetry. This was taken to be an operational measure of the artist's attitude toward disorder: visual stimuli are preferred in which balance is not obvious or conventional but has to be discovered as it were in the eye of the viewer.

The RA scale and the study of artists. Aiken (1967) offers a review of the literature on the BWAS and the RA scale, with a table of mean scores for a number of professional groups, including artists, architects, writers, research scientists, and mathematicians (p. 7). He also summarizes research showing significant correlations between scores on the BWAS and ratings of creativity.

Rosen (1955) administered the BWAS to 44 art students (22 beginning students, 22 advanced), 8 artist faculty members from the same school, and a matched group of non-artist faculty members. His findings were that (a) scores on the BWAS did not increase with training; (b) while the mean scores of the three artist groups were not significantly different from one another, there was a 19 point difference between the mean scores of the artist and non-artist groups ( $p < .01$ ); (c) the scores of the art students correlated significantly and positively with faculty ratings of the originality of their work ( $r = .40$ ,  $p < .02$ ) and, to a lesser degree, with their grade point averages ( $r = .34$ ,  $p < .05$ ).

Getzels and Csikszentmihalyi (1964) used the BWAS in their very thorough study of students at the Chicago Art Institute. Comparisons by sex and field of specialization showed no significant differences in mean scores, nor did they find significant correlations with scores on an intelligence test.

The Holtzman, Swartz and Thorpe study of student artists, architects, and engineers (1971), which is cited above in the discussion of the HIT, also made use of the original 400 item WPFT. Of nine scales contained in this version of the test, only one failed to show at least one significant correlation with a variable on the HIT. While the authors note that the relationship of these scales to inkblot responses seems to warrant further investigation, they do not attempt to interpret their findings.

Studies of adaptive regression. Three reports show correlations of BWAS scores with scores on adaptive regression. As support for the Holt scoring system, Holt and Havel (1960) display a table of "measures of personality that correlate with Rorschach measures of adaptive vs. maladaptive regression" (p. 313). The BWAS shows a positive correlation of .74 ( $p < .01$ ). No reference is given for the study from which this figure is obtained. The authors acknowledge that the comparisons summarized in their table are suggestive rather than conclusive. They also add, as a word of caution, that preliminary results from another study (also unnamed) involving female college

students do not show the same pattern.

It seems likely that the studies referred to are investigations of creativity and primary process undertaken by Pine and Holt (1960) and Pine (1962). For male student subjects in the earlier investigation, Pine and Holt found significant correlations of adaptive regression scores with five of the ten creativity measures used. For the female students in the same sample, however, adaptive regression scores were not significantly related to scores on any of the creativity tests. Significant correlations were found for the female subjects (a) between control of primary process and the overall creativity score and (b) between amount of primary process expressed and the quality of created productions (including TAT stories). Both these results are contrary to predictions.

In order to pursue the question of generalizability, Pine repeated the study with a sample of 50 male actors (1962). Although the BWAS was included among the measures used in both the 1960 and 1962 studies, scores are given only in the later report, where comparisons are made among all three groups. While the male students show high correlations of BWAS scores with both adaptive regression ( $r = .74$ ,  $p < .01$ ) and control of primary process ( $r = .64$ ,  $p < .05$ ), correlations for the other groups--male actors and female students--are low and not significant. Pine's conclusion is that sample differences make a difference in the relation of creativity and adaptive regression.

The present study was designed to gather further information on the influence of sample variations. Since this study included both males and females in an artist sample, it was expected to shed light on whether the sex differences found by Pine and Holt were peculiar to their student sample.

Reliability of the measure. The reliability of the Barron-Welsh Art Scale is reported by Barron (1965, p. 21) as follows: odd-even reliability, .96; test-retest reliability after six months, .91. The manual does not report reliabilities for the Revised version of the test, but correlation of the RA scale with the BWAS is reported as .85 (Welsh, 1959, p. 9).

### Procedures

Subjects were told that the study was concerned with the creative process and how it might vary among artists in different media, and that the experimenter was interested in artistic preferences and the organization of visual perceptions. Each artist was interviewed and tested individually by the experimenter, in a single two hour session. The art scale was administered first in all cases, followed by Form A of the Holtzman Inkblot Technique. Each artist was then asked to sort the HIT cards into two groups on the basis of "Like" and "Dislike," as he or she had also been asked to do with the art scale designs. In the time remaining, the artist and experimenter

discussed informally the artist's own insights into the creative process, with emphasis on preferred working conditions. This material was not formally analyzed but provided background material for interpretation of the main hypothesis.

An effort was made to standardize testing conditions and provide an environment congenial to the subjects. All but five of the artists were interviewed in a small art gallery maintained by the university art department for the exhibition of student work. In the five cases in which the subject did not live or work near this facility, equivalent space was obtained from the nearest college or university art department. In no case was the subject interviewed either in his or her own studio or in a setting within the psychology department.

Responses to the HIT cards were tape recorded and scoring was done from a verbatim transcript, as recommended by Holt (1970, p. x). Scoring of the HIT protocols was done by the experimenter. In order to reduce potential bias, responses were identified by code only and then scrambled, so that the initial scoring was performed on reconstructed composite protocols.

Scoring of the RA scale is objective, using a key provided in the manual.

## VI. RESULTS

### Hypothesis 1

The first hypothesis predicts that this sample of 40 artists will show a mean score on the art scale similar to mean scores reported for other artist groups in the literature. This hypothesis is not supported.

Mean scores are compared in Table 1, which shows that the mean score of 35.2 for this artist sample is significantly lower than the mean score of 40 derived from earlier studies. This score does prove to be similar to those reported for some art student groups and for other "creative" groups, especially as compared to non-artist groups such as mathematicians. These figures are listed in Table 2.

There are certain difficulties in comparing scores on the art scale, as a result of the changes which have been made in the instrument over the years. The original Barron-Welsh Art Scale (BWAS) included 65 items, of which 40 were to be checked "Like" and 25 "Dislike" to gain the maximum score. The current manual (Welsh, 1959) gives scoring keys for two later versions: a 62 item "Barron-Welsh Art Scale" (24 Like, 38 Dislike) and a 60 item "Revised Art Scale" (30 Like, 30 Dislike). Both scales can

Table 1. Mean Scores of Artist Groups on the Barron-Welsh Art Scale

| Source and Sample                     | Number of Subjects | Mean Score | Standard Deviation      |
|---------------------------------------|--------------------|------------|-------------------------|
| Barron & Welsh<br>(from Barron, 1965) |                    |            |                         |
| standardization sample                | 80                 | 40.3       | 12.9                    |
| cross-validation sample               | 30                 | 39.1       | 13.8                    |
| Rosen (1955)                          |                    |            |                         |
| "established artists"                 | 8                  | 41.1       | (not reported)          |
| "advanced students"                   | 22                 | 40.7       | (not reported)          |
| Orrick (1979)                         |                    |            |                         |
| "working artists"                     | 40                 | 35.2       | 8.3 *t (39)<br>= 3.68** |

\*A score of 40 was used as the population mean

\*\*  $p < .001$ , two tailed

Table 2. Mean Scores of Various Groups on the Barron-Welsh Art Scale

| Source and Sample                     | Number of Subjects | Mean Score | Standard Deviation |
|---------------------------------------|--------------------|------------|--------------------|
| Getzels & Csikszentmihalyi (1964)     |                    |            |                    |
| Male fine arts students               | 35                 | 31.7       | (not reported)     |
| Female fine arts students             | 44                 | 34.7       | (not reported)     |
| Barron (1965)                         |                    |            |                    |
| "Creative" architects                 | 40                 | 37.1       | 9.8                |
| "Representative" architects           | 41                 | 26.1       | 12.1               |
| "Creative" writers                    | 19                 | 32.9       | 11.1               |
| "Creative" women mathematicians       | 16                 | 28.1       | 12.5               |
| "Representative" women mathematicians | 28                 | 26.9       | 15.4               |
| Unselected adult males                | 343                | 13.9       | 11.2               |

be derived from the test booklet shown to the subjects in this study, which contains a total of 86 designs.

The 62 item Barron-Welsh scale in the manual corresponds to the earlier BWAS, with two duplicate designs and one all black design eliminated. Scores on this scale were therefore used for purposes of comparing the artists in this study with those in earlier reports. For all other analyses, however, the artists' protocols were rescored according to the later 60 item Revised Art Scale (RA). The earlier version with its preponderance of "Dislike" items was considered to be more vulnerable to response set. Correlation between the two sets of scores is high:  
 $r = .85$  ( $p < .001$ )

On the Revised Art Scale, the mean score of the total sample is 33.73, with a range from 17 to 49 and a standard deviation of 8.04. Mean scores for the various subgroups in the sample are reported in Table 3. An analysis of variance shows no significant main effects or interactions according to either the sex or medium of the artists in this sample (see Table 4).

#### Additional analyses

In an attempt to assess the influence of response set on their ratings of the art scale designs, subjects were asked at the conclusion of testing to sort the 47 Holtzman cards according to whether they liked or disliked them. Of the 16 artists who liked more than half of the 86

Table 3. Mean Scores on the Revised Art Scale, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Mean  | Variance | Standard Deviation |
|-----------------|--------------------|-------|----------|--------------------|
| Sex             |                    |       |          |                    |
| Males           | 20                 | 33.30 | 59.91    | 7.74               |
| Females         | 20                 | 34.15 | 72.45    | 8.51               |
| Medium          |                    |       |          |                    |
| Painters        | 20                 | 33.05 | 57.95    | 7.61               |
| Potters         | 20                 | 34.40 | 73.83    | 8.59               |
| Sex and medium  |                    |       |          |                    |
| Male painters   | 10                 | 34.20 | 78.84    | 8.88               |
| Female painters | 10                 | 31.90 | 40.54    | 6.37               |
| Male potters    | 10                 | 32.40 | 45.84    | 6.77               |
| Female potters  | 10                 | 36.40 | 101.16   | 10.06              |

Table 4. An Analysis of Variance for the Effect of Sex or Medium on Scores on the Revised Art Scale. (N = 40)

| Source of Variation  | Sum of Squares | DF | Mean Squares | F    | Significance |
|----------------------|----------------|----|--------------|------|--------------|
| Main effects         | 25.45          | 2  | 12.73        | .19  | n.s.         |
| Sex                  | 7.23           | 1  | 7.23         | .11  | n.s.         |
| Medium               | 18.23          | 1  | 18.23        | .27  | n.s.         |
| Two-way interactions | 99.23          | 1  | 99.23        | 1.49 | n.s.         |
| Sex X medium         | 99.23          | 1  | 99.23        | 1.49 | n.s.         |
| Explained            | 124.68         | 3  | 41.56        | .62  | n.s.         |
| Residual             | 2397.30        | 36 | 66.59        |      |              |
| Total                | 2521.98        | 39 | 64.67        |      |              |

designs in the art scale test booklet, 10 also liked more than half of the HIT cards. Of the 24 disliked more than half the art scale designs, 18 also disliked more than half of the HIT cards. Of the artists tested in this study, therefore, 70% showed a tendency to rate in the same direction on both sets of designs. The correlation of the two "Like" totals is .42 ( $p < .01$ ).

### Hypotheses 2 and 3

The second and third hypotheses predict that there will be a significant positive correlation between scores on the Revised Art Scale and Adaptive Regression Scores obtained from responses to the Holtzman Inkblot Technique, that high scores on the RA will be associated with high ARS and low scores on the RA will be associated with low ARS. These hypotheses are not sustained by the results.

For the sample as a whole, the correlation of RA scores with ARS is negative and not significantly different from zero:  $r = -.06$ ,  $p = .36$ . These correlations do not vary significantly according to sex or medium (see Table 5). Mean Adaptive Regression Scores for each subgroup are given in Table 6. An analysis of variance shows no significant effects for either sex or medium (Table 7).

### Additional Analyses

For a discussion of processes of adaptive regression, other categories in the Holt scoring system are of interest, apart from the summary Adaptive Regression Scores.

Table 5. Correlations of Adaptive Regression Scores with Scores on the Revised Art Scale, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Pearson r | Significance |
|-----------------|--------------------|-----------|--------------|
| Sex             |                    |           |              |
| Males           | 20                 | -.06      | n.s.         |
| Females         | 20                 | -.07      | n.s.         |
| Medium          |                    |           |              |
| Painters        | 20                 | -.19      | n.s.         |
| Potters         | 20                 | .19       | n.s.         |
| Sex and medium* |                    |           |              |
| Male painters   | 10                 | -.05      | n.s.         |
| Female painters | 10                 | -.39      | n.s.         |
| Male potters    | 10                 | .01       | n.s.         |
| Female potters  | 10                 | .48       | n.s.         |

\* A  $\chi^2$  test for homogeneity, with 3 df, shows the differences among these groups to be nonsignificant.

Table 6. Mean Adaptive Regression Scores, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Mean | Variance | Standard Deviation |
|-----------------|--------------------|------|----------|--------------------|
| Sex             |                    |      |          |                    |
| Males           | 20                 | 1.51 | 1.47     | 1.21               |
| Females         | 20                 | 1.53 | 1.14     | 1.07               |
| Medium          |                    |      |          |                    |
| Painters        | 20                 | 1.66 | 2.04     | 1.43               |
| Potters         | 20                 | 1.38 | .53      | .73                |
| Sex and medium  |                    |      |          |                    |
| Male painters   | 10                 | 1.33 | 2.77     | 1.67               |
| Female painters | 10                 | 1.98 | 1.30     | 1.14               |
| Male potters    | 10                 | 1.70 | .26      | .51                |
| Female potters  | 10                 | 1.07 | .64      | .80                |

Table 7. An Analysis of Variance for the Effect of Sex or Medium on Adaptive Regression Scores.  
(N = 40)

| Source of Variation  | Sum of Squares | DF | Mean Square | F    | Significance |
|----------------------|----------------|----|-------------|------|--------------|
| Main effects         | .75            | 2  | .38         | .30  | n.s.         |
| Sex                  | .00            | 1  | .00         | .00  | n.s.         |
| Medium               | .75            | 1  | .75         | .61  | n.s.         |
| Two-way interactions | 4.11           | 1  | 4.11        | 3.31 | n.s.         |
| Sex X medium         | 4.11           | 1  | 4.11        | 3.31 | n.s.         |
| Explained            | 4.86           | 3  | 1.62        | 1.31 |              |
| Residual             | 44.68          | 36 | 1.24        |      |              |
| Total                | 49.55          | 39 |             |      |              |

These are (1) the percentage of responses scorable for primary process (PPR) and (2) the scoring categories related to Defense Demand (DD) and Defense Effectiveness (DE). PPR indicates the degree to which drive dominated material has entered into the subject's responses. The mean score on Defense Demand can be thought of as a measure of the intensity or potential threat of this material. And the mean DE score provides an estimate of how effectively the subject has been able to neutralize aggressive or libidinal content by using it imaginatively or by making it appear more socially acceptable.

For the sample as a whole, the mean PPR is .60, with a range from .29 to .89 and a standard deviation of .16. The median is .62. Table 8 gives the mean scores on this variable for the various subgroups. An analysis of variance

Table 8. Mean Percentage of Responses Scorable for Primary Process, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group                 | Number of Subjects | Mean | Variance | Standard Deviation |
|-----------------------|--------------------|------|----------|--------------------|
| <b>Sex</b>            |                    |      |          |                    |
| Males                 | 20                 | .63  | .03      | .16                |
| Females               | 20                 | .58  | .02      | .15                |
| <b>Medium</b>         |                    |      |          |                    |
| Painters              | 20                 | .63  | .03      | .18                |
| Potters               | 20                 | .58  | .01      | .12                |
| <b>Sex and medium</b> |                    |      |          |                    |
| Male painters         | 10                 | .66  | .04      | .20                |
| Female painters       | 10                 | .60  | .03      | .17                |
| Male potters          | 10                 | .60  | .01      | .10                |
| Female potters        | 10                 | .56  | .02      | .13                |

shows no significant effects for either sex or medium (see Table 9).

The overall mean score on Defense Demand is 3.47, indicating that the average response earned between three and four points for the level of potential threat imposed by the primary process implicit in the percept. Since the DD scores were summed in the method used for this study, this constitutes a rather modest level of threat.

The mean for Defense Effectiveness is .87. To interpret this figure, it should be noted that Holt's ratings extend from -3 (seen only in psychotic records) to +2 (a completely successful response). A score of .87 falls between "fairly successful" and "successful" control and defense.

Table 9. An Analysis of Variance for the Effect of Sex or Medium on the Percentage of Responses Scorable for Primary Process. (N = 40)

| Source of Variation  | Sum of Squares | DF | Mean Square | F    | Significance |
|----------------------|----------------|----|-------------|------|--------------|
| Main effects         | .05            | 2  | .03         | 1.07 | n.s.         |
| Sex                  | .02            | 1  | .02         | .92  | n.s.         |
| Medium               | .03            | 1  | .03         | 1.22 | n.s.         |
| Two-way interactions | .00            | 1  | .00         | .05  | n.s.         |
| Sex X medium         | .00            | 1  | .00         | .05  | n.s.         |
| Explained            | .05            | 3  | .02         | .73  | n.s.         |
| Residual             | .88            | 36 | .02         |      |              |
| Total                | .93            | 39 | .02         |      |              |

Mean scores for the subgroups on Defense Demand and Defense Effectiveness are shown in Tables 10 and 12. Once again the homogeneity of this sample of artists is evident. An analysis of variance in each case shows no significant main effects or interactions (Tables 11 and 13).

While Adaptive Regression Scores do not correlate significantly with scores on the Revised Art Scale as predicted, certain of the subgroups within the sample do show significant correlations with RA for some of the other variables. These are shown in Table 14. For the male artists as a group there is a significant positive correlation of RA with PPR and a significant negative correlation of RA with mean DE. This latter correlation is also significantly different from that of the female artists as a group.

Table 10. Mean Scores on Defense Demand, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Mean | Variance | Standard Deviation |
|-----------------|--------------------|------|----------|--------------------|
| Sex             |                    |      |          |                    |
| Males           | 20                 | 3.59 | .75      | .87                |
| Females         | 20                 | 3.35 | 1.04     | 1.02               |
| Medium          |                    |      |          |                    |
| Painters        | 20                 | 3.52 | 1.12     | 1.06               |
| Potters         | 20                 | 3.42 | .69      | .83                |
| Sex and medium  |                    |      |          |                    |
| Male painters   | 10                 | 3.66 | 1.30     | 1.14               |
| Female painters | 10                 | 3.38 | 1.03     | 1.01               |
| Male potters    | 10                 | 3.52 | .27      | .53                |
| Female potters  | 10                 | 3.33 | 1.17     | 1.08               |

Table 11. An Analysis of Variance for the Effect of Sex or Medium on Defense Demand. (N = 40)

| Source of Variation  | Sum of Squares | DF | Mean Square | F   | Significance |
|----------------------|----------------|----|-------------|-----|--------------|
| Main effects         | .65            | 2  | .33         | .35 | n.s.         |
| Sex                  | .56            | 1  | .56         | .59 | n.s.         |
| Medium               | .09            | 1  | .09         | .10 | n.s.         |
| Two-way interactions | .02            | 1  | .02         | .02 | n.s.         |
| Sex X Medium         | .02            | 1  | .02         | .02 | n.s.         |
| Explained            | .67            | 3  | .22         | .24 |              |
| Residual             | 33.89          | 36 | .94         |     |              |
| Total                | 34.56          | 39 | .89         |     |              |

Table 12. Mean Scores on Defense Effectiveness, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Mean | Variance | Standard Deviation |
|-----------------|--------------------|------|----------|--------------------|
| Sex             |                    |      |          |                    |
| Males           | 20                 | .86  | .10      | .32                |
| Females         | 20                 | .87  | .08      | .28                |
| Medium          |                    |      |          |                    |
| Painters        | 20                 | .88  | .10      | .32                |
| Potters         | 20                 | .85  | .07      | .27                |
| Sex and medium  |                    |      |          |                    |
| Male painters   | 10                 | .80  | .16      | .40                |
| Female painters | 10                 | .96  | .04      | .21                |
| Male potters    | 10                 | .92  | .04      | .21                |
| Female potters  | 10                 | .78  | .10      | .32                |

Table 13. An Analysis of Variance for the Effect of Sex or Medium on Defense Effectiveness. (N = 40)

| Source of Variation  | Sum of Squares | DF | Mean Square | F    | Significance |
|----------------------|----------------|----|-------------|------|--------------|
| Main effects         | .01            | 2  | .01         | .06  | n.s.         |
| Sex                  | .00            | 1  | .00         | .02  | n.s.         |
| Medium               | .01            | 1  | .01         | .11  | n.s.         |
| Two-way interactions | .23            | 1  | .23         | 2.72 | n.s.         |
| Sex X medium         | .23            | 1  | .23         | 2.72 | n.s.         |
| Explained            | .25            | 3  | .08         | .95  | n.s.         |
| Residual             | 3.10           | 36 | .09         |      |              |
| Total                | 3.34           | 39 | .09         |      |              |

Table 14. Pearson Correlations of Scores on the Revised Art Scale with Mean Scores for Defense Demand and Defense Effectiveness and with Percentage of Primary Process, According to Sex, Medium, or Sex and Medium. (N = 40)

| Group           | Number of Subjects | Mean DD with RA | Mean DE with RA | PPR with RA |     |
|-----------------|--------------------|-----------------|-----------------|-------------|-----|
| Sex             |                    |                 |                 |             |     |
| Males           | 20                 | .26             | -.42*           | .49**       | } * |
| Females         | 20                 | -.23            | .20             | -.15        |     |
| Medium          |                    |                 |                 |             |     |
| Painters        | 20                 | .02             | -.40*           | .20         |     |
| Potters         | 20                 | -.06            | .19             | .15         |     |
| Sex and medium  |                    |                 |                 |             |     |
| Male painters   | 10                 | .29             | -.42            | -.05        |     |
| Female painters | 10                 | -.45            | -.27            | -.33        |     |
| Male potters    | 10                 | .18             | -.39            | .01         |     |
| Female potters  | 10                 | -.11            | .57*            | .48         |     |

\*  $p < .05$

\*\*  $p < .025$

\* The difference between these two correlation coefficients is also significant ( $\chi^2$  with 1 df,  $p < .05$ ).

If the sample is divided into painters and potters, we see the same negative correlation of DE with RA for the painters. Only the female potters show a significant positive correlation.

Of the four groups it is the female potters who come closest to performing as predicted. Their mean score on the art scale is the highest of the four subgroups: at 38.30 on the BWAS it is not significantly different from the mean of 40 predicted for artist groups. They also

show a positive trend in the correlation of RA scores with Adaptive Regression Scores ( $r = .48$ ), although with an  $n$  of 10 this does not reach the level of significance ( $p = .08$ ). An inspection of their scores shows that this correlation accompanies low rather than high levels of adaptive regression (Hypothesis 3). No subject in the female potter group had an ARS as high as half a standard deviation above the mean, while six of the ten had scores more than half a standard deviation below the mean.

The female painters show negative correlations of RA with all four scoring categories, generally opposite to the trend of the female potters. The male painters and potters, on the other hand, show scores which are closely parallel with one another: positive correlations with percentage of primary process and Defense Demand, but negative correlations with Defense Effectiveness. It appears that in this sample of artists the choice of medium may express greater differences for the females than for the males.

## VII. DISCUSSION

The major hypothesis of this study is drawn from Kris's theory that the creative process involves an adaptive stance toward the products of unconscious or preconscious thought, a type of functioning which he calls "regression in the service of the ego" (1952). As operationalized in Holt's scoring system for Rorschach responses, this type of "voluntary" regression can be seen in an unthreatened willingness to entertain bizarre, unconventional, violent, or openly sexual images--images which do not flood conscious processes or provoke self-protective reactions but which are received as the raw material for an original synthesis. This has been described as the creative response to disorder, and it has been suggested that an artist finds apparent disorder stimulating since it leads to synthesis-seeking, an activity which is experienced as enlivening and inherently rewarding. If this can be accepted as one way of describing a creative response to the ambiguous visual elements of an inkblot, then, the hypothesis continues, the same mechanism should be apparent in the response to other visual stimuli. If an artist is given the choice between designs which are simple, symmetrical, and orderly and those which are

complex, asymmetrical, and less obviously ordered, he or she will tend to prefer the latter. Like the inkblots, they serve to initiate the seeking of a new and more subtle type of order.

The art scale developed by Barron and Welsh (1952) has been widely assumed to tap into this process. A number of artists or other "creative" groups have shown consistent preferences for the complex and asymmetrical designs among those which the test presents. In this study it was predicted that a sample of working artists--painters and potters--would share these preferences, and that, in addition, these preferences would prove to be correlates, or predictors, of the more complex processes of adaptive regression. Neither of these expectations has been confirmed. The mean score of these artists on the Revised Art Scale is significantly lower than what has come to be considered typical for artist groups. In addition, their art scale scores bear no statistically significant relation to the operations of adaptive regression, insofar as these can be observed in responses to the Holtzman inkblots.

Reasons for the failure of the group as a whole to match the mean scores of the standardization and cross-validation samples on the art scale are difficult to pin down. It may simply be due to sample differences: the tastes of a 1978 group of midwestern artists may simply be different from those of the groups tested by Barron and

Welsh in the early fifties. To assume this would be to dismiss the question too quickly, however, since these artists' scores do resemble those reported by Getzels and Csikszentmihalyi in 1946 for a talented art student sample. They are also clearly more similar to scores given in the literature for other creative groups than to scores of non-artists. See for example the mean scores which Barron (1965) lists for "creative" architects and the scores he cites for non-artists and less creative groups. It may be that this group is more typical of what Barron calls "representative" artists--those who fall somewhere between the untalented and the famous. Indeed, the artists in this sample were selected precisely because they could be characterized as "working artists," committed but not unusually successful professionals who might be more representative of the artist population as a whole. To test the possibility that this accounts for their lower scores would require more detailed information on the make-up of earlier samples, plus a means of rating creativity or excellence. It cannot be assumed that the art scale in itself is a creativity measure, although this is frequently done in the literature because of its generally high correlations with other measures of artistic ability. Nor does this proposition explain why these artists' preference scores should in some cases be exceeded by those reported for pre-professional students (Rosen, 1955).

The question of changes in artistic preferences over

time needs to be considered. There may be a conventional view within the art field regarding symmetry, for example, which differs appreciably from that of non-artists but which varies in popularity according to the problems which stimulate artists in any given era. Since the scale was devised, there has been a renewed interest on the part of some artists in the potentialities of classically simple forms. Several of the artists spontaneously commented while taking the test that they supposed they were meant to like the more geometrical designs because these were "in." There is some support for this interpretation in the ratings which some of the subjects gave to designs classified by the authors of the test as "ruled, simple." These include such simple symmetrical figures as squares, rectangles, and the like. While the bulk of these artists checked "dislike" for these designs, as expected, a substantial minority (13 out of 40) "liked" more than half of them.

The artists' informal comments on the test were enlightening in other ways. A number of them complained about the workmanship in the instrument itself, pointing out the uneven line quality or the crowded format of the test booklet, which they found distracting. "You can tell it was done by a psychologist," said one, who added that he might have liked more of the designs if they had been better executed. The influence of response set was clear, confirming the early finding of Barron and Welsh

(1952) that one of the two major factors influencing scores was a predisposition to accept or reject. Some subjects said that they considered themselves critical and hard to please. A couple remarked that they enjoyed evaluating almost anything they looked at.

In regard to the hypothesis that the ability to regress adaptively will tend to correlate with preferences for complex and asymmetrical designs, this proves not to be the case for this sample. Indeed, evidence from the results suggests that for many of these artists the opposite is true. At least in the case of the males as a group, the more primary process produced the more likely they are to prefer the predicted types of designs but the less likely they are to show effective defenses. This is entirely a matter of correlations--in their mean scores on Defense Effectiveness they do not differ from the females. Why their reactions to the Barron-Welsh should show this negative association with the ability to neutralize primary process is not at all clear. The same trend holds to some extent for painters as a group, but not for potters.

Differences in medium appear to be more salient for the women than for the men. The male painters and potters more nearly resembled one another in their responses than the female painters and potters, who showed opposite trends. One can only speculate as to reasons for this. For example, it may represent a social rather than a

psychological phenomenon. Pottery is a popular and socially recognized artistic activity for a woman who has been occupied in raising a family. While a number of these women are gifted, and recognized as such, some of them are just beginning to emerge into full productivity after years of giving priority to husband and children. For a woman to paint at a level of involvement which qualifies her for professional level exhibitions a more radical choice may be implied.

The female potters are the only group for whom the relation between design preferences and effectiveness of defense tends to correlate as predicted. As noted above, however, this correlation accompanies low rather than high levels of adaptive regression. Is it possible that the more adaptive the response to primary process the more idiosyncratic and the less predictable artistic taste will be, at least in an artist sample? In interviewing these artists, certainly, the idiosyncracies of individual approaches was evident. As a conversation starter, each artist was asked, "What helps you begin the process? What kind of conditions do you like to set up for yourself before you set to work?" Their responses often seemed to illustrate the seeking of a personally satisfying balance between orderly and disorderly processes and environments. An artist whose responses were rich with uninhibited primary process described a worktable as meticulously laid out as a surgeon's tray. Another, whose responses were

impressionistic, fanciful and loose in form, said that work was impossible until the house was clean. Still another, whose life tends to be heavily structured by external demands, looked forward to time in the studio as an experience of release. "It's very therapeutic," said one potter, "to be up to your neck in mud." This anticipation of release seemed especially poignant in the women artists, much of whose time has to be spent in organizing family life. There has been no attempt to quantify the interview material, but the interviewer's subjective impression was that each artist seemed to be working toward a personal equation balancing internal and external freedoms and constraints. Occasionally the balance was surprising. Some of the least repressed material came from artists functioning in highly organized settings. Some of the most controlled--or most uneasy--came from those whose style of life and work more nearly matched the stereotype of artistic unconventionality.

When all is said and done, perhaps the most striking outcome of this study is the very paucity of significant differences between groups--the notable homogeneity of the scores on the various dimensions of adaptive regression. Whatever the specific differences in the technical problems imposed by the different media, the psychological process of creating, at the level defined by Kris's theory and measured by Holt's scoring system, appears to be common to both these types of visual artists.

A previous study by Pine (1962) may cast some light on these similarities. Pine also correlated scores on the Barron-Welsh with a measure of adaptive regression. In a sample of 27 students, he found that the males' adaptive regression scores correlated highly with the Barron-Welsh scores ( $r = .74$ ,  $p < .001$ ), while the correlation for the females was low and nonsignificant ( $r = -.10$ ). For a group of 50 male actors also tested by Pine the correlation was again low and nonsignificant ( $r = .15$ ). Indeed, neither the female students nor the male actors showed significant correlations between any of Pine's creativity measures and their adaptive regression scores on the Rorschach.

In this discussion, Pine surmises that the differences are in part related to the degree of control which the subjects exert over primary process expression. He notes that both the female students and the male actors were less controlled in their responses than the male students. Referring to the male actors, he suggests the possibility that

. . . in a group that as a whole can so readily express primary process content, minor variations in this are not significant predictors of variations in the quality of imaginative productions. This would be in contrast to the sample of male undergraduates who gave fewer and less extreme primary process responses than either the actors or the female undergraduates and who, by personal impression as well, were a more controlled group. In such a group, the differential capacity to "open up" expressively (with adequate control) appears to be a significant predictor of quality of created productions.

(1962, p. 510)

Perhaps the same applies to subjects in this study. With few exceptions, they were highly expressive and entered readily into the imaginative task. In an all-artist sample, minor variations in the components of adaptive regression are not significant predictors of artistic preferences for order or disorder.

In his introduction, Pine suggests that Kris's discussion of regression in the service of the ego and its relation to creativity should be viewed as a broad approximation, which might be subject to variation according to the nature of the sample under investigation. The present study has attempted to specify two groups of artists carefully according to medium and has found that for visual artists responding to visual stimuli the creative process appears to be, psychologically at least, markedly similar. To test this proposition further, it would be desirable to extend it into the specializations and subspecializations of other, nonvisual artists, such as writers, musicians, or performers.

The similarity in scores between male and female artists is especially provocative, given the rarity of such comparisons in this literature. Certainly, this avenue of research ought to be pursued.

#### VIII. SUMMARY AND CONCLUSIONS

Kris's theory of regression in the service of the ego has been widely endorsed as a description of the dynamics of artistic creation. This is conceived of as a two-stage process. In the first stage, primitive illogical thinking is allowed to occur, or ideas with sexual and aggressive content are allowed to enter awareness, in a temporary relaxing of normal controls. In the second stage, controls are reinstituted and the artist's rational and critical faculties are applied to the products of pre-conscious thought. This can be called a positive approach toward the experience of disorder, which has within it for the artist the potential for discovery or creation of a new order. Such an attitude has an analogue in the preference for complex and asymmetrical designs found by Barron and Welsh to characterize artist groups as compared to non-artists.

It was hypothesized that these two styles of approach --to intrapsychic experience and to external stimuli-- should be positively correlated for visual artists. A group of 40 working artists was administered the revised form of the Barron-Welsh Art Scale and the Holtzman Ink-blot Technique. Scoring for the HIT followed the system

developed by Holt as a measure of adaptive vs. maladaptive regression in Rorschach responses. Findings were that this group scored significantly below the norm for creative artists on the Art Scale and that their scores on the scale did not correlate positively and significantly with their Adaptive Regression Scores. Both these findings are contrary to predictions. Additional findings were that there were no significant differences on these measures between male and female artists or between artists in the two media represented, painting and pottery. Indeed, the sample proved to be markedly homogeneous on all variables of interest, including the percentage of primary process responses, the level of defense demand generated by these responses, and the effectiveness of the defenses used to deal with potentially disturbing percepts. These findings were discussed in the light of Pine's speculation that within a group which already tends to be open and expressive fine variations on the dimension of adaptive regression do not have a significant influence on the quality of created productions. It may be that while artists at a similar level of professional achievement show similar internal processes of creativity, their tastes remain idiosyncratic and unpredictable. In this study, at least, artistic preferences were found to be uncorrelated with processes of adaptive regression.

## APPENDIX

## APPENDIX

### Form Level Rating Scale

(From Holt, 1970, p. 91, after Mayman)

#### Rating

- 7 Sharp, convincing forms, easily seen by E.
- 6 Popular and near-popular forms.
- 5 Reasonably plausible, but not terribly convincing forms; takes a little stretching to see.
- 4 Forms that bear only a light resemblance to the blot area; not very plausible, or based on only one point of resemblance.
- 1 Arbitrary forms, very little or no resemblance.
- 5 Vague forms that fit the blot quite well, and non-definitive form combined with appropriate use of color or shading ("fire," "flowers," "dark clouds," "splashing water," "inkstain, running down a water color").
- 4 Vague forms with no other determinant, or forced use thereof: "clouds," "islands," "cave mouth," "piece of dough."
- 3 Amorphous responses, in which form plays no role (and could not, by the nature of the concept). "Sky," "water," "night," "spring" (and other abstract concepts), "urine," (but "wine stain" seen as having some sort of shape).
- 2 Spoiled form responses, to be used when the subject gives what is basically a familiar and good response but introduces some specification that has the effect of markedly lowering the acceptability of the response as a whole.

These definitions were used in rating the form

level of responses to the Holtzman inkblots, and were combined with the criteria in the Holtzman manual for "Form Appropriateness." The Holtzman "Good" category was considered equivalent to a rating of 7, "Fair" to a rating of 5, and "Poor" to a rating of 4 or below. Holtzman does not provide a separate category for popular responses; they may appear as either "Good" or "Fair." The rule followed was to assign the higher rating only if the percept was well elaborated. For example, on Card 12 a popular response involves figures dancing around a fire. Holtzman rates this both "Good" and "Popular." If the subject merely referred to "people dancing around a fire" this was scored 6, as a Popular; if the subject specified "girls dancing around a fire, with clouds in the sky" it was given the full score of 7.

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