

AN EMPIRICAL STUDY OF WERNER'S ORTHOGENETIC  
LAW OF DEVELOPMENT UTILIZING THE  
RORSCHACH TECHNIQUE

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Thesis presented to the School of Graduate Studies  
in partial fulfillment of the requirements for the  
degree of Doctor of Philosophy

UNIVERSITY OF OTTAWA  
OTTAWA, CANADA, 1980



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## CURRICULUM STUDIORUM

Raymond Proulx was born December 20, 1946, in Aylmer, Quebec. He received the Bachelor of Arts degree from Laval University in 1967, and the Master of Psychology degree from the University of Ottawa in 1971.

## ACKNOWLEDGMENTS

This thesis was prepared under the supervision of Professor Henry Coady, Ph.D., of the School of Psychology, Faculty of Social Sciences of the University of Ottawa. The author would like to express his gratitude for his guidance, interest and support without which this study would not have been possible.

The writer is also indebted to Professor Angela Celovsky, Ph.D., for her kind assistance in resolving scoring issues, and to Professor Daniel Lee, Ph.D., for his advice on statistical procedures.

A debt of appreciation goes to Professors Gilles Chagnon and Henry Edwards, Ph.D., for their encouragement and solicitude during the many years of work on this project.

To my dear friends and co-workers, especially Susan Julius, Franceline Quintal and Jeffrey Donner, many thanks for spending numerous hours in the tedious process of coding and scoring a massive array of Rorschach responses.

## INTRODUCTION

Werner's orthogenetic law of development simply states that development proceeds from a state of relative undifferentiatedness to one of greater differentiation, articulation and higher order integration. This principle which was borrowed from embryogenesis and applied to mental development is presented by Werner (1957) in one of his major works as well as many articles dealing with language and perceptual processes (1952, 1956, 1957). In addition to a few studies by two of Werner's students (Friedman, 1953; Hemmendinger), many more empirical studies are required to understand the nature and meaning of the processes implied in the orthogenetic law of development.

The main purpose of this study will be to contribute to a better understanding of Werner's law of development in the specific area of perceptual functioning. The material utilized for this study will consist of children's responses to relatively ambiguous perceptual stimuli, the Rorschach inkblots. This study will span three years in a longitudinal sample to ascertain the rate of development and the nature of the child's perceptual-cognitive processes at each age level.

For the sake of clarity, the first chapter dealing with the review of the literature will be divided into two



parts, the first one dealing with theoretical tenets, i.e., perceptual-cognitive theory and Werner's principles of development, and the second part will try to give an integrated review of Rorschach literature with a focus on those studies related to Werner's theory.

## CHAPTER I

### REVIEW OF THE LITERATURE

The link between the Rorschach and perceptual-cognitive theory dates back to the introduction of the ink-blots, back to Hermann Rorschach. His monograph, "Psychodiagnostics" (1942), is presented as a study or an experience in perception and he seems to give little importance to the content and projective aspects of the subject's responses. In other words, his interest focused mainly on how the subject perceived and structured the blots and not the associative or imaginative wording of his responses. He studied the precision, quality and/or distortion revealed by the subject's percept rather than the ideational material produced. In fact, the Rorschach blots were not considered as a projective technique until at least twenty years after Hermann Rorschach's death. The present study strives to remain faithful to the notion that the Rorschach is a test of perception and therefore the structural and formal aspects of the subject's responses are used rather than a content or semantic analysis.

In structuring the review of the literature section two broad areas were kept in mind, one being perceptual-cognitive theory, the other the Rorschach technique. It

was deemed important to familiarize the reader with perceptual and developmental theory in order to situate the reader historically in the developmental and organismic frameworks, and also to arrive at a working definition of perceptual-cognitive functioning as it could be applied to the Rorschach. After reviewing two philosophical and theoretical positions--empirical-associationistic and organismic-developmental schools--and providing a broad definition of perception, the major portion of this section deals with the developmental theory selected as most likely to serve the purpose of a Rorschach study, Werner's organismic-developmental theory. Werner's orthogenetic principle is presented in detail and complemented by more contemporary authors such as Witkin (1974) who restated and redefined a few of Werner's original concepts.

The second part of the review of the literature presents a selected review of Rorschach research. An attempt was made to present those studies which offer some insight into Werner's laws of development as well as the more general area of perceptual-cognitive development. This part of the review is meant to familiarize the reader with the basic premises underlying Rorschach scores and also provides some empirical support for those Rorschach elements which were selected and included in the present study. The presentation follows the traditional Rorschach categories and proceeds through the locations and determinants which are found in Rorschach developmental studies. The review

covers not only location scores, which have often been singled out in many other studies (Friedman, 1952; Hemmendinger, 1953) as related to perceptual-cognitive processes, but includes Rorschach determinants such as Colour, Movement and Shading. When these Rorschach determinants are presented, consideration is given primarily to their relation to perceptual-cognitive processes. Each broad scoring category (Location, Form, Colour, Movement and Shading) is followed by a final evaluative statement relating the extent to which a particular Rorschach element has contributed to our understanding of perceptual-cognitive processes and how it will be utilized in the present study to further our knowledge in this area.

The first section of this review deals with theoretical issues concerning perception and perceptual-cognitive processes. After a brief introduction to the concept of perception as it relates historically to different systems and schools of psychology, a more elaborate presentation is made of Werner's cognitive theory and his orthogenetic law of development.

# 1. Perceptual-cognitive Theory and the Developmental Framework

## A. Historical Overview of Perceptual Theory

Perception is used at one time or another by almost every psychologist who deals with descriptive accounts of behaviour, personality and development in general. To find

a common definition of the term is not an easy task, mainly because it differs depending on the philosophical tenets and school or system of psychology which is being espoused. In many ways, the study of perception has closely paralleled the history of psychology. One has only to consider the development of psychology and the basic questions dealing with knowledge and how we acquire knowledge to be immersed in various theories of perception and perceptual learning.

The nativism-empiricism controversy which has raged in psychology since all time is a striking example of the diversity which exists in this area of study. British empiricists, who sought to supplant the notion that all knowledge was innate, introduced the idea that knowledge arises from experience alone and that man is born a tabula rasa on which is imprinted, through the means of experience, his knowledge and understanding of the world. This philosophical system gave rise to the American school of associationism which held that perception, i.e., meaningful information of the environment, was based on the accumulation or association of meaningless sensations.

The Gestalt school, along with syncretism and globalism which generally fall into the category of nativism, opposed these views and held that the first perceptions of the child are diffuse and chaotic, but that they slowly organize and transform themselves depending on the developing and evolving organism which imposed the structure

and meaning on the environment (Claparede, 1909; Luquet, 1913; Decroly, 1929). This is perhaps an oversimplification of the issues, but suffice it to say that all these controversies between associationists and Gestaltists, between associationists and the champions of nativism, gave a vital impetus to the modern genetic study of perception.

The empirical-associationistic school of psychology which flourished in the United States at the turn of the century gave birth to studies of perception based on the stimulus features or properties of the sensory data and could be subsumed under the heading of psychophysics. Studies of threshold discrimination in a controlled series of stimulus presentations and quantitative descriptions of the capacities required to make such discriminations (Helmholtz, 1924; Wallach, 1939; Woodworth, 1947) are typical examples of this area of study. From a strict behavioural approach the empirical viewpoint is best expounded by people such as Watson (1919) and Tolman (1932). Here the emphasis was not so much on the measurement of the stimulus dimensions, but of the rate of response.

To what extent have psychophysical measurements of sensory information provided the full story of the nature of meaning in perception still remains the question to be answered. Floyd Allport (1955) makes a noteworthy comment on the matter:

From a phenomenological standpoint, dimensionalities in perception may occur that are not as closely bound to the immediate stimulus. No one can directly control or measure a percept. It has a right to be of any magnitude the individual experiences it to be; and the experience of its magnitude may at times vary considerably from what one might expect from measuring the magnitude of the stimulus. (p. 309)

Allport, in this reference to perception and its relationship to the individual's personal experience, brings to light an important element which is often underplayed in the psycho-physical approach--the person as an individual perceiver. The emphasis shifts from the measurement of the stimulus dimension to that of the subject.

This focus on the observer as a link in explaining perception has led to the development of an important school of thought dealing with such factors as needs, values and personality characteristics as affecting the individual's perception of the world. These motivational elements influence not only the way a person thinks or acts, but also the way he perceives the objects of his environment. Floyd Allport refers to this framework as the Directive States approach which refers to motivational and set theories. In this field we find studies dealing with the influence of needs on perception, the individual's set or expectancy, the influence of stress on perception, the latency of response and emotionally loaded stimuli, values and interests as influencing perceptual styles. Since the late 1940s, Bruner, Postman, McGinnies and Goodman have written extensively on the subject.

One important school of thought which has not yet been discussed is the developmental framework. It is of particular interest for the present study and will serve as focal point in this study of perceptual-cognitive development.

The history of developmental psychology dates back to early childhood educators such as Pestalozzi and Rousseau who advocated that child training methods should be adapted to the child's nature. Karl and Charlotte Buhler (1920) were among the first to offer systematic laboratory research on developmental phenomena such as sucking behaviour and the social interactions of infants. Other important names in Europe, such as Binet (1903) and Simons (1905), studied the development of mental abilities in school-age children. On the American continent, Terman (1916) continued Binet's work. Perhaps the most important figure in all of developmental psychology, Jean Piaget, offered us a scholarly account of cognitive development and structures.

In the United States, at a time when the general empirical trend was a powerful force, Arnold Gesell and his co-workers at Yale stand out as the advocates of a longitudinal and developmental approach to the study of perception. Gesell is well known for his detailed observations of infants and his descriptions of the progressive differentiation which takes place in the child's motor system.



Heinz Werner (1948) presented an orthogenetic law of development which states simply that the individual develops from a state of relative undifferentiatedness to one of greater differentiation and hierarchical integration. This general law of development was applied not only to perception, but also to motor systems and higher mental functions. In fact, this theory can be coined "organismic," meaning that the individual is studied in his totality as a developing and evolving organism rather than in a piece-meal fashion.

The historical perspective presented above was not meant to be exhaustive, but aimed primarily at highlighting two diverging theoretical positions, the first one emphasizing a more empirical, stimulus and/or response-oriented approach, the second finding expression in the organismic, holistic and developmental study of the subject as he interacts with the environment.

The present study will base itself in the organismic-developmental framework which necessarily entails a rather different approach than a researcher interested in the stimulus dimensions of perceptual phenomena.

#### B. Perception as it Relates to Cognitive Functions

Traditionally, perception was defined as a process by which we become aware of the rudiments of reality, while intellectual activities evolved "from a process of combining the simpler perceptual acts" (Ausubel, 1970, p. 551). This

logic might appear circular because each concept is defined as being different from the other and not by what it is. In this way, perception has often been defined in a contrasting and opposite dimension to thought. Perception is nonreflective and provides the building blocks for higher order mental operations.

According to Gibson (1969), perception involves exploration and differentiation of the stimulus, whereas cognition and thought involve executive action and recognition of the stimulus configuration.

It is difficult to reconcile such a clear separation between perception and thought within an organismic-developmental framework. Consideration will be given here for viewing the perceptual-cognitive process in a unitary fashion.

Perceiving reflects an obvious cognitive dimension since the process refers to the way in which an individual actively explores the environment and integrates information from it. To perceive is to become aware in a meaningful way, and therefore perception relies heavily on cognitively integrated schemata of reality. Floyd Allport (1955) presents the problem in the following way:

As a first approximation let us say that it has something to do with our awareness of the objects or conditions about us. It is dependent to a large extent upon the impressions these objects make upon our senses. It is the way things look to us, or the way they sound, feel, taste or smell. But perception also involves, to some degree, an understanding awareness, a meaning or a recognition of

these objects. . . . Thus we can include all the senses and can interpret perception as covering the awareness of complex environmental situations as well as of single objects. Though some psychologists tend to assign this last consideration to cognition rather than to perception the two processes are so closely intertwined that it would be scarcely feasible to consider one of them in isolation from the other. (p. 14)

In order to highlight the fact that both processes are closely intertwined and not easily dissociated, the present study will consider both processes in unison. Whenever perception is mentioned in this text, it will be utilized in a broad sense to include rudiments of thought and the schematized knowledge about the nature of the situation perceived.

### C. Developmental Theories

Developmental theories of perception seem to share certain things in common. First of all, perception is usually not considered as a unitary function totally independent of thought and motor systems. Since most developmental theories are holistic, perception is defined in relation to the total organism and the concern is with how the organism in its entirety evolves and develops rather than with isolated functions, organs and abilities. Secondly, and very much as a consequence of the first point presented, perception and perceptual processes are said to develop in very close accord and to parallel general normal mental development.

The developmental viewpoint, with specific reference to developmental principles which could be applied to a study of Rorschach development, seems clearly represented in Werner's comparative-organismic theory. It was chosen as the main theoretical basis for this dissertation and will be presented in detail.

The term organismic is utilized by Werner (1963) to denote that "every behavioral act, whether outward bodily movements or internalized cognitive operation gains its significance and status in terms of its role in the overall functioning of the organism" (p. 4). The concept is not new and can be found dating back to 1931 in the writings of the famous English neurologist, Hughlings Jackson. It gained more extensive and formalized presentation in the writings of Kurt Goldstein (1939) who is often called the founder of organismic or holistic psychology. In contemporary literature, it finds its place in such theories as those of Abraham Maslow, Andras Angyal and Carl Rogers.

A basic assumption to Werner's theory is that organismic activity has "organizational stability," that is to say that every developing organism has a tendency to conserve its integrity or remain the same even though it undergoes qualitative change. If change is to be adaptive, the individual must maintain organizational stability (integrity) while at the same time demonstrating change in the form of greater flexibility and mobility of internal structures. This apparent paradox between continuity and

discontinuity is presented by Jonas Langer in his analysis of Werner's theory:

Each stage of organization is simultaneously directed toward maintaining continuity or stability and generating discontinuity or transformation. The fundamental thesis is that evolution is a synthetic process that interweaves two antithetical organismic tendencies; to maintain continuity in order to conserve one's integrity (survival and organizational coherence) and to elaborate discontinuity in order to develop. (Langer, 1970, p. 734)

This basic law of development is best known as the orthogenetic principle which Werner borrowed from embryogenesis and applied to mental development. The law simply stated says that development proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation and hierarchic integration. This principle takes into account the aspect of change which occurs in the organism through progressive individuation and specification of functional units within the individual, while at the same time maintaining the integrity of the organism by calling for hierarchic integration of new functions to previously existing ones.

Development is thus conceived as a synthetic process involving the interplay between differentiation of functions and a greater integrity or unity within the individual. Development is conceived as a change over time and here it becomes important to specify the nature of such change. Is development continuous or discontinuous? Is change gradual and does every subsequent stage blend so closely with the

previous as to be indistinguishable? Is change abrupt, continuous and marked by clear delimitation between existing and newly emerging functions?

On this point Werner (1957) is critical of the field of child psychology which has concerned itself mainly with studies of intelligence and learning. These topics lend themselves readily to measurement in terms of accuracy of performance and they were chosen because they provide clear evidence of continuous change. Change was therefore represented as quantifiable proficiency along a continuum of more or less. What was perhaps dangerous in this approach to child development is that:

. . . the successes of workers in these fields obtained by statistical treatment of overt behavior and the successes in practical application have reinforced the conviction that outside the rather trivial notion of continuous increase in achievement with increase in age, developmental theory is not needed. (p. 134)

Here Werner points out the danger of accepting that development occurs only when it is supported by a quantifiable increase in performance. In fact, greater accuracy in certain circumstances may even signify a lower developmental level, as in the case of a decorticate frog who shows greater accuracy in catching flies than the normal frog. Ideally, development in its purest form would be continuous, but usually this is not the case. Development may be quite uneven, occur in spurts, and a continuous change may become distinct very gradually and need not be distinguishable in

a quantitative sense. It becomes important to understand the qualitative changes in the processes and this requires a well articulated theoretical framework. Development can then be characterized by either continuous or quantitative changes which are either gradual or abrupt but also, and perhaps more importantly, by qualitative changes in the types of emerging processes.

As most other "cognitive psychologists," Werner relies on the concept of an internalized schema or schemata as the building blocks making up the process of change which is presented as a dynamic process of schematization. The schema has two purposes, one being structural which can be defined as the end product or the representational forms of knowledge, the other being functional if we consider the schema as the guiding principles of behaviour, as the internal rules which organize and structure knowledge in a coherent fashion. These internal structures of behaviour are in a constant state of change as the individual is exposed to new experiences.

In dealing with the question of perception and thought, Werner does not differ much from Piaget on theoretical issues, but more on definitional issues about what belongs to perception and what to conception. For Werner:

. . . perception is one of the child's autoregulative systems of cognitive action and perceptual judgments are the major class of means by which it is possible to cognize. . . . In sum Werner thinks of perceptual activity as a cognitive system because it is judging about (reconstructing) the selected field of attention. (Langer, 1969, p. 148)

For Werner, perception attains a much closer interdependence with thought to the point that "it is highly unlikely that an operation of pristine perception independent of contemplative judgment can be found in normal behavior." Therefore, like thought, the development of perception and the interrelationships between thought and perception are governed by the orthogenetic principle.

The general pattern of perceptual development would evolve from egocentric perception which is undifferentiated in that we find a fusion between the subject's motor-affective-perceptual activity and the factual attributes of the object. These primitive perceptions were coined as being "physiognomic" in contrast with the geometric-technical mode which is characteristic of a more evolved level of development. This passage from a subject-object fusion (egocentric) to a stage where there is clear differentiation between the subject and object, the subject being able to appreciate and articulate in an objective fashion the elements of reality (perspectivism), is a further elaboration of the general orthogenetic principle. At the lower levels of development, the lack of differentiation between subject and object is described in terms of a fusion between both elements which means that the subject is dominated by



the objective world; he is stimulus bound, caught up by the impact of the stimulus and he remains passive and unable to structure his world. As development progresses toward more advanced stages, there is increased differentiation between subject and object; the subject is less impelled to react to stimuli and more able to structure and organize his world.

From this general principle, i.e., development proceeds from a state of undifferentiatedness to one of greater differentiation and hierarchic integration, Werner elaborates facets or dimensions of mental development which he seems to consider as subprinciples or ramifications of the general orthogenetic principle. He specifies four formal sets of coordinates in the analysis of the individual's genetic level functioning. These four dimensions of development proceed from syncretic to discrete, diffuse to articulate, rigid to flexible and labile to stable.

Syncretic thought is meant to indicate that the child's perceptions are at first connected to somatic-motor activity. Syncretism manifests itself as the fusion of the child's inner feelings and outer phenomena, as the child's inability to differentiate between inner motivation and objective reality. This fusion or lack of distinctiveness between subjective and objective elements means that the child perceives his own feelings as tangible elements at the same level as objects in the environment. For example, feelings of anger experienced by the child can be associated

to a mean mother as well as to a mean toy on which the child has stubbed his toe. In the same way, dreams and images take on a realistic character for the young child. Animism is another example of syncretism: the child attributes thoughts and feelings to inanimate objects. There can also be fusion between subsystems of a system. For example, perceptual modalities such as vision and audition show little distinctiveness in the young child so that a colour can be perceived as cold or warm, a sound as friendly or hostile.

Orthogenesis leads to a progressive functional discreteness between systems of action, between the child's feelings (affective life) and outer reality, between his own inner motivation and outer influence.

The second principle is probably the one which has been studied more extensively in the literature, the continuum between diffuse to articulate which deals with the structural analysis of development and the ability of the individual to give shape and to organize his world efficiently. Diffuseness is characterized by a lack of organization between the parts of a system and their lack of integration with the whole. As stated previously, the child's first motor, affective and sensory reactions are global and nonspecific, and they also lack organization in that the expression of one system of action (sucking) has little coordination with arm or body movements. As development proceeds, motor systems become more discrete and

well integrated and similarly mental activity is characterized by a greater ability of the child to articulate his world with more precision and to integrate new elements with previous learning.

The two following sets of formal coordinates (rigid to flexible and labile to stable) seem related to the child's level of efficiency in dealing with his world. Primitive thought is rigid in that it is inherently bound to the organism's needs and attitudes. Behaviour is therefore repetitive in a perseverative fashion. Development brings with it more flexibility or plasticity of systems in that the child, since he is no longer bound to his own needs and attitudes, can consider other alternatives and outcomes become more of an interplay between organismic needs and environmental demands. The mature child is also not bound to one mode of activity, but he is able to operate at many different levels and he has more resources at his disposal. Primitive structures are also said to be labile: the organism has a very unstable and changing picture of himself in relation to the social order. Development brings with it a stabilization of the organism's self-concept and clearer knowledge of its distinct identity within society. This is a process of individuation which entails greater self-knowledge and the awareness of oneself as a consciously functioning entity.

Let us review the central points of Werner's orthogenetic principle. First of all, development proceeds

from a state of globalness and undifferentiatedness to one of greater differentiation, articulation and hierarchical integration. Differentiation is defined as differentiation of subject and object and also differentiation or specialization of functions or subsystems within a system. It is important to note that differentiation occurs within each stage of development whether it be sensory-motor, perceptual, or the more advanced conceptual level, but it also cuts across stages in that it is a general principle which can be applied to any and all developing functions or structures. Articulation is understood as the progressive definition of parts within a system and the smooth interplay between the well differentiated parts of a system. As the individual progresses through the various stages of development, earlier forms or levels of functioning become hierarchically integrated with new and more advanced functions. This does not mean that one form of functioning is abandoned by the individual, but that as he develops, he has a greater diversity of functions at his disposal and the person can shift from one level to another depending on the situation in which he must cope. Development is therefore multilinear.

These concepts can also be found in other theories which bear some resemblance to Werner's. They will be presented here as an adjunct to help in better understanding and complementing Werner's theory.

Like Werner, Schachtel (1966) presents a very dynamic formulation of perceptual activity. In his major work on the Rorschach technique, Schachtel defines Rorschach perception as "an active structuring process" which differs somewhat from the perception or recognition of everyday familiar objects. In Rorschach perception,

. . . more is left to the activity of the testee, to his conscious-unconscious inclination, his choice and decision, than in the perception of his environment. . . . The greater amount of active structuring in the testee's perception of the ink-blot, as compared with perception of an object of reality, goes together with and is inseparable from the wide range of associations from which to choose a likeness. (Schachtel, 1966, p. 17)

Perception, as it refers to unstructured inkblots, relies not only on recognition and matching skills, but requires cognitive integration of experience and is clearly, for Schachtel, a cognitive task.

His formulations of autocentric and allocentric perception come very close to the developmental model presented by Werner. Autocentricity is defined as a subjective mode of perception in which the individual's own affective states and needs are embedded in object perception to the point that the subject is passively assaulted by the object which remains diffuse and not objectified. This form of perception is very similar to Werner's syncretic and diffuse mode of perception. Allocentric perception is at the other pole of the continuum and it represents objectivity which is the quality of perceiving the object as distinct or

separate from the subject, very much in the way of Werner's subject-object differentiation leading to the stage of perspectivism.

Even though Schachtel's (1966) approach is not strictly cognitive (he does not emphasize mental structures and the development of intellect), he acknowledges Werner's basic propositions and his description of the developmental processes involved in Rorschach perception bears close resemblance to Werner's orthogenetic principle:

All the changes mentioned so far contribute to the important development from the rather undifferentiated perception of an impinging and objectless field, not experienced as separate from an as-yet undeveloped self, to increasing objectification of gradually expanding variety, distinction, and richness. This also requires the change from undifferentiated total sensations to increasing coordination and experiential separation of the various senses, especially touch and sight. The increasing objectification involves the change from undifferentiated, global object perception to increasing perception of distinct object features. (p. 85)

As in Werner's theory, differentiation seems related to the differentiation of the self from the environment as well as to the differentiation of structures.

In similar fashion, Kurt Lewin (1935) also made use of these concepts and the similarities between his and Werner's theory are striking. In Lewin's dynamic field theory, the psychological influence of the environment on the behaviour and development of the child is extremely important. Lewin is interested in the individual child and he criticizes averaging techniques which eliminate the

"accidents" of the environment or individual variations which should be an important subject matter of psychology. He considers in detail the dynamic forces of the milieu upon the individual's behaviour and he considers the total situation, i.e., the individual within his social milieu, as co-determinants of behaviour. Dynamic forces in the environment are investigated simultaneously with the determination of individual differences and with general psychological laws. Field forces are described as valences which create states of conflict, tension or pressure on the individual. Forces within the individual are his psychobiological states of needs, wishes and moods of the moment.

Although Lewin (1935) did not deal specifically with cognitive functions and mental structures, a significant portion of his work presents comparisons between a child's mentality as compared to the adult and to the feeble-minded child. Not unlike Werner, he describes the slow developing structures of the child as a progressive differentiation of systems:

One of the most fundamental dynamic differences between small child and adult is the degree of differentiation in their various psychical regions and systems. The fact that various life-spheres (profession, family, friendships with definite persons, and so on) as well as different needs are much more differentiated in the adult than in the one-year-old child scarcely demands extensive demonstration. In the adult it is generally not difficult to distinguish more peripherally and more centrally located regions. The young child shows far less pronounced stratification. (p. 206)

Differentiation is seen by Lewin as a progressive specialization and diversity of functions. He presents in lieu of explanation the schematic model of cell division and specialization. A lack of differentiation of systems would, as in the case of the feeble-minded child, preclude development and lead to a state of stagnation. The young child is then considered by Lewin as a relatively slightly differentiated as well as relatively soft, mobile system. Mobile does not refer here to flexibility or plasticity of functional systems, but rather that the child is more easily influenced and molded by influences in the field because he has fewer well established and relatively permanent modes of behaviour. In addition to an increasing complexity of units, differentiation is characterized by greater independence of the parts within a unit. This is akin to Werner's notion of differentiation of the self and of increased specificity of functions or subsystems within a system. Progressive differentiation also brings with it a certain amount of fixity or permanence of acquired functions. The fixity or wholeness of the system can be related to Werner's concept of integrity of the organism despite change. Therefore, like Werner, Lewin accepts the notion of a unifying concept of integration as the natural sequence which follows differentiation and introduces in a step-like fashion an increased level of development.

If we examine contemporary literature, we find several authors who have restated the Wernerian concepts of



differentiation, articulation and hierarchic integration and subjected them to experimental scrutiny. Among these we find Witkin (1963, 1974) and his co-workers. Zigler (1963) attacked Witkin for using these concepts, saying that they should be reserved for verbal abilities and that since Witkin's studies occupied themselves mainly with non-verbal and spatial abilities, these concepts were no longer applicable. All the issues in this dispute cannot be given proper treatment in the context of the present study; suffice it to say that Witkin's definitions of these developmental concepts might not be in direct correspondence to Werner's ideology, and these differences will be mentioned whenever necessary in the following presentation.

In similar fashion to Werner, Witkin (1963, 1974) defines differentiation as, first of all, a specialization of subsystems and the degree of separation of these functions and, secondly, as the clear separation between what is identified as belonging to self and what is identified as external to the self. Specialization of functions refers to the organism's ability to mediate specific or discrete functions which in a relatively undifferentiated state were not possible or performed by the system as a whole. Here Witkin seems to be referring to specialization and refinement of response capabilities; for example, at lower levels of development, the child's responses are global body movements, whereas the mature organism is capable of more accurate and specific motoric responses. In the same way,

specialization refers to discreteness or separateness within such spheres as thinking, feeling or perceiving. For example, at lower levels of development, specific stimuli might provoke labile and non-specific emotional responses, whereas at higher levels of differentiation, the organism is capable of much more subtle and refined emotional expressions.

The second aspect of the differentiation concept, the separateness of self and environment, is defined in terms of a greater independence of the individual and a greater capacity to ward off the influence of the environment and rely on functioning from within. This enhanced autonomy and self-reliance naturally evolve from greater self-awareness and articulation of the self-concept. The differentiation of self from the environment first manifests itself in the gradual movement of the child away from the mother and the development in the child of a "sense of separate identity." The development of the self continues throughout the life span of the individual and is always being reformulated depending on the individual's hopes, experiences, achievements, etc.

Articulation is defined in relation to the individual's increasing ability to analyze and structure his experience:

The person who experiences in articulated fashion has the ability to perceive items as discrete from their background, or to organize a field, when the field is disorganized; and to impose structure on a field, and so perceive it as organized, when the field has relatively little inherent structure. In this view the ability to analyze experience and the ability to structure experience are both aspects of increasing articulation. (Witkin, 1974, p. 14)

For Witkin, articulation already has some aspects of integrated activity, except that articulation does not necessarily imply accuracy of functioning. A high degree of differentiation of structures and articulation of responses does not guarantee effectiveness, and in fact Witkin is quick to point out various pathological conditions wherein a high degree of differentiation is present.

From this point on in his theory, Witkin shows a marked divergence from Werner and Lewin. He presents and, to a certain extent, equates "effectiveness of integration" (Werner's hierarchical integration concept) and effectiveness of functioning. Therefore, the process of integration is no longer studied solely as a cognitive process, but presented as a diagnostic tool which permits one to determine the individual's adjustment or pathology. According to Witkin, maturity is therefore conceived as both differentiation and effective integration. Differentiation alone cannot be equated with either normalcy or pathology; many normal individuals are well differentiated but not all well differentiated persons are necessarily mature. The effectiveness of the person's integrative processes will

prove to be a better indicator of maturity.

This first section of the review dealing with perceptual-cognitive theory serves as the basis for this study and will help in the second section when reviewing the Rorschach literature.

The second part of the review of the literature will deal with the Rorschach technique. This review will be selective and try to present as concisely as possible the Rorschach studies which attempted to verify Werner's laws of development while including all other relevant studies in the areas of perceptual-cognitive development.

## 2. The Rorschach Technique

When it was first introduced by Hermann Rorschach, it was called a method of "psychodiagnostics, a diagnostic test based on perception." The basic theoretical premise expounded by Rorschach was that the subjective nature of the percepts elicited by vague or ambiguous visual stimuli are revealing of the subject's desires, motivations, attitudes, his personality.

When Rorschach called his method a diagnostic test based on perception, he meant this literally, the fundamental assumption of his method being that the subject's perceptions, i.e., the visual images elicited by the inkblot, correspond closely to the subject's handling of his environment, especially of his human environment. This correspondence is considered to go so far that specific and different psychological implications are assigned to various aspects of the percepts. Speech is necessary to convey the percepts, but it is the percepts themselves and not the verbal form in which they are

transmitted to the examiner that is fundamental. Similarity of verbal expression does not always imply similarity of percepts. Since percepts are the basis of Rorschach's method of personality analysis, he might have named it "perceptanalysis" as readily as "psychodiagnostics." (Piotrowski, 1950, p. 551)

Another important element to keep in mind is that Rorschach was interested in how a subject perceives rather than what he perceives. Content was secondary as compared to the formal aspects of the subject's percepts:

His primary intent was in getting at the nature of the basic modes of functioning, understanding all of an individual's psychic activity. He was quite explicit in emphasizing that his goal was to uncover how, rather than what, the person experiences. This meant looking, e.g., not so much for the particular content of a subject's preoccupations, hopes, and fears as for the modes by which these psychic events come about: whether they are experienced as impulsive upsurges, as all-pervading emotional states, as lively resonances to the surrounding atmosphere, or as relatively controlled reactions. The concern is more with the formal or functional than with the contextual, substantive aspects of the personality. (Rickers-Ovsiankina, 1960, p. 3)

This study will attempt to remain faithful to Hermann Rorschach's original intent by focusing on how a percept is formed rather than the context of a response. It should also be said that the Rorschach was chosen for this study of perceptual processes because, as stated previously (Schachtel, 1966), the Rorschach stimuli require of the subject an "active structuring" rather than a simple task of "perceptual recognition or matching" as might be the case with the perception of everyday familiar objects. It

was therefore felt that the relatively ambiguous stimulus properties of the Rorschach inkblots would be likely to task the child's cognitive skills and reveal important aspects of his perceptual processing. Secondly, this projective technique was adopted because of the existing body of research dealing with Werner's developmental laws and the Rorschach technique.

Let us now review the available Rorschach findings which contribute to our understanding of Werner's orthogenetic laws of development. Also included in this part of the review are those studies which, although not directly related to Werner's theory, would generally be classified within the organismic-developmental framework.

For the sake of clarity, this section will follow the two broad categories usually presented in the literature, the first dealing with Locations or area components, the second dealing with the Rorschach Determinants: Form, Movement, Colour and Shading.

#### A. Locations

This group of Rorschach scores represents the area utilized by the subject when forming and fashioning a response from the ambiguous stimuli presented to him. Since the ten cards serve as a sample of the individual's day-to-day functioning, his way of handling and organizing the blots is said to indicate his manner of approach in daily life. Quoting from Rapaport, Gill and Schafer (1968):

The subject's approach to the inkblots of the Rorschach test is grossly parallel to, and has a fundamental continuity with, his manner of approaching situations in everyday life. Different persons react differently to new situations, and the same person reacts differently to situations of different kinds. One will be more inclined to strive for a general survey of the situation confronting him; another may concentrate on the separate details of outstanding significance; others may become overconcerned with outlandish, unimportant trifles. (p. 304)

These trends in structuring the situation range from general and global approaches, all the way to a minute focusing on very tiny details.

When dealing with location scores, three of the Rorschach systems developed in America (Klopfer, 1954; Piotrowski, 1950; Rapaport, 1946) offer no developmental data and deal with an adult population. Even though Hertz (1935) and Beck (1937) do provide some insight into children's and adolescent's Rorschachs, they offer little more than scanty normative data and their interest in the field of children's Rorschach is secondary to their major contributions in the area of adult Rorschach psychology.

The well known writings of Ames et al. (1954, 1971, 1974) represent a massive compilation of developmental data on both children and adolescents. These studies provide valuable developmental norms on location scores, but they present serious limitations which will be mentioned at the present time.

First of all, the location scores presented by Ames et al. (1954, 1974) follow, for the most part, the

traditional scoring system of Hertz with no attempt to modify the system when applied to children. The only innovation deals with the Whole response: Ames proposes a system which differentiates four different levels of Whole response depending on whether the subject produces a unitary Whole or one which is subdivided into two or three distinct parts which are then recombined. This would appear to be an oversimplification of the child's perceptual-cognitive activity since it neither takes into account the quality of the responses (the form level and realistic or confabulatory nature of the response are not considered when scoring the response), nor the structural nature of the card (no distinction is made for a whole response given to a broken or unbroken card). It is also only applied to Whole responses while all other locations are presented in their traditional form. No attempt is made to analyze the processes involved in the production of these other location scores. The second major objection to the analysis of locations as presented by Ames is that it is not based on a theory of perceptual-cognitive development, and deals in no way with Werner's organismic developmental approach.

In conclusion the scoring system utilized by Ames was not considered sensitive enough to the processes of differentiation, articulation and integration as they are defined in the present study.

This section of the review will therefore be limited to those studies dealing with the development of



perceptual-cognitive processes in children while utilizing the Rorschach technique, and those Rorschach studies based on Werner's organismic-developmental theory or other developmental theories clearly akin to Werner's formulations.

Dworetzki (1939, 1953) was among the first to offer an in-depth developmental study of Rorschach location scores. She preceeds her Rorschach analysis by a developmental study of the processes involved in the perception of complex, but familiar-looking images. These images were made up of combinations of well known objects. For example one image was a conglomerate of two bananas, two cherries, a strawberry and several plums which were structurally organized to resemble a human figure. Dworetzki asked her 210 subjects, ranging in age from 2 to adult, what they saw. She obtained results which closely parallel genetic principles proposed by Claparède (1907) who states that the child's first perceptions are global and confused impressions, leading to a second stage where the child can distinguish the individual parts within an ensemble, and finally the last stage characterized by the child's ability to synthesize the parts into a meaningful whole while still being able to appreciate the individual parts of the ensemble. Using the material described earlier, the perceptual sequence would present itself first of all by the child (3 to 5 years old) saying that the composite picture looks like "alot of rocks or leaves," or an erroneous

percept such as a "lion" or "lizard" with total disregard for the structural configuration; a second stage (6 to 9 years) would have the child recognizing that it was "two bananas and a strawberry"; while a third stage (10 to 12 years) would provoke a response such as "it's a man skiing, and he is made up of two bananas, a strawberry, etc." In Werner's terminology the sequence would follow from undifferentiated and global perceptions, to differentiation of parts, leading to a hierarchical organization of these parts to form a unified and realistic whole.

In the second part of her study, Dworetzki applies these developmental principles not to the perception of familiar structural configurations, but to unfamiliar and relatively ambiguous stimuli, the Rorschach technique. The task therefore no longer relies solely on recognition or perceptual matching, although these processes are still present in Rorschach perception to some extent, but requires of the child an active restructuring of the stimuli.

Unfortunately in presenting her results, Dworetzki provides general age trends with no statistical analysis of the data. We are therefore unable to appreciate the magnitude and the significance of these age trends. Furthermore, the results of her studies are presented in very ambiguous form: in one table dealing with primitive as opposed to organized and well integrated whole responses, the author presents arithmetical sums in comparing results for three age groups. No indication is given on how these

sums were computed: we must assume that the number of undifferentiated, differentiated and combined whole responses were added--this procedure is questionable. As indicated by Cronbach (1939), if we are dealing with frequency counts, we should not summate the number of responses but rather the number of individuals producing more or less than a pre-determined number of responses.

Other researchers have tried to correct these shortcomings by conducting experimentally and statistically more rigorous studies. Prominent among these we find two of Werner's own students, Friedman (1953) and Hemmendinger (1951). Hemmendinger (1951, 1953, 1977) was the first to provide a developmental analysis of perceptual-cognitive activity based on Werner's orthogenetic laws, while utilizing Rorschach location scores. In an early study, Hemmendinger (1951) used subjects from a population of nursery and grammar-school boys of average intelligence and of average socio-economic background, none of whom showed evidence of emotional abnormality. The author does not elaborate how these children were selected and through what procedures they were said to show "no evidence of emotional abnormality." He divided his 190 subjects into eight groups of children from 3 to 10 years of age, 20 children in each group, and one group of 30 adults from 20 to 40 years old. He utilized the genetic scoring system proposed by Friedman (1953), but neglects to relate how the Rorschach protocols were scored, if independent judges were used and

what was the level of inter-judge agreement. He presents a table of results with probability values for inter-group comparisons, but omits to explain what test of significance was employed. No mention or notice is made about the increasing rate of response at successive ages, and how this increase in rate of response might influence the dependent measures, nor how to control for productivity. He concludes that developmental trends, in support of Werner's theory, were found in Rorschach location scores at three broad age levels: before 5 years old, the child's perceptions are best described as "qualitatively immature, inflexible and undifferentiated." He proposes another distinct change at 6 to 8 years of age which is characterized by a "sudden attraction to small and rarely noticed areas of the blot which are seen as separate and alone and not integrated into larger wholes." Finally, Hemmendinger reports that "only later on (9, 10 years to adult) the subjects will turn to the work of synthesizing these details and parts into larger concepts." This third stage is supposedly related to Werner's concept of hierarchical integration. Hemmendinger's conclusions seem to fit Werner's theoretical premises, but because of the weaknesses in the experimental design and statistical analysis, this study presents findings which remain suspect and warrant further investigation.

Friedman (1953) even though he was primarily interested in studying perceptual regression as it is found

in schizophrenia, did make valid and empirically sound comparisons between children ( $N = 30$ , 3 to 5 years), schizophrenic adults and normal adults. He utilized four judges to score his Rorschach protocols and he is faithful in reporting the levels of his inter-judge agreement. His statistical analysis by means of a Chi square contingency table utilizing the number of individuals producing above or below a pre-determined response level seems appropriate and conforms with procedures proposed by Cronbach (1949). Unfortunately he utilized only one group of very young children (median age 4:2) and apart from the obvious differences between these children and his normal adult group, nothing much can be gained from this study with regard to a developmental analysis of perceptual-cognitive functioning. Nevertheless Friedman is responsible for introducing a scoring system for Rorschach location scores which is based on Werner's developmental theory and which has proven to be a valuable tool in the study of perceptual-cognitive functioning. This system will be reviewed thoroughly in Chapter II where issues of methodology and the scoring instruments utilized in this study will be presented.

Many other studies followed these pioneering efforts by Friedman and Hemmendinger. We will review them in an attempt to establish how the present study can add to the existing body of research.

Siegel (1953) was interested in making comparisons between children of different ages and three types of schizophrenia: catatonic, hebephrenic and paranoid. He attempted to establish parallels between younger ages and the more regressive forms of catatonic and hebephrenic schizophrenia, while older children's perceptual functioning on the Rorschach was hypothesized to resemble the less regressive form of paranoid schizophrenia. As such he did not analyze changes between age groups and apart from the age norms which are available throughout the study, no analysis of these age-related changes is made. Therefore the conclusions we can draw from this study regarding the development of perceptual-cognitive functions remain speculative.

At approximately the same period, Pena (1953) produced another study with the Friedman system which was aimed at evaluating the perceptual functions of patients with degrees of cerebral pathology. Pena does present developmental data on 169 children, but he makes the error of utilizing ratio scores as dependent variables. For example, the amorphous Whole category (Wa) is represented by  $(Wa/W)\%$ . As indicated by Cronbach (1949), this procedure is unsound when the denominators are small, thus rendering the ratio unreliable. It is also unsound as a way of controlling for an increase in number of responses (in this case an increase in number of W), because in the example presented, the Wa variable has not been partialled out of the W score. The

proportion would have been better expressed as  $W_a/(W-W_a)$ .

Phillips (1953, 1954, 1959) was the next to offer a developmental analysis of Rorschach location scores based on Werner's organismic theory. While utilizing Friedman's scoring system for locations, he attempted to broaden the scores to include other aspects of Rorschach performance such as movement and form dominance. Unfortunately he commits the same mistake as Friedman, Siegel and Hemmendinger in trying to control for response productivity. It is well known that as a child grows older, he tends to give a greater number of responses. Because of the relationship between number of responses and any other Rorschach score we may wish to study, it is difficult to evaluate to what extent a progressive change in a Rorschach variable is due to chronological age or to an increased response productivity. To overcome this difficulty, Phillips (1953) proposes to express a Rorschach variable as a proportion of the total number of responses. This method has been criticized by Cronbach (1949) and more recently shown to be unsound by Kalter and Marsden (1970). We will discuss the issue of control for productivity more in length in Chapter III. Suffice it to say at the present time that the questionable procedure utilized by Friedman, Siegel and Phillips throws some doubt on their developmental findings of Rorschach location scores.

Few other studies can be found which utilize the Friedman or another developmental system to study Rorschach

location scores in the context of Werner's theory. The Friedman system is reviewed by Goldfried (1971) and also Lerner (1975), but apart from a few minor innovations by Becker (1956) who proposes a weighting system for each developmental level and Willensky (1959) who suggests that a developmental level be established for each individual card instead of a composite score for all ten cards, little has been done to investigate further the development of perceptual processes as they are revealed by Rorschach location scores. Only Hemmendinger (1953) provides us with normative data on a cross-sectional sample of 169 boys from 3 to 10 years old, but this study has never been replicated and, as mentioned previously, it presents certain methodological weaknesses. The present study therefore proposes, for Rorschach location scores, to replicate some of Hemmendinger's original findings while attempting to improve the control for response productivity.

Friedman's developmental level scoring will be presented more in detail in Chapter II when the issues of the validity and inter-judge agreement are discussed. Working hypotheses will also be presented in Chapter II with predictive statements regarding expected results for Rorschach location scores.

#### B. Determinants

Whereas the location scores gave an indication of the way the subject handles, organizes and structures his environment, the determinants will indicate how the subject



is affected by the environment. The functions do not exclude one another; on the contrary, they are complementary in the sense that the affective mode of responding of the individual will enhance, modify, impede or facilitate his attempts at perceptual organization:

It is a very widespread pejorative view of affects as being disorganizing and/or primitive forms of behavior which has led to a too narrow view of intellect and reason as opposed to affect, and of affect as something rather questionable and at best to be tolerated, provided it is properly controlled. Rorschach himself wrote, rightly, that his whole test, not just the giving of form responses, requires adaptation to external stimuli; this he considered an action of the "fonction du réel." Thus, the omission of the color, shading, and movement responses from the problem of reality-testing and its expression in Rorschach's test would lead to grave errors. (pp. 62-63)

Schachtel (1966) further states that the determinants are important in understanding a subject's "perceptual attitude" which is either "autocentric" or "allocentric."

In the autocentric mode there is little or no objectification; the emphasis is on how and what the person feels; there is a close relationship, amounting to a fusion, between sensory quality and pleasure-unpleasure feelings (pleasure-unpleasure boundedness), and the perceiver reacts primarily to something impinging on him; . . . In the allocentric mode there is objectification; the emphasis is on what the object is like; there is either no relation or a less pronounced or less direct relation between sensory quality and pleasure-unpleasure feelings . . .; the perceiver usually approaches or turns (his attention) to the object actively and in doing so opens himself toward it receptively or, figuratively or literally, takes hold of it, tries to grasp it. (p. 79)

It is fair to assume that Schachtel is attempting to explain the roles of intellect and affect in the process of perceptual organization and integration. The Rorschach determinants should give us an indication of how the subject is affected by his environment. Is he able to master and structure it with adequate proficiency or, on the contrary, is he a slave of his surroundings, is he shaken and disturbed by it to the point of being overwhelmed? These theoretical formulations will become clearer as we review some of the basic processes involved in the Rorschach determinants.

(a) Form:--Perception is not a passive process; it requires of the subject to actively involve himself in seeking out and structuring of what is there. Through form perception, the subject actively structures the stimuli utilizing the most basic of its characteristics, the outline and the contours. First of all, the contours of the blot are apprehended and scanned. This first "taking hold" of the structural features evokes imagery in the individual and memory engrams. The subject then submits his imagery to a critical evaluation in terms of whether or not it fits the contours of the blot. The "goodness" or exactness of fit will be the final step in his decision to present his percept to the examiner. In the process, he has called upon his objectivity, rationality and, in a way, his critical judgment of whether or not his percept matched the blot area chosen. If the "goodness of fit" is adequate, we

can say of the subject that he has displayed a realistic and objective attitude, and good critical judgment.

The Form determinant can be related to:

. . . the intactness of the integrative functions of the ego (to focus attention, discriminate, consciously scan and select from memory), the availability of experience (memory and associational context), and the subject's desire to give accurate responses (in general, his set and motivation in the task).  
(Korchin, 1960, p. 119)

A distinction should be made between Form as a determinant, and the  $F+\%$  which refers to the "goodness of fit" or the exactness of the percept when it is compared to the blot area chosen, regardless of whether or not the response given is determined uniquely by form, or by colour, or by movement. The previous quotation refers to the general notion of "goodness of fit." In a general sense, Form alone refers to the subject's detached, natural and objective way of perceiving. The quality of these perceptions will be determined by the form level, by the  $F+\%$  or the concept of "goodness of fit."

A failure or an immaturity in these basic processes could result in poor form responses, one in which the subject's percept does not fit the blot area. Four of the major Rorschach do not differ in their way of establishing the "goodness of fit": Piotrowski (1957) and Rapaport (1946) endorse the concept of statistical frequency tables, but neither have actually developed such tables; Beck (1961) and Hertz (1970) have based their judgment of good or

poor form on frequency tables. When these scoring systems are utilized for research purposes, a composite form-level rating or F+% is computed to provide a general estimate of the quality of the subject's responses. The procedure when applied to children in studies of development remains essentially the same. Paulsen (1954) and Ames (1974) equate F+% with  $\frac{(F+) + 1/2F \pm X}{F} 100$ . Ames reports in her studies that although the F+% is only 54% at 2 years of age, it rapidly increases to attain 89% by 10 years, and that this is one of the few Rorschach scores which does not show a decrease for any child from year to year.

One criticism which can be levelled at scoring systems which provide only a global estimate of form level is that they do not allow a discrete and differentiated analysis of the cognitive processes involved in producing a good form. Klopfer's (1944) remains one of the only systems which attempted to go beyond the simple plus or minus notation by offering a more detailed method of Form Level Rating. His Form Level Rating includes a subjective evaluation of form accuracy, plus an evaluation of organization and specification, so that each response is given a numerical score ranging from +5.0 to -2.0. Unfortunately this system does not provide a developmental analysis of form perception and a recent review by Exner (1974) puts in question the interscorer reliability of the system.

Apart from the studies of Paulsen (1954), Ames (1974), Levitt (1972) and more recently Exner (1978), which present normative data on a global estimate of form level, no studies could be found which utilize form level of Rorschach responses to study perceptual-cognitive development as it would apply to Werner's organismic theory. The authors previously mentioned limit themselves to the general finding that form level, "goodness of fit" or reality testing improve as the child grows older, but little is said to specify the type of changes involved in the child's improved form level score, nor the most critical ages at which these changes occur. Therefore an analysis of form level was included in the present study of perceptual-cognitive development. While form level is presented as a good measure of differentiation and articulation of the child's response, an attempt was made to find a scoring system which would be discriminating enough to allow a more detailed analysis of the processes involved in the form level score. The Mayman Form Level Scoring System was chosen because it offers a seven-point scale of form level which might permit a more detailed analysis of perceptual-cognitive processes. Also, a study by O'Neill et al. (1976) underlines the importance of form accuracy in perceptual-cognitive studies and the value of the Mayman system to perform such an analysis.

A detailed presentation of the Mayman Form Level Scoring System will be offered in Chapter II along with

hypotheses related to expected developmental changes.

(b) Human Movement Response:--Basic to Rorschach's thinking on the Movement response is that the kinesthetic impression should be felt by the subject when he gave such a response. This implied a perceived sense of imbalance in the structure of the blot and an empathic reaction on the subject's part. Subjects who gave such a response were considered introversive in tendency and the Movement response was usually equated with the absence of overt physical activity. This notion is fundamental to Rorschach's (1942) theory of movement:

The factors which are essentially "inner" or self-determined, and are expressed primarily in experience of motion in the test, are in some way opposed to physical activity, the actual execution of motion. I would like to add an example so that this conclusion is not left simply hanging in air. Dreams are inner or self-determined productions and kinesthesias play an important role in them. On awakening, necessary movements, physical motion begins at once. This movement sets the dream aside. There is, however, a way to recall dreams; lie perfectly motionless on awakening in order not to cover up the kinesthesias of a dream by present physical movement. (p. 72)

To substantiate his claims, Rorschach reports studies by Vold in which weights were placed on a sleeping subject's limbs to intensify dream activity. Nonetheless, Rorschach cautions that since his projective technique gives indications of how the subject experiences his world, not how he lives or acts, a person with strong introversive tendencies can still be extratensive in his behaviour.

Rorschach's original formulation, which posited an inverse relationship between the subject's mobility and his tendency to give kinesthetic responses to the inkblots, was based on a sensory-tonic theory of perception which assumed a constant pole of energy between sensory (kinesthetic) and tonic (proprioceptor) attitudes. The theory suggested a reciprocal relationship between sensory and kinesthetic activities; a decrease or inhibition in one area would lead to reciprocal activity in the other. Rorschach, therefore, assumed that if a subject was in a state of immobility (lack of kinesthetic activity), he would experience an increase in proprioceptor activity which would manifest itself through a tendency to perceive more movements in the Rorschach test.

A subject producing many Ms was usually said to be more successful at inhibiting motor activity, more introspective and contemplative. Rorschach's original postulation of M being related to inhibition of movement and introspective tendencies led to the general statement that the presence of human movement was related to maturity, good intellectual functioning and creativity, providing of course that the human movement was of good quality. In fact most empirical findings tend to agree that M is related to intelligence and creative ability. The presence of good quality M has been shown to relate positively to I.Q. measures or other direct measures of intelligence (Abrams, 1955; Altus, 1968; Ogdon and Allee, 1959; Sommer and Sommer, 1958;

Paulsen, 1941; Tanaka, 1958).

If we now examine the developmental trends reported in the literature, the link between M and maturity becomes even more apparent. Ames et Métraux (1974) report a mean of .1 at age 2 years, with a steady progression to 1.0 at 6 years and 1.7 at 10 years. Also it would appear that static (postural) Ms are more prominent in the younger ages, whereas extensor Ms occur more often in the ages 6 through 10. This is an interesting finding which Ames (1974) relates to the child's increasing ability to deal effectively with his environment as he develops and matures:

Thus, if we may assume that the M responses do reflect the individual's role in life or the nature of his psychic activity, then it would seem from our data that this role becomes increasingly active and increasingly capable as the child matures.

Few other studies, apart from the normative data mentioned above, could be found which utilize the human movement in the study of perceptual-cognitive development, and research is almost nonexistent in the area of human movement response and Werner's orthogenetic laws of development. A noteworthy exception was provided recently by Blatt (1976). He studied normal and pathological development of human movement responses using a similar system to that of Friedman's based on the Wernerian concepts of differentiation, articulation and integration. A first phase of the study established a clear longitudinal change in the quality of the subject's response (from 11 to 30 years



of age) in perceiving human figures on the Rorschach. In the older age groups, there was more articulation of the human figure concept, i.e., there was more elaboration of parts and a greater number of functional attributes given to the figures perceived. Also there was an increase in active Ms as opposed to passive Ms, and more instances where the action was fully integrated and congruent with the figure perceived.

The second part of the study compared the normal adolescent group with a seriously disturbed group of hospitalized adolescents. The patient group gave significantly fewer well differentiated and well perceived human figures.

This study gives support to Werner's orthogenetic laws of development in the perception of the human figure. Development is shown to progress from a state of relative undifferentiation to one of greater differentiation, articulation and hierarchical integration. On closer inspection, it becomes apparent that Blatt's definition of integration does not concur with the aim of the present study. The structural components of perception are the main object of the present study whereas Blatt considered as an integrative response one in which the action performed by the human figure was relevant and showed intentionality, which deals more with the content and semantics of a response. The present study relies more on the structural organization of the parts of a response as a measure of

integration. Blatt's scoring system along with proposed modifications will be studied more in detail in Chapter II.

In summary the human movement and human response are neglected areas of research in the study of perceptual-cognitive development as it is defined in the present study. Only one study (Blatt, 1976) applies the perception of the human figure to Werner's orthogenetic laws of development. This study proposes to utilize the human response and human movement in a similar fashion to Blatt, but also providing a modified operational definition of the concept of integration to fit with the structural aspects of perception as presented in the first section of the review. The basic aim of this part of the study will be to recognize and identify developmental aspects in the perception of the human figure, and to verify through the human response Werner's orthogenetic laws. The scoring system utilized in the developmental analysis as well as working hypotheses will be presented in Chapter II.

(c) Shading Responses:--In the original test, Rorschach did not intend to include the dimension of shading in his blots. In fact, the images formed by his inkblots were uniformly black or coloured. When they were printed, possibly due to poor workmanship, the blots turned out with various nuances and tones of grey and black. It is at this point that Rorschach saw the possibilities of utilizing this added dimension in his study of perception. Through his personal experience with the blots, Rorschach (1942) proposed

that shading reflects:

. . . the capacity for affective adaptability, but an anxious, cautious, unfree type of affective adaptation, a self-control in the presence of others and particularly a tendency toward a basic depressive mood and the attempt to control this in the presence of others. (p. 195)

Since then, the shading determinant has undergone many refinements in scoring with myriads of differing interpretations. Still today it remains the most nebulous and confusing of the Rorschach variables:

The scoring of shading has become more refined than that of any other determinant, indicating whether the shading has been used by the subject as a textural quality, a vista effect, a vague diffusion effect, etc. The inferences drawn from each of these varieties, however, have been the least validated of all Rorschach test indicators. (Rapaport et al., 1968, p. 394)

Shading has traditionally been related to anxiety: Francis-Williams (1968), Halpern (1953), Rapaport (1968), Ames (1974) and Klopfer (1954); and the way a subject handles his anxiety: Schachtel (1966), Piotrowski (1965) and Binder (1959). Many studies can be found either in support of the relation of shading to anxiety (Eichler, 1951; Berger, 1954; Cox & Sarason, 1954; Levitt & Grosz, 1960; Lebo et al., 1960) or in support of the null hypothesis (Goodstein & Goldberger, 1955; Schon & Bard, 1958). We will not review these studies in detail. Suffice it to say that the issue presents no clear consensus and still evokes uncertainty and caution in most clinicians who utilize the

Rorschach technique.

Data becomes even more scanty when considering the area of developmental psychology and perceptual-cognitive functioning. Paulsen (1954) reports an increase with age in texture responses and a decrease with age in diffusion responses. Ames et Métraux (1974) report a mean score for refined and differentiated shading of .6 to .7 until 6 years of age with a steady increase up to 9 years old. Ames (1974) summarizes her findings by saying that, in general, "shading is used as diffusion up to  $5\frac{1}{2}$  years; by 7, it is used much more for differentiation of details within the blot, and by 10 it is used to discern texture." Are these developmental changes due to cognitive maturation and improved cognitive functioning? This issue still remains unresolved and studies relating the cognitive processes involved in the production of a shading response are still lacking. Furthermore no study could be found which utilizes shading as a variable in an analysis of Werner's orthogenetic laws of development.

Since shading does represent a major scoring category in the Rorschach, an effort was made to include this element in the present study of perceptual-cognitive development. Separate categories were not utilized to define different types of shading for reasons which will be made apparent in Chapter II. However care was taken to construct a scoring system which would be compatible with Werner's theory and not only be sensitive to the dimension of

diffusion, differentiation and articulation, but also include the dimension of integration which has thus far been neglected in the literature. The scoring systems utilized along with working hypotheses will be presented in Chapter II.

(d) Colour Responses:--Colour is perhaps the Rorschach determinant which evokes a maximum of agreement among the experts. Exner (1974) provides a concise summary of this accord:

All the systems have incorporated Rorschach's hypothesis that Color is indicative of affect as related somewhat directly to the external world. There is clear agreement between all Systems that healthier subjects demonstrate affect in the Rorschach by Form dominated Color responses, FC, but offer the qualification that even in the most well adjusted, some instances of Color dominated responses will occur. The suggested ratios of CF to FC vary slightly across systems, ranging from one to three to one to four. . . . pure Color response is rare and . . . its presence in a record manifests a liable discharge of affect in which the thought operations are overwhelmed. (p. 238)

Perceptually, colour is the element of the blot which attracts the subject's attention, which assails and compels him to react. As Schachtel states, "the subject is passively struck by the impact of the color which may occur without any thought or attempt at recognition" (pp. 161-65). Schachtel stresses the important element in colour perception which is that the experience of colour is a gratuitous and subjective phenomenon. If the subject is to maintain a certain degree of control over his affectivity, he must first resist the impulse to react immediately to the

impression of colour; he must display a certain amount of impulse control. The degree to which he is successful in the integration of form and colour will indicate his ability to maintain an objective and rational approach even in the face of strong affective stimuli. He will display whether or not he is capable of integrating his affective experience to the more rational aspects of his personality. In a "healthy" individual, colour should not disturb or short-circuit the perceptual processes; on the contrary, colour should facilitate, enrich and enliven the subject's perceptions.

Interpretatively, the FC represents the successful integration of form and colour, and as such is the highest level of colour response along a developmental continuum. They are "indicators of the capacity for affective rapport, for emotional adaptation" (Rapaport); or, again, "a controlled responsiveness which implies that a person can react in an appropriate way to the emotional demands of the situation" (Klopfer). The CF response has always been considered a less mature form of emotional response. It indicates a freer and more relaxed mode of adaptation. The CF per se is not undesirable and in combination with FC "does not have the implications of egocentricity, but can represent spontaneity in the experience and expression of affect" (Schachtel). At the other end of the continuum, the pure C represents a total lack of affective integration and an indication of inappropriate affect. "The pure color

response represents the extreme of impulsive and wild affectivity, or an abandonment of all control" (Rapaport); or, again, "a color response of this sort, therefore, cannot be said to reflect affectivity, but rather a condition of such disorganization or impairment of control functions as to preclude affective response in any ordinary sense of the term" (Shapiro). In fact, the subject is passively affected by the colour to the point that it disturbs and "short-circuits" the usual process of colour-form integration.

The relationship between the colour experiences and emotionality has found a lot of empirical support. Broekmann (1970), Levitt and Persky (1960) and Townsend (1967) have related strong colour reactions to physiological concomitants of emotion and behavioural measures. We will not review this body of literature in support of the colour-affect relationship which is secondary to our prime concern, namely perceptual-cognitive processes.

Research into the type of colour response and cognitive style is not abundant and it can be characterized by the notion that greater behavioural control will lead to a more reflective attitude and better cognitive functioning. The production of adequate form-colour responses has been linked to the subject's ability to delay his immediate response and involve himself more efficiently in a problem-solving task. Based on Kagan's (1965, 1966) cognitive tempo theory, Gill (1966) obtained a positive relationship between

the subject's ability to delay his immediate reaction in a problem-solving task and the production of FC; whereas, the subjects producing CF and C responses were the ones who did not delay, worked too quickly and made unnecessary mistakes. Delay of response was defined not only in speed of reacting, but also in accuracy of response. When the subjects were told they could utilize as much time as needed to solve the problem, the ones who took the most time and showed the greatest improvement of their productions were the ones who had been able to delay or control their reactivity to colour; whereas, those who took the shortest time and showed the least improvement comprised the ones failing in delay of response.

More recently, a study by Katz (1971) illustrated the relationship between cognitive "impulsivity" and "reflectivity" as related to Rorschach colour responses. She utilized error scores and response latency measures on Kagan's Matching Familiar Figures Test (MFF) to establish two groups of subjects--Reflectives (low error score and long reaction time) and Impulsives (high error score and short reaction time). These subjects were then administered the chromatic Rorschach cards and, on the basis of type of colour response, the author was able to distinguish her two groups of Reflectives and Impulsives.

These studies tend to indicate that the colour experience on the Rorschach is not only linked to the traditional concept of emotionality, but that it also has an



important cognitive component which is worthy of consideration. Apart from these few studies which attempt to link the perception of colour to cognitive processes, little research exists which considers colour as an element in perceptual-cognitive development. Levitt and Truuma (1972) and also Ames (1974) report developmental norms which concur with the traditional view of the Rorschach colour experience, namely that crude colour responses which are considered as less mature occur at younger ages, whereas good form-colour integrations can be observed mainly in older children and adults. Levitt and Truuma (1972) report a mean of .4 pure colour responses at age 5, with a steady decrease to .05 by age 16. In the same line, we find a mean of 1.16 colour-form responses at age 5, and .76 at age 16. On the other hand, Ames (1974) reports that form-colour combinations occur at a rate of only .1 at age 2, but steadily increase from four to seven times this amount between 6 to 10 years of age. This normative data permits us to say that undifferentiated colour responses decrease and that form-colour combinations increase, but little else can be said about the quality and nature of the child's perceptual-cognitive processes.

Colour could be considered in a broader context not only as an element to be dealt with in isolation, but as a structural element of an integrated response. For example, a "fire" or "blood" response might well be the reaction of a young child whereas "two people warming their

hands over a fire" (Card III) might not be, even though the red is still perceived as "fire." The present study therefore proposes to utilize colour to study perceptual-cognitive development in the context of Werner's orthogenetic laws. It is felt that previous studies which have focused mainly on normative data do not provide sufficient material to support Werner's orthogenetic principles of development. A more elaborate scoring system is needed which is sensitive not only to crude, undifferentiated colour perceptions, but also considers the hierarchically integrated responses where colour is organized within a more sophisticated structure. The scoring system along with working hypotheses concerning the colour determinant will be presented in Chapter II.

### 3. Summary

This selected review of Rorschach literature has attempted to familiarize the reader with the basic perceptual elements of the Rorschach which are represented by the various location and determinant scores. The following is an attempt to summarize the Rorschach data as they apply to the perceptual-cognitive theory presented in the first section of the review.

Five broad areas were determined as important Rorschach elements in his study of perceptual-cognitive functioning. These include Form Level, Organizational Activity, Colour, Shading and the Human and Human Movement

responses. The first two groups of variables have been widely used in other perceptual studies based on Werner's developmental theory (Friedman, 1952; Hemmendinger, 1953, 1960; Meili-Dworetski, 1939) and they are included in the present study because of the increasing evidence of their relevance to a developmental study of perceptual-cognitive functioning. From the developmental studies reviewed in the previous section, we would expect an improvement with age in the precision and accuracy of form perception, along with a greater propensity to organize, structure and integrate the location elements of the Rorschach.

The Human and Human Movement Responses were included on the basis of a recent study applying Werner's developmental theory to the perception of the human figure (Blatt, 1976) and because of the possible link between Human Movement and cognitive activity. A high production of M has often been related to inhibition of motor impulse (Singer & Herman, 1954; Singer & Spohn, 1954) and the relationship between M and intellectual activity and I.Q. is well established (Abrams, 1955; Altus, 1958; Ogdon & Allee, 1959; Sommer & Sommer, 1958; Paulsen, 1941; Tanaka, 1958). The Human Movement Response has likewise demonstrated an increase with age as evidenced by many developmental studies (Ames, 1974; Levitt & Truuma, 1972; Paulsen, 1954).

Shading was reviewed and, even though it is not as clearly related to perceptual-cognitive activity as other Rorschach variables, it was included in this study as a

dependent measure because of developmental data which indicate trends in the reduction of the undifferentiated and crude shading response and an increase in more refined and well differentiated shading responses (Ames, 1974; Paulsen, 1954).

Colour is the next broad category of determinants which was selected for inclusion in this study. Colour responses show clear developmental trends (Ames, 1974; Levitt & Truuma, 1972) and, more importantly, it has been related to cognitive style or "tempo" in establishing a distinction between children who attend and reflect on a problem for longer periods of time, as opposed to impulsives who tend to react quickly and make more mistakes (Kagan, 1961, 1964, 1966, 1967; Gill, 1966; Katz, 1971). The cognitive process which is being considered with this set of variables could be described as the capacity to control the immediate reaction and reflect upon the stimulus properties of the blot.

Having reviewed the theoretical framework of this study and the Rorschach elements which will serve as dependent variables, the next chapter will attempt to describe the sample chosen for this study and define operationally the five Rorschach categories which will serve as dependent variables.

## CHAPTER II

### SAMPLE AND METHODOLOGY

#### 1. The Participants

The sample chosen for this study is from the Child Study Centre of the University of Ottawa. The thirty-one participants were part of an experimental project in bilingual education which commenced in September 1970 and lasted three years. The project was carried out by the Child Study Centre of the Faculty of Psychology (University of Ottawa) in conjunction with the Faculty of Education and in consultation with members of the Department of Linguistics and Modern Languages of the Faculty of Arts. Even though the population was housed and directed by Child Study Centre personnel, the project had some financial support from the federal government and because of the experimental design, they were maintained as separate as possible from the ongoing activities of the Child Study Centre. Nevertheless, the children from the project benefitted from many of the Centre's facilities involving music, language training, dance and psychomotor activities.

The purpose of the project was to test the theory that young children, given a chance to learn two languages simultaneously, will become fluently bilingual while

maintaining the pace of advancement typical of their age level. While at the Centre, children received education similar to the one they would have received in the public or private school system, with one exception: they learned everything in two languages by receiving instruction on alternate days in French and English.

The children were admitted to the project by the Director of the Child Study Centre. Each child was given preliminary screening tests to determine his admissibility to the program. The criteria for admission were that the child have good intelligence, be in good health and without apparent abnormalities in his social-emotional development. He also had to be unilingual French or unilingual English with little or no knowledge of the other language. The selection procedures included application forms filled out by the parents providing child and family information and determining the parents' basic motivation towards bilingualism; a brief interview with both parents to gather information regarding the child's general health, development and adaptation; the administration of the Stanford-Binet intelligence test; the House-Tree-Person technique; and observations of the child's behaviour during testing and his social interaction with the examiner. Thirty-three children (16 French, 17 English) were finally chosen to take part in the program.

The children were periodically re-assessed on various measures of language development and proficiency

with the second language along with a host of intellectual and personality measures. Among these was the Rorschach technique which was administered on three occasions, in June 1971 and 1972, and May 1973. The total N is thirty-one; two of the subjects were deleted because one of their Rorschach protocols was missing from the files. The ages and intelligence quotients of these thirty-one children can be found in Table I.

## 2. The Scoring Systems Utilized

The theoretical approach presented in this study can best be described as developmental in nature, based on Werner's principles that change proceeds from a state of relative undifferentiatedness to one of greater differentiation, more precise articulation and integration. In reviewing the Rorschach technique, perceptual-cognitive development was emphasized and, whenever possible, developmental data were presented in support of the theory that the processes involved in Rorschach responses reflect the child's slowly emerging and maturing mental abilities and that the Rorschach can serve as a valuable tool in studying the development of perceptual-cognitive processes.

The scoring systems utilized to analyze the Rorschach protocols from both samples were selected as most likely to dimensionalize perceptual-cognitive processes as described by Werner. Whenever an existing system was considered inadequate to fulfill the aims of the present study,

Table I  
Age, Sex and I.Q. of Thirty-one Subjects

| N     | Sex | Age at<br>first<br>testing | Age at<br>second<br>testing | Age at<br>third<br>testing | I.Q.   |
|-------|-----|----------------------------|-----------------------------|----------------------------|--------|
| 1     | M   | 6-5                        | 7-5                         | 8-5                        | 115    |
| 2     | M   | 6-5                        | 7-6                         | 8-5                        | 144    |
| 3     | M   | 6-11                       | 7-10                        | 8-9                        | 118    |
| 4     | M   | 7-0                        | 8-0                         | 9-0                        | 101    |
| 5     | F   | 6-8                        | 7-9                         | 8-8                        | 120    |
| 6     | M   | 6-8                        | 7-8                         | 8-8                        | 131    |
| 7     | F   | 6-0                        | 7-1                         | 8-0                        | 134    |
| 8     | M   | 6-7                        | 7-6                         | 8-7                        | 139    |
| 9     | F   | 5-6                        | 6-6                         | 7-7                        | 130    |
| 10    | M   | 5-6                        | 6-6                         | 7-5                        | 133    |
| 11    | F   | 5-7                        | 6-7                         | 7-7                        | 128    |
| 12    | F   | 5-8                        | 6-8                         | 7-8                        | 116    |
| 13    | M   | 5-9                        | 6-10                        | 7-10                       | 125    |
| 14    | M   | 6-8                        | 7-8                         | 8-8                        | 127    |
| 15    | F   | 6-0                        | 7-0                         | 8-0                        | 121    |
| 16    | M   | 5-6                        | 6-5                         | 7-5                        | 128    |
| 17    | M   | 6-5                        | 7-5                         | 8-4                        | 110    |
| 18    | M   | 7-3                        | 7-8                         | 8-7                        | 123    |
| 19    | M   | 6-8                        | 7-8                         | 8-8                        | 100    |
| 20    | M   | 7-0                        | 8-0                         | 9-0                        | 127    |
| 21    | M   | 7-0                        | 8-0                         | 9-0                        | 116    |
| 22    | M   | 7-2                        | 8-2                         | 9-2                        | 111    |
| 23    | M   | 6-3                        | 7-3                         | 8-2                        | 121    |
| 24    | M   | 6-9                        | 7-9                         | 8-9                        | 125    |
| 25    | M   | 5-6                        | 6-6                         | 7-6                        | 125    |
| 26    | F   | 6-1                        | 7-1                         | 8-0                        | 114    |
| 27    | M   | 5-2                        | 6-2                         | 7-2                        | 117    |
| 28    | F   | 5-6                        | 6-6                         | 7-5                        | 124    |
| 29    | M   | 6-11                       | 8-0                         | 9-0                        | 124    |
| 30    | M   | 5-1                        | 6-1                         | 7-0                        | 107    |
| 31    | M   | 6-0                        | 7-0                         | 8-0                        | 114    |
| Means |     | 6-2                        | 7-2                         | 8-2                        | 121.54 |



modifications and/or innovations are proposed. A total of five systems will be described briefly along with an underlying rationale to justify their utilization.

A. The Mayman Form  
Level Scoring Manual<sup>1</sup>

The form level of a response or the "goodness of fit," as it is sometimes referred to, is an important aspect of Rorschach perception. A response is usually considered F- if it does not meet a certain objective criterion which is statistically defined in many form level rating manuals. These manuals or lists accumulated numbers of Rorschach responses and, depending on the frequency of occurrence of a response to a specific location in a population of subjects, the response is given a rating of either acceptable (+) or of poor form (-).

The form-level rating scales discussed in the review section, including the ones of Klopfer (1942) and Ames (1974), were felt to have a basic inadequacy with regard to the aims of the present study, i.e., they offer a global rating of form level with little possibility of analyzing the various processes involved in producing a good or poor form response.

Among the existing methods of scoring the form quality of a response, the Mayman system (1956, 1970) was determined as the most adequate. Unlike other form level rating scales that present two to four levels of form level

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<sup>1</sup>See Appendix 1.

rating, the Mayman (1956) utilizes a seven point system which permits a more discriminating analysis of form level rating. The two additional categories called "F-weak" offer an intermediate level between good and minus form categories. The author also reports acceptable inter-judge agreement (between 71% and 98%) scores for each of the seven scoring categories (Mayman, 1970). Predictive validity studies are also available comparing the Mayman Form Level scores to creativity (Cohen, 1960), to a measure of cognitive disorganization (Kahn, 1967) and as a way of differentiating process from reactive schizophrenia (Zubowsky, 1961). Finally, a modified version of the Mayman system was judged by Exner (1974) to be the most efficient method of evaluating form level in his recent revision of the five Rorschach systems developed in North America.

Previous studies have presented global estimates of form level which unmistakably do improve with age. The discrete processes involved in an estimate of form level remain the issue of contention. Based on Werner's orthogenetic principle, what predictions can be made? We would expect that as the child grows older, his responses will become more differentiated and better articulated. Considering the dependent variables in the Mayman Form Level Scoring, we can predict that over the two year age span of the participants in this study:

- (1) There should occur a reduction of poorly differentiated form responses (F-, Fv and Fs).

- (2) A reduction also of the poorly articulated responses (Fw+ and Fw-).
- (3) An increase in the differentiated and well articulated responses (Fo and F+).

B. The Friedman Developmental Level Scoring<sup>2</sup>

This system is well suited to analyze Rorschach responses within a Wernerian framework. It was developed by one of Werner's students and applied to the developmental study of perceptual processes by another of Werner's co-workers, Hemmendinger (1960). Many independent studies have already established a high level of interjudge agreement of the system in the analysis of developmental phenomena (Blatt, 1976; Friedman, 1964; Hurwitz, 1954; Misch, 1954; O'Neill, 1976), as well as disorders of perceptual processes found in conditions of psychopathology (Friedman, 1953; Becker, 1956; Glixman, 1976; Levine, 1959; Phillips, 1959).

As stated in the review section, the original developmental studies of Friedman (1953) and Hemmendinger (1953) do present methodological weaknesses which the present study will attempt to rectify. Based on the few experimental findings available in the literature, and in keeping with Werner's theory, we can predict that over the two year age span of the participants in the present study:

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<sup>2</sup>See Appendix 2.

- (1) There should be no significant improvement in the well organized and integrated responses (W++, D++; W+, D+) because the highest age level of the present sample is 8 years, and the hierarchically organized response is said to occur at 9 or 10 years of age. Nevertheless we should expect some improvement in the well organized response without a negative trend.
- (2) There should be an increase in those responses (Wm, Dm) which are unitary but require of the child good abilities to differentiate and articulate his percept.
- (3) There should be a decrease in the poorly differentiated and disorganized percepts (Wv, Dv; Wa, Da; W-, D-).

C. Human Responses and Human Movement

The human response and human movement were scored utilizing the scale developed by Blatt, Brenneis and Schimek (1976).<sup>3</sup> The scale was judged as well suited for this study since it was developed within the framework of Werner's orthogenetic principle. The authors also report excellent inter-judge agreement in the scoring of the scale; in all but two categories the judges agreed on over 90% of the ratings, and in the two remaining categories the

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<sup>3</sup>See Appendix 5.

degree of agreement was over 84% and 82%.

The third part of the scale dealing with integration was deleted for the following reasons: the purpose of the present study is essentially confined to a scrutiny of the structural or formal aspects of perception. "Structural," in this sense, means the forming or fashioning of the percept with a minimum of regard for the particular content of the response. It was felt that the elements proposed in the Blatt system dealing with integration were too far removed from the aims of the present study in that they often dealt with either the motivation of the human figure as he performed the action (cf. Section D, 1a, 1b and 1c), or the relevance of the action and intentionality of the person (Section D, 2, 2b, 2c and 2d) and also the nature or quality of the interaction between the two figures (Section D, 3a and 3b). Even though these aspects of the system are interesting and quite unique, they have little applicability for the present study.

To substitute for this third section of the Blatt system and in an attempt to include a measure of integration for the human response, a 4-point scale<sup>4</sup> was developed and applied to all human and quasi-human complete figures. The first level of the scale was scored for full human or quasi-human figures engaged in a static form of movement; this level reflects a passive human movement response in which the figure is seen engaged in activity but essentially a passive

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<sup>4</sup>See Appendix 6.

form of activity, i.e., one in which postural aspects are predominant or the activity reflects a giving-in to the force of gravity. The second level was scored for active movement responses in which a single figure was involved in activity; the third and fourth categories indicated greater levels of integration in which two or more figures were involved in activity either amongst themselves or with other structural components of the blot.

From theoretical concepts elaborated in the review section, and empirical findings by Blatt, Brenneis and Schimek (1976) and developmental data from Ames (1974), for the participants in the present study, over a two year age span, the following predictions can be made:

- (1) There should be an increase in the perception of the full human figure, and a decrease in the number of partial human figures. This statement is based on a predicted improvement in the child to move from the perception of partial details, to the perception of full human figures because of improved differentiation and articulation skills.
- (2) There should be an increase in the child's ability to articulate his perception of the human figure.
- (3) There should be a decrease in the production of figures engaged in a passive form of activity and an increase in the incidence of

figures engaged in active movement.

- (4) There should be a positive trend, although no significant increase, in the production of integrated human movements in which two or more figures are involved in activity amongst themselves or with other structural components of the blot.

#### D. Shading Responses

Despite many publications dealing with the Rorschach, there are few definitive statements to clarify the stimulus qualities of the shading elements of the Rorschach blots and even fewer theoretical explanations of shading as it is involved in perceptual-cognitive processes.

Developmental studies relate a reduction of diffusion responses and an increase in the more refined forms of shading such as vista, perspective and texture. Some consideration was given to dividing the shading responses into sub-categories including texture, vista and perspective. This proved unfeasible because of the few texture and vista shading responses produced by the subjects in this study: only 15.4% of the subjects were able to produce at least one vista or perspective response, and only 17.2% produced at least one texture response. Possibly because of the age of the participants in this study, most shading responses were equally shared between diffusion and the achromatic elements of the shading. A system which therefore divided an already small number of shading responses into many categories

proved impractical.

In keeping with the general approach utilized with other Rorschach scores, shading was considered in this study as an element of the blot which requires increased cognitive ability as the child struggles to differentiate, articulate and produce a well integrated shading response. Since there is no existing scoring system for shading which is compatible with the perceptual-cognitive theory described in this study, a 5-point scale was devised.<sup>5</sup> The first levels in the scale are based on the view that the young child's reaction to shading is diffuse and undifferentiated. The next level introduces greater precision and differentiation of perceptual processes, while the top levels give weight to a child's ability to integrate the shading elements within a greater context.

Based on theoretical concepts and the developmental data available, the following hypotheses were formulated for the participants in the present study:

- (1) There should be a decrease in the first two categories of shading responses, i.e., a reduction in the crude and undifferentiated shading responses.
- (2) There should be an increase in the child's ability to produce form-shading (Level 3) combinations.

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<sup>5</sup>See Appendix 4.



- (3) There should be a positive trend, although not a significant increase in the higher levels of integrated shading responses.

#### E. Colour Responses

Developmental studies present a trend in the reduction of pure colour (C) and colour-form responses (CF) as well as a proportional increase in the form-colour responses (FC). Apart from these general developmental trends, no studies could be found which utilize the colour determinant within a Wernerian framework and few studies consider the perceptual-cognitive processes involved in the production of a colour response. The present study views colour as an important cognitive element which either interferes with perception in the young child or enriches and enhances the response style of the older child. Kagan's (1966) cognitive-tempo theory and subsequent studies with the role of colour in perceptual-cognitive style (Katz, 1971, 1972) offer evidence in support of this approach.

Since no elaborate scoring system exists in the analysis of Rorschach colour responses which would be compatible with Werner's theory, a 5-point scale was devised.<sup>6</sup> The undifferentiated pole of the continuum parallels the traditional scoring categories of pure colour and colour-form combinations; whereas, the two categories reserved for integrated and well organized colour responses are new.

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<sup>6</sup>See Appendix 3.

Not unlike the way Friedman had applied the term organization when considering Rorschach locations, it is utilized in this study, with reference to colour responses, as the subject's ability to organize and structure colour elements with other blot elements resulting in a well integrated response.

Based on the developmental data available, and in keeping with Werner's theory, we can predict for the participants of the present study that:

- (1) There should be a decrease in the first two categories of colour responses, i.e., a reduction in the crude and undifferentiated colour responses.
- (2) There should be an increase in the child's ability to produce form-colour (Level 3) combinations.
- (3) There should be a trend, but no significant increase in the higher levels of integrated colour responses.

### 3. The Procedure

The Rorschach protocols for both samples were typed, being careful not to mention a name, age or identifying marks by which they might be recognized. A coded number was placed at the top left-hand corner to permit future retrieval of the protocol.

The protocols were then scored by two judges for the presence of either colour, shading, or human movement. For contentious responses in which disagreement occurred, the final decision was left to an authority in the field who graciously accepted to help in the study.<sup>7</sup>

After the basic determinants were decided upon, two other judges were selected and given short training periods in the scoring of the five basic scales. The two judges were graduate students, one of them a few months away from completion of her doctoral dissertation, the other having completed her Master's degree two years before. Both judges had from three to five years experience dealing with children's Rorschach protocols. As compensation for their time and effort, and to assure that the work would be well done, they were each paid \$125.00.

After the training session was completed, the judges were given the typed protocols, location charts and scoring manuals. Each scale was scored on separate occasions. Both judges scored independently; in fact, neither judge knew who the other one was. The interjudge agreement for each scale and subscale is provided in Chapter III. The disagreements which occurred for all scales were resolved by the use of a third judge who was also a graduate student a few months away from completion of his

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<sup>7</sup>Dr. A. Celovsky, who teaches two graduate courses on the Rorschach at the University of Ottawa, accepted to resolve scoring disagreements.

doctoral dissertation and who was asked to decide on one of the two scores using a forced-choice technique.

#### 4. Interjudge Agreement

The percentages of interjudge agreement for all twenty-five variables are reported in Table II.

The level of agreement for most scales is very high. The percentages of agreement for the Friedman system approximates those reported in previous studies (Blatt, 1976; Friedman, 1953; Goldfried, 1961; Hurwitz, 1954; Lofchie, 1955; Misch, 1954; O'Neill, 1976; Zimet and Fine, 1959).

The most labourious and difficult system to score was the Mayman form level rating. Each separate response required the examination of the Mayman form level scoring manual and the Beizman handbook for scoring Rorschach responses: the judges complained not so much of the complexity of scoring each response but of the amount of time consumed in such an exercise. Considering that over three thousand Rorschach responses were scored and that each response took from three to five minutes to score with the Mayman system, the amount of time is appreciable. The overall agreement of the judges is quite high and compares favourably with results reported by Lohrenz and Gardner (1966), Rabkin (1967) and also Ramsay (1966).

The interscorer agreement for the Human Response scale developed by Blatt (1976) is very high and confirms

Table II

Percentage of Agreement between Two Judges for  
the Scoring of Rorschach Variables, N=31

| Variable     | %   |
|--------------|-----|
| F+           | 87  |
| Fo           | 92  |
| Fweak-       | 65  |
| Fweak+       | 82  |
| Fweak-       | 85  |
| Fweak+       |     |
| Fvague       | 94  |
| F-           | 89  |
| W++          | 93  |
| D++          | 100 |
| W+           | 100 |
| D+           | 92  |
| Wm           | 98  |
| Dm           | 89  |
| Wv           | 93  |
| Dv           | 86  |
| Wa & Da      | 100 |
| W-           | 89  |
| D-           | 87  |
| H            | 95  |
| (H)          | 92  |
| HD           | 98  |
| (HD)         | 93  |
| Per. Artic.  | 81  |
| Func. Artic. | 90  |
| M-One        | 95  |
| M-Two        | 79  |
| M-Three      | 93  |
| M-Four       | 93  |
| Shading-1    | 95  |
| Shading-2    | 82  |
| Shading-3    | 97  |
| Shading-4    | 63  |
| Shading-5    | 67  |
| Shading-4    | 73  |
| Shading-5    |     |
| Colour-1     | 95  |
| Colour-2     | 91  |
| Colour-3     | 93  |
| Colour-4     | 78  |
| Colour-5     | 76  |
| Colour-4     | 82  |
| Colour-5     |     |

the results reported by the author; similarly, the four levels of Human Movement were reliable to score. The relatively lower agreement of the level 2 Human Movement is attributable to the scoring of one judge who found it difficult to distinguish the dimension of passive and/or postural from the next level requiring an active movement, usually of the extensor type. The third judge consistently decided for the level 2 score which resulted in this subscale tallying a few more errors than the three others; nevertheless, the interjudge agreement for this scale was deemed acceptable.

The Shading and Colour scales resulted in high levels of interscorer agreement, especially for the first levels which follow closely the traditional scoring categories for Colour and Shading. Difficulties arose, especially for the Shading responses, in scoring levels 4 and 5. Many of the errors in scoring levels 4 and 5 for the Colour scale were easily resolved because they were shared between these two levels and were eliminated by combining both levels. It is not that the judges disagreed as to the presence of integration but rather in the finer distinction of "how good" the resulting integration was. The lower scores on levels 4 and 5 of the Shading scale cannot be so easily explained. Even though both levels did share some errors in judgment, most of the errors come as a result of one judge scoring at level 2 because the response was not felt to convey enough of a "cognitive struggle" to

combine and integrate, which the third judge consistently scored either a level 4 or 5. Nevertheless the combination of both levels did result in an increase in percentage of agreement and, because of the nature and difficulty of the material to be scored, the overall results of the combined scale were judged as acceptable and retained in the analysis.

This second chapter reviewed the basic characteristics of the sample, the dependent variables, the scoring procedures utilized and the percentage of agreement among the judges. Chapter III will present the statistical procedures and results.

## CHAPTER III

### PRESENTATION OF RESULTS

The statistical analysis of Rorschach data presents the researcher with numerous and unique problems; consequently, because Rorschach scores can be summed, averaged, distributed, etc., most investigators have used conventional statistical methods without question. This chapter will attempt to review some of the difficulties of many of these methods and articulate the reasons for the statistical procedures used in this study.

#### 1. Some Issues Related to Rorschach Data Analysis

Cronbach (1949), in an extensive review of statistical methods applied to Rorschach scores, indicates two factors which should be considered when selecting a statistical technique: the skewness of Rorschach data, and the dependence of Rorschach scores on the total number of responses.

Many Rorschach scores give sharply skewed distributions and the present data prove no exception to the rule; over 80% of the variables offered skewed distributions. Skewness by itself does not preclude the use of conventional



significance tests but usually requires transformations of data to obtain normal distributions. Furthermore, Cronbach points out that in skewed distributions, the mean and median are not the same and the two distributions may have significant differences in medians and not in means (or vice versa). He also states that it is doubtful if a satisfactory estimate of  $s.d._{mdn}$  can be obtained for a skewed distribution.

Another related difficulty with the Rorschach scores used in this study is whether or not the scores represented equal units with interval scale properties. Generally, it is reasonable to assume that many Rorschach scores represent, at best, an ordinal scale of measurement with inequality of units; for example, is a shift from 3 Ws to 0 Ws equal to a shift from 7 Ws to 10 Ws? Equality of units in an interval scale would assume that the 3-point shift is equivalent and, yet, clinical experience has indicated that, if we consider the average number of Ws is 6, a score of 0 is possibly just as important as a score of 15 or 20 Ws. When the subject does not produce any W responses, he cannot go below 0 as a score, but an overproductivity of Ws can be manifest in scores of 15, 20 or 30 etc. Consequently, because of the marked skewness of most of the Rorschach variables which would have necessitated transformations of data and because of the ordinal scale characteristics of the data, nonparametric techniques were chosen as the most suitable method for this study.

The second contentious issue when dealing with Rorschach scores is the question of productivity. As a child grows older, there is an increase in the number of responses, and the natural question arises as to how this increase in response productivity influences all other dependent variables. In the present study, there was an increase from 17 to 21 responses when comparing the 6 year olds to the 8 year olds.

Cronbach (1949), Kalter and Marsden (1970) all provide convincing evidence as to why not to use ratios or percentages to control for productivity. This study utilized a technique proposed by Cronbach and Fast (1969) which consists in dividing the groups as the median number of responses and testing the significance of the hypothesis at each of the subsamples.

To determine if a control for productivity was necessary, the method proposed by Kalter and Marsden (1970) was utilized in which the subject's total number of Rorschach responses minus the particular subset score is correlated with the subset.

Other elements of productivity which increase with age and might also influence the dependent variables such as number of Colour responses, Shading responses, Human Movement responses and Full Human Figures were also analyzed by the same technique.

## 2. The Statistical Methods Utilized

The data were analyzed with Chi square contingency tables. As proposed by Cronbach (1949), the variables were dichotomized at a suitable point, usually at the median of the younger group, and a contingency table compared the number of individuals in the upper and the lower categories; for example, the W++ response category was analyzed comparing the number of individuals who had produced 0 responses to the ones who had produced from 1 to 4. The analysis examined the significance of the results for all three ages as well as comparing age groups two by two. The Yates correction was automatically computed for cells of less than five individuals and the Chi squares were complemented with measures of strength of association such as the tau b or c coefficients.

When a control for productivity was necessary, the Chi square analysis was done in the low and high response categories and the Chi squares were summated when the results of both groups were in the same direction. In such cases, as proposed by Fast (1969), an additional degree of freedom served as a rough but conservative correction for lack of complete independence between the groups.

## 3. Presentation of Findings

The third part of this chapter reviews the composition of the variables as they were initially scored and

how they were finally combined to facilitate the statistical analysis. Following this, the next section reports on the statistical controls for productivity and the results on five basic response categories (Form level, Organizational activity, Human responses, Colour responses, Shading responses) are presented.

#### A. The Variable List

The initial list of variables counts 42 separate scores for each individual but since so many variables proved cumbersome to analyze and weakened any conclusions which could be drawn by the very fact that many of them could show significance by chance alone, an attempt was made to reduce the number of variables by combining them in a way which could strengthen the analysis while not losing any valuable data.

The first consideration which led to combinations of variables was the low number of responses in many of the categories. The D++ category only produced a total of 7 responses in the sample of 31 subjects; thus, D++ was combined with W++. For the same reasons, the variable F- Spoiled was combined with F- and the Confabulatory Response with W-. Many other variables were combined to produce a greater representation of individuals for each level of response: W+ and D+; Wm with Dm, Wv and Dv, Wa and Da; W- and D-; H and (H); HD and (HD); Perceptual and Functional Articulation.

A final consideration which led to the combination of variables was the level of interjudge agreement. The variables Fweak+ and Fweak- proved to be the most difficult to score. The distinction which Mayman (1956) makes for scoring the Fweak- category ("the Fw- should be scored when the response is unconvincing, but not arbitrary, and when some clash does occur with the blot area selected") caused some difficulty for the judges and many responses were scored Fweak+ instead of Fweak- (and vice versa). Since both definitions of these variables share many common elements and because many errors in scoring were shared by both, they were combined thereby serving to improve appreciably the reliability of the combined category; for similar reasons, the response categories dealing with well integrated Shading and Colour responses (levels 4 and 5) were combined.

As a result of this regrouping, the final variable list consists of 25 variables instead of 42 and are subdivided into five broad categories.

#### B. Statistical Controls for Productivity

The decision to control for productivity was based on a correlation between the number of responses minus the particular subset correlated with the subset; for example, if we consider C-1, the formula would be  $(N_{Res} - C-1)$  correlated with C-1. Whenever the distribution of either the dependent variable or the control variable was skewed, a

Spearman rank-order correlation was preferred. Table III provides either the Spearman or the Pearson correlation coefficients for the sample of 31 subjects.

Seven correlation coefficients are significant at the  $<.05$  level. Since the control for productivity was meant to control for an increase in number of responses as influencing developmentally high scores, no control was offered for the negative correlation of W+ and number of responses. Additionally, since an increase in response productivity was predicted to be related to a decrease in developmentally low scores, no controls were applied because of the negative relationship of F- and W- to number of responses. The four remaining correlation coefficients were taken into account and a separate analysis is provided when significant differences occur for these variables which might have otherwise been related to the increase in number of responses.

### C. Analysis of Results

For the sake of clarity, the results will be divided into five sections using the five natural subdivisions of the variables (Form Level, Organizational Activity, Human responses, Shading responses, Colour responses). The overall results are presented in Table IV, while Tables V and VI present the results when age groups are compared two by two. Significance was considered acceptable when it reached the .05 level.

Table III

Correlations of Rorschach Variables with Controls  
for Response Productivity, N=31

| Variable   | NRes  | p(<) | NShaR | NColR | NHR  | NMR  |
|------------|-------|------|-------|-------|------|------|
| Fo         | .23   | .02  |       |       |      |      |
| F+         | .06   |      |       |       |      |      |
| F-         | -.20  | .03  |       |       |      |      |
| Fv         | -.02  |      |       |       |      |      |
| Fweak- & + | -.20  | .03  |       |       |      |      |
| W++, D++   | -.16  |      |       |       |      |      |
| W+, D+     | -.26  | .01  |       |       |      |      |
| Wm, Dm     | -.13  |      |       |       |      |      |
| Wv, Dv,    | .04   |      |       |       |      |      |
| Wa, & Da   |       |      |       |       |      |      |
| W-, D-     | -.24  | .01  |       |       |      |      |
| H, (H)     | -.10  |      |       |       |      |      |
| HD, (HD)   | .19   | .03  |       |       |      |      |
| Artic.     | -.10  |      |       |       |      |      |
| M-1        | .02   |      |       |       | -.16 | -.12 |
| M-2        | -.08  |      |       |       | -.04 | -.03 |
| M-3        | -.16  |      |       |       | .07  | -.08 |
| M-4        | -.16  |      |       |       | .08  | -.05 |
| S-1        | -.07  |      | -.06  |       |      |      |
| S-2        | .02   |      | .10   |       |      |      |
| S-3        | -.004 |      | -.10  |       |      |      |
| S-4 & S-5  | -.05  |      | .03   |       |      |      |
| C-1        | -.08  |      |       | -.05  |      |      |
| C-2        | -.004 |      |       | -.09  |      |      |
| C-3        | .20   | .03  |       | -.07  |      |      |
| C-4 & C-5  | -.09  |      |       | .07   |      |      |

NRes = Number of Rorschach responses

NShaR = Number of Shading responses

NColR = Number of Colour responses

NHR = Number of Human responses

NMR = Number of Movement responses

Table IV  
Chi Square Analysis of Rorschach Variables  
over Three Ages, N=31

| Variable       | Chi square | p(<) | Tau c | p(<) |
|----------------|------------|------|-------|------|
| F+             | 29.5       | .01  | .60   | .01  |
| Fo             | 15.5       | .01  | .40   | .01  |
| Fweak+ & -     | 1.0        |      |       |      |
| Fv             | 6.8        | .04  | -.26  | .02  |
| F-             | 18.9       | .01  | -.46  | .01  |
| W++, D++       | 27.8       | .01  | .54   | .01  |
| W+, D+         | 22.9       | .01  | .46   | .01  |
| Wm, Dm         | 8.3        | .02  | .23   | .02  |
| Wv, Dv, Wa, Da | .6         |      |       |      |
| W-, D-         | 16.8       | .01  | -.43  | .01  |
| H, (H)         | 7.6        | .03  | .29   | .01  |
| HD, (HD)       | 1.9        |      |       |      |
| Artic.         | 2.1        |      |       |      |
| M-1            | 1.9        |      |       |      |
| M-2            | 2.2        |      |       |      |
| M-3            | 13.6       | .01  | .37   | .01  |
| M-4            | 17.6       | .01  | .40   | .01  |
| S-1            | 3.2        |      |       |      |
| S-2            | .1         |      |       |      |
| S-3            | 3.6        |      | .20   | .04  |
| S-4 & S-5      | 5.9        | .05  | .26   | .01  |
| C-1            | 1.8        |      |       |      |
| C-2            | 2.2        |      |       |      |
| C-3            | .53        |      |       |      |
| C-4 & C-5      | 14.8       | .01  | .43   | .01  |



Table V  
Chi Square Analysis of Rorschach Variables  
Comparing Young and Middle Groups, N=31

| Variable       | Chi square | p(<) | Tau b | p(<) |
|----------------|------------|------|-------|------|
| F+             | 8.8        | .01  | .41   | .01  |
| Fo             | 6.6        | .02  | .36   | .01  |
| Fweak+ & -     | .1         |      |       |      |
| Fv             | 3.7        | .05  | -.28  | .02  |
| F-             | 5.1        | .03  | -.33  | .01  |
| W++, D++       | 4.7        | .04  | .32   | .01  |
| W+, D+         | .1         |      |       |      |
| Wm, Dm         | 5.7        | .02  | .34   | .01  |
| Wv, Dv; Wa, Da | .1         |      |       |      |
| W-, D-         | 1.6        |      |       |      |
| H, (H)         | 2.4        |      | .23   | .04  |
| HD, (HD)       | 0.0        |      |       |      |
| Artic.         | .63        |      |       |      |
| M-1            | .6         |      |       |      |
| M-2            | .4         |      |       |      |
| M-3            | 6.2        | .02  | .36   | .01  |
| M-4            | .1         |      |       |      |
| S-1            | 1.4        |      |       |      |
| S-2            | 0.0        |      |       |      |
| S-3            | .1         |      |       |      |
| S-4 & S-5      | 1.95       |      | .21   | .05  |
| C-1            | 1.8        |      |       |      |
| C-2            | 1.0        |      |       |      |
| C-3            | .7         |      |       |      |
| C-4            | 1.8        |      | .21   | .05  |

Table VI  
Chi Square Analysis of Rorschach Variables  
Comparing Middle and Old Groups, N=31

| Variable       | Chi square | p(<) | Tau b | p(<) |
|----------------|------------|------|-------|------|
| F+             | 5.4        | .03  | .33   | .01  |
| Fo             | .4         |      |       |      |
| Fweak+ & -     | .6         |      |       |      |
| Fv             | .1         |      |       |      |
| F-             | 3.3        |      | -.26  | .03  |
| W++, D++       | 7.9        | .01  | .39   | .01  |
| W+, D+         | 16.3       | .01  | .55   | .01  |
| Wm, Dm         | .1         |      |       |      |
| Wv, Dv, Wa, Da | .1         |      |       |      |
| W-, D-         | 6.3        | .02  | -.36  | .01  |
| H, (H)         | .4         |      |       |      |
| HD, (HD)       | .6         |      |       |      |
| Artic.         | 0.0        |      |       |      |
| M-1            | 1.1        |      |       |      |
| M-2            | 1.4        |      |       |      |
| M-3            | .6         |      |       |      |
| M-4            | 8.2        | .01  | .40   | .01  |
| S-1            | .1         |      |       |      |
| S-2            | .1         |      |       |      |
| S-3            | 1.3        |      |       |      |
| S-4 & S-5      | .3         |      |       |      |
| C-1            | .1         |      |       |      |
| C-2            | 1.1        |      |       |      |
| C-3            | .2         |      |       |      |
| C-4 & C-5      | 4.2        | .05  | .29   | .02  |

(a) Form Level (Mayman Scoring System):--

Significant results were obtained over all age groups at  $p < .02$  for four ( $F+$ ,  $F_o$ ,  $F_v$ ,  $F-$ ) of the five variables in this system. All findings are in the predicted direction as evidenced by the significant positive or negative tau c coefficients:  $F+$  and  $F_o$  increased significantly over three age groups, whereas  $F_v$  and  $F-$  decreased.

The same four variables also showed significance at  $p < .05$  when comparing Young and Middle age groups and the tau b coefficients support the relationships in either the positive or negative direction. However, significant results were not found in comparing the Middle and Old age groups for  $F_o$ ,  $F_v$  and also  $F-$  ( $F-$  approaches significance with results at  $p < .08$ ), while  $F+$  was the only variable which produced clearly significant results ( $p < .03$ ) in comparing these two age groups.

Due to the significant correlation between number of responses and  $F_o$ , the age groups were divided into high and low response groups (at the median) and the hypotheses were tested once again. The results are presented in Table VII. The Chi square over three ages and the one comparing the Young and Old groups are statistically significant at  $p < .01$  and  $p < .02$ . In fact, the results attain significance in the two low response groups, indicating that the increase in response productivity had little effect on the results obtained for  $F_o$  in the initial analysis; thus, it would appear that the results obtained for  $F_o$  are

Table VII

Chi Square Analysis for Fo with a Control for Number of  
Responses, Out-client Sample, N=31

| Variable                        | <u>Three Age Groups</u> |      | <u>Young and Middle</u> |      | <u>Young and Old</u> |       |
|---------------------------------|-------------------------|------|-------------------------|------|----------------------|-------|
|                                 | Chi square              | p(<) | Chi square              | p(<) | Chi square           | p(<)  |
| Subjects with<br>responses < 17 | 15.9                    | .01  | .02                     | .89  | 10.8                 | .01   |
| Subjects with<br>responses > 17 | .6                      | .74  | 5.8                     | .02  | 1.0                  | .30   |
| Total                           | 16.5                    | .01* | 5.9                     | .2   | 11.8                 | .02** |

\*df = 5

\*\*df = 3

related to age and not to an increase in the number of responses.

(b) Organizational Activity (Friedman Scoring System):--Four (W++, D++; W+, D+; Wm, Dm; W-, D-) of the five scoring categories attain levels of significance at  $p < .02$  in the predicted direction. The four significant Chi square results are supported by tau c coefficients of .43 or better for three of the variables (W++, D++; W+, D+; W-, D-) and .23 for Wm, Dm. Thus, there is a significant increase with age in W++, D++; W+, D+; and Wm, Dm, as well as a significant decrease in W-, D-.

Three of these variables (W++, D++; W+, D+; W-, D-) attain significance at  $p < .02$  when comparing the Middle and Old groups, while W++, D++ attains  $p < .04$  in the Young-Middle groups. Noteworthy also is the variable Wm, Dm which is significant at  $p < .02$  in the Young-Middle groups, but statistically insignificant in the other group comparison. It would appear that the substantial Chi square obtained for W+, D+ and W-, D- over the three age groups is due primarily to the difference between the Middle and Old groups whereas the significant difference obtained for Wm, Dm is attributable to the Young-Middle groups.

(c) Human Responses:-- Of seven possible variables, three (H, [H]; M-3; M-4) attain significance at  $p < .03$  in the predicted direction. The tau c coefficients all indicate significant increases with age (tau c from .28 to .40).

These results indicate that H, (H), M-3 and M-4 significantly increase with age when dealing with a two-year interval but fail to do so when comparing groups at a one-year interval. Only M-3 attains significance at  $p < .02$  when comparing Young and Middle age groups, and M-4 attains  $p < .01$  with the Middle-Old groups.

(d) Shading Responses:--Of five possible variables, only S-4, S-5 attains significance at  $p < .05$  over all ages, and  $p < .03$  when comparing Young and Old. The variable S-3 showed a trend in the predicted direction but failed to attain significance ( $p > .1$ ). The negative trend for S-1 over all ages ( $\tau c = -.143$ ,  $p > .06$ ) is also in the predicted direction, but too small to be considered statistically significant.

(e) Colour Responses:--Of five relevant variables, only C-4, C-5 attain significance ( $p < .01$ ) over all ages and with the Middle-Old groups the difference attains  $p < .05$ . The tau coefficients for both comparisons are also significant at  $p < .02$  and  $p < .01$  in the predicted direction.

This chapter tried to provide a concise account of the statistical results obtained. The next chapter will attempt to analyze the results as they relate to perceptual-cognitive development and Werner's theory, and, whenever possible, they will be compared to other Rorschach literature.

## CHAPTER IV

### DISCUSSION OF RESULTS

This investigation was primarily concerned with structural and formal aspects of perceptual-cognitive functioning where "structural" is defined as the forming or fashioning of the percept with minimal regard for the concept developed by the subject. The Rorschach was chosen as the stimulus material and five broad categories within the Rorschach were posited and specified as areas of developmental change or age-related variables. The direction and the quality or type of these developing processes were based mainly on Heinz Werner's developmental theory which served as a working model for the present study. The major hypothesis which this study attempted to explore is that changes occurring in perceptual-cognitive development are reflected in Rorschach responses and that such changes will proceed along the developmental continuum from undifferentiatedness to greater differentiation, articulation and higher-order integration. More specific hypotheses for each scoring category are presented in Chapter II.

This chapter reviews the results presented in the previous chapter in relation to the major hypotheses of this

study and attempts to elaborate some conclusions pertaining to perceptual-cognitive development as reflected in children's Rorschach responses. The five basic categories of Rorschach variables are reviewed and discussed in the first section while a final section regards all five categories concurrently and tries to draw more general conclusions relating to perceptual-cognitive development.

### 1. Specific Scoring Categories

#### A. Form Level

The results indicate significant findings in the predicted direction for four of the five scoring categories which gives support to two of the three experimental hypotheses. To summarize, we find a reduction of diffuse and undifferentiated (Fv) percepts that are shapeless and lack in structure and definiteness and also a reduction of those percepts that are wholly arbitrary and clash with the blot outline (F-). Concomitantly, the results indicate an increase in the predicted direction of responses that are usual (Fo), often popular and of acceptable form quality (i.e., not diffuse, undifferentiated and/or poorly articulated) and also an increase in responses which are of excellent (F+) form quality indicating a great deal of precision, form definiteness and correctness of fit between the subject's percept and the blot area.

The Fweak+ and - category did not show any significant changes over the two year age span. This score, it



should be remembered, represents those responses which are neither good nor bad, but respect in minimal fashion the general outline of the blot area without outstanding accuracy or on the other hand, any blatant disregard for the shape or contour of the blot. In the sample of Rorschach responses obtained in the present study, responses such as a "stick" or an "arm" for any elongated blot shape, or a "mountain" or "hill" for any elevated and rounded portion of a blot, are representative of this category. Thus it would appear that a reduction or a gradual elimination of this type of response was not a striking characteristic of the sample or the ages covered in the present study. That is not to say that a wider age span or different age groups might not produce more favourable results.

The most noteworthy changes for this category are to be found at the extremes of the scale. The F+, Fo and F- categories indicate very strong and decisive age trends. These changes were very apparent between the Young and Middle (6 to 7 years), but apart from the F+ response which attained significance in the second age level comparison, these changes were not as evident in the Middle and Older groups (7 to 8 years). The F+ response showed a rapid and striking increase at each age level, i.e., only 2 individuals out of 31 were able to produce one or more F+ responses at the younger age, whereas 13 produced the response by 7 years and 23 by 8 years. The two other categories show a dramatic improvement in the Young-Middle group comparison

which levels off at the subsequent age. The Fo response was produced by 12 individuals in the youngest group, while 23 produced it in the Middle group and 26 in the Old group. In similar fashion, 29 out of 31 individuals produced two or more F- responses in the 6 year old group, which diminished to 21 in the Middle group and 16 in the Old group. Another scoring category which favours the Young to Middle comparison is the Fv variable: 19 individuals produced two or more Fv responses in the Young group, which drops dramatically to 10 at the Middle age and remains at 10 at the Older age.

In summary, the Form Level category produced results which parallel other developmental studies which report improvement with age in the quality of the form of children's Rorschach responses (Ames, 1974; Friedman, 1952; Lohrenz & Gardner, 1966). In addition to the overall improvement in Form Level which is well documented in the literature, the present findings permit a more detailed analysis of the processes involved in the production of a good quality response, and tentative formulations related to age specific processes. The findings in the Form Level category suggest first of all, for the sample in the present study, that the ability of the child to articulate his response, respect the structural elements of the blot and match or "fit" his response to the blot outline undergoes a rapid change from 6 to 7 years of age which seems much less pronounced at the Old age level (8 years). The quality or type of process

which is apparent in the present findings is related not so much to an improvement in the subtle and minor qualities of form perception, but more at the extremes of the scale, i.e., an increase in the excellent form quality responses (F+) as well as a decrease in the very poor responses (F-).

Considering for a moment the results in the context of Werner's theory, the findings support the notion that development proceeds from a state of relative undifferentiatedness to one of greater differentiation and articulation. These processes were apparent and prominent between 6 to 7 years of age when considering the form quality of responses although not as apparent at the 8 year level. The rapid improvement in the child's ability to accurately perceive, differentiate and articulate his percept might be a characteristic change of the younger child (6 to 7 years) who has just completed his first year of formal schooling. However further research would be required to determine if these changes are an age-related characteristic and due to maturation, or if they are specific only to the present sample, or what part can be attributed to the child's first formal school experiences which probably offer him a greater amount of structure and discipline.

#### B. Organizational Activity

The results indicate significant results in the predicted direction for four of the five scoring categories which gives support to two of the three experimental

hypotheses while a third finds partial support. The hypothesis dealing with the well organized and integrated response (W++, D++; W+, D+) did predict an improvement in this type of response, but the findings were well beyond what was expected for the age groups in the sample. Also the poorly differentiated and disorganized percepts did decrease, but in only one (W-, D-) of the two scoring categories.

The most surprising finding is the rapid increase in the well organized and integrated responses (W++, D++; W+, D+). Other studies (Friedman, 1952; Hemmendinger, 1953; Friedman & Orgel, 1954; Hersch, 1962) report that such responses are typical of older children (9 to 10 years) and adults, and should not be considered a common occurrence until late adolescence (11 to 12 years). If we examine the rate and magnitude of increase for these categories in the present study, we find that at the youngest age (6 years), only 1 individual out of 31 was able to produce at least one response denoting excellent organizational skills (W++, D++), which increases to 8 at the next age, and 20 for the Old group. That is to say that by 8 years of age, almost 65% of the children in the present sample were able to produce 1 or more responses denoting superior organizational skills. It should be remembered that this phenomenon might be due to the type of sample in the present study: all the children were from middle to high income families and their average intelligence scores are well above average.

Nevertheless it does pose an interesting question about how socio-economic status and/or intelligence might effect and accelerate the child's ability to organize, integrate and understand the elements of a situation which is essentially what the W++, D++ category represents (Blatt & Allison, 1963). The relationship between general intelligence and the W+ and W++ responses of the Rorschach has been studied with somewhat conflicting results. The link between the W responses and I.Q. does not appear as simple as first thought. This was clearly demonstrated in a study by Blatt and Allison (1963) who distinguished between different kinds of W responses and their relationship to a problem solving task and a test of general intelligence. Whereas the relationship between the W+ and W++ response and the John-Rimoldi Problem Solving Apparatus was very high ( $r = .838$ ), it was almost nonexistent with a test of general intelligence, the Raven Progressive Matrices ( $r = .170$ ). The authors conclude that the W+ and W++ are a measure of problem solving efficiency and the subject's ability to utilize his intellectual assets, in this case his integrative and synthetic abilities, rather than an indication of general I.Q. level. If this is true, then perhaps socio-economic level and the child's enriched opportunities for learning are the important factors when considering the accelerated rate of development of the subjects in the present study. These questions will remain highly speculative and should be subjected to further

empirical verification.

Still on the topic of the highest levels of organizational responses (W++, D++; W+, D+), it is interesting to note that although the Chi square analysis is highly significant over the three age groups, it seems to favour the second age group comparison. The W++, D++ variable indicates a significant Chi square for both age group comparisons, but it is greater in the Middle-Old comparison. This becomes even more apparent for the W+, D+ variable: 11 individuals at the youngest age were able to produce at least one W+, D+ response, 10 at the next age level and 27 in the Old group. The production of this type of response remains almost equal in the Young and Middle groups, but increases by more than  $2\frac{1}{2}$  times in the Old group. Overall this would appear to indicate that the integrative or synthetic perceptual-cognitive processes which are represented by these types of responses were more characteristic of the older children in the present sample. In a way this was to be expected if we refer back to Werner's theory that speaks of higher order integration as a developmentally more mature process.

An interesting finding was the Wm, Dm category. Whereas the superior forms of organizational responses seem more prevalent in the Old group (8 years), the Wm, Dm category might be conceived as a process more typical of the Middle group (7 years). It should be remembered that the Wm, Dm category is one which does not demand of the subject

a "struggle" or an exertion in order to combine and organize the blot areas, but rather to perceive the obvious, ordinary and natural structure within the blot and the Wm, Dm is usually considered much easier to produce than a W++ or W+ response. Friedman considers these responses to be developmentally "high" because they are not diffuse, undifferentiated or flagrant misses or abuses of the structural elements of the blot. The significant increases in Wm, Dm occurred in the Young-Middle (6 to 7 years) group comparisons, but not when comparing the Middle-Old (7 to 8 years) groups. The factors involved in this selective age difference are still unclear; however, it is possible that the increase in Wm, Dm reflects a perceptual-cognitive process which is typical of younger children. It seems that, as a preliminary stage to the well integrated and organized Whole response, the child would perceive the obvious structures and organizations of the blot. These conclusions are not warranted with the present data but this area of investigation might prove fruitful in future studies.

Another variable which requires discussion is the Wv, Dv; Wa, Da category of responses. In similar fashion to the variable of Form Level, the changes in Organizational Activity seem to occur at the extremes of the scale. The very poor responses (W-, D-) diminish significantly which typifies the child's increased ability to make accurate matches with the blot area and avoid those responses which

do not "fit" at all with the configuration of the blot. The superior levels of integrative ability (W++, D++, W+, D+) also improve rapidly. Yet we do not find a reduction of the vague and amorphous (Wv, Dv; Wa, Da) response category. A possible explanation is that the Friedman system is more sensitive to the organizational and integrative aspects of Werner's orthogenetic principle. It could also be that it requires more than a two year age span before amorphous and vague responses (Wv, Dv; Wa, Da) register a downward trend. Why then should more primitive processes remain while developmentally mature processes show a marked increase? A more probable explanation, based on one of Werner's guiding principles of development, is that less mature and previously acquired structures are not abandoned through the growth process. In other words, development does not proceed by elimination of immature processes but by the integration and reorganization of these processes into higher order cognitive functions.

### C. Human Responses

This group of variables produced three significant results in the predicted direction which supports one of the four experimental hypotheses with partial support for another. To summarize, we find a significant increase in the child's ability to perceive full human figures and to be able to integrate two or more human figures in a unified percept either doing something together or involved in action with other structural elements of the blot.



The ability of the child to perceive the full human figure did improve significantly with age. Blatt and Brenneis (1976) also report a significant increase for this variable when comparing longitudinal samples of adolescents and young adults. In addition they found a tendency for the number of partial human figures to decrease with age, but this was not statistically significant. Similarly the present study notes a trend in the predicted direction for partial human figures to decrease, but this finding is not statistically significant. Blatt and Brenneis (1976) attribute these results to the child's improved abilities to differentiate his percept and it is offered as a confirmation of one of Werner's orthogenetic principles. Differentiation in the case of the human figure would therefore seem to proceed from the perception of the partial human figure to an appreciation of the complete human figure. This developmental sequence is reminiscent of some of Dworetzki's (1939, 1953) original work in the development of perception of complex but familiar-looking objects. She reports that the child first produces global and confused impressions, leading to a second stage when the child can distinguish the individual parts within an ensemble, and finally the child is able to appreciate the total configuration while still being able to acknowledge the individual parts of the ensemble. The present findings would tend to support this second and third stage as we see a trend in the reduction of partial human figures as well as a

significant increase in the production of full human figures. This change would not appear to be typical of any age group in the present sample and it was a feature of changes occurring over the two year span.

Another variable which warrants comment is Articulation. This variable was expected to improve with age and showed a positive trend in the expected direction, but this result is not statistically significant. A previous study by Blatt and Brenneis (1976) did produce significant findings, but it should be remembered that the ages of the children in the present study are much younger than in the study cited above (age span of 6 to 8 years as compared to 11 to 30 years). It is possible that the two year age span was not extensive enough to produce the desired results, or else that the perceptual-cognitive processes represented by this variable, i.e., the ability to articulate numerous characteristics of the human figure, are not typical of younger children but of adolescents and adults. Further research would be required to investigate this question.

The four movement categories produced disappointing as well as encouraging results. Recent data by Ames (1974) report that static and passive movements are predominant from 2 to 5 years, while extensor and active movements are typical from 6 to 10 years. In the present study, the predicted decrease in passive movements and increase in active movements did not occur. In fact from 6 to 7 years,

there was a slight increase in the passive-postural movements and decrease in the active-extensor movements. Nevertheless a trend in the predicted direction did occur in the 7 to 8 year comparison. It should be remembered however that a recent study by Blatt and Brenneis (1976) did product significant results with an adolescent and young adult population. It is possible that these variables might represent processes more typical of adolescents and older children.

The two movement categories which did produce statistically significant results are M-3 and M-4, i.e., responses in which two human figures are organized in activity either among themselves or with other parts of the blot. The differentiation of separate figures and the reorganization of these figures in a well integrated response is in many ways similar to the W++ and W+ responses as they are described by Friedman (1953) and Hemmendinger (1951). The additional feature of the M-3 and M-4 variables is the movement aspect which, theoretically, would require a higher level of integrative ability than the forming of a W response without human movement. In similar fashion to the well organized and integrated Whole responses, the well integrated movement responses showed very dramatic and clear changes with age. In fact these changes were only expected to manifest themselves as trends and not as statistically significant results. Based on Hemmendinger's (1951) and Friedman's (1953) research findings, the well organized and

integrated movement response, in similar fashion to the well organized Whole response, was not expected to occur before the age of 9 or 10 years. The children in the present sample would certainly appear to have exhibited an accelerated development in the ability to organize and integrate human figures seen in action. The M-3 and M-4 also seem to be more prominent at different age levels. The M-3 scoring category provided significant results in the Young-Middle comparison, but not in the Middle-Old: at the 6 year old level, only 6% of the subjects were able to produce at least one M-3 response, this increases significantly to 35% by 7 years, and continues to increase, although not significantly to 48% by 8 years. Conversely the M-4, or highest level of integrated movement response, seems more typical as a process in the Old group. The M-4 occurred in 13% of the 6 year olds, increased only to 18% by 7 years, but indicated a significant increase to 58% by 8 years. We can conclude that both the M-3 and M-4 variables appear to be sensitive to the child's improving ability to integrate and organize the different structures of the blot and in this respect they are proposed as good indicators of what Werner calls "hierarchical integration." They also seem to have offered the possibility of discriminating different levels of integration of the human figure.

#### D. Shading Responses

Only one variable (S-4, S-5) produced significant results which gives support to one of the three experimental hypotheses. The undifferentiated shading responses did not decrease significantly even though the S-1 variable did show a negative trend in the predicted direction. The S-2 variable remained stable over the two year period. The S-3 variable, which is the first level of differentiation and articulation, produced results which approached significance ( $p < .17$ ). The highest level of integration (S-4 and S-5) produced results beyond expectations in that the well organized and integrated response was not expected to appear until 9 or 10 years of age.

These results do not permit much clarification about the role of Shading in perceptual-cognitive activity, but in a way it highlights the complex and often confusing body of research dealing with the role of Shading in Rorschach perception.

Relating these results to Werner's developmental theory, the following comments can be made. Based on the orthogenetic principle, it was predicted that the undifferentiated Shading responses would show significant decreases as the child grew older and matured. The lack of significant reduction in these types of responses could be due to the fact that Shading responses occurred rarely (at any age level, only 43% to 46% of the individuals were able to produce at least one Shading response), and secondly,

it is possible that the sample size or the length of time between each assessment was not great enough to permit the observation of change. This should be kept in mind in future research dealing with the Shading variable.

The findings which do confirm Werner's theory are at the level of the well organized and structured Shading response. Even though undifferentiated shading did not show a significant decrease, the utilization of "crude" or undifferentiated shading organized with other blot elements did significantly increase; for example, the responses such as "clouds" or "fur" were not eliminated, but other responses such as "a rocket ship flying through clouds" increased significantly. This lends support to Werner's concept of hierarchical integration and presents another instance where the developmentally low response is not eliminated but reintegrated within a broader context in support of a higher order cognitive process. Thus, development did not proceed by disappearance of early responses, but by hierarchical reintegration of these responses within a more mature and developmentally advanced structure.

#### E. Colour Responses

This category provided one significant finding (C-4 and C-5) which offers support to one of the three experimental hypotheses. To summarize, the findings indicate an increase in the child's ability to organize and integrate the colour elements with other location and/or determinants within the blot. The decrease of crude and undifferentiated

Colour responses (C-1; C-2) did not prove to be a sensitive index of change over a two year span and apart from a trend in the expected direction for C-1, the C-2 variable remained stable over a two year period and even showed a slight increase in the Middle group. It is also worth noting that the C-3 variable, which represents the FC response, was not by itself a sensitive indicator of developmental change even though the FC is often referred to in the literature as an indicator of maturity and adjustment; conversely, measures of integration seemed much more sensitive to developmental changes when considering the Colour determinant.

The relative stability of the undifferentiated Colour responses and the improvement in the integrated Colour category can be interpreted in the context of Werner's theory. First of all the significant increase in C-4 and C-5 was not expected to occur with the speed and magnitude observed in the present study. Well integrated responses usually appear at 9 or 10 years of age. Once again the subjects in the present study exhibited what appears to be an accelerated rate of development for the process of integration. Secondly a decrease of crude and undifferentiated responses was not apparent but as with the Shading category, these developmentally less mature responses were not eliminated as the child grew older but were reintegrated in a more mature process. For example, the response "fire" (Card III) was not eliminated as the child grew older, but

seems to have been integrated into a more complex organization such as "two people warming their hands over a fire." This highlights once again an important facet of Werner's orthogenetic principle and supports his structuralist theory by which developmentally less mature schemata are reintegrated into higher order processes.

While the first section of this chapter attempted to analyze the specific findings in each scoring category, the second will review all the scoring categories and try to draw more general conclusions. The nature and quality of the child's perceptual-cognitive processes as well as the rate of development will be discussed in the context of Werner's theory.

## 2. General Findings

While reviewing the overall findings, the most striking feature is that the children in this study evidenced dramatic changes in perceptual-cognitive functioning which occurred over a relatively short period of time (one to two years). This raises the issue of rate of development which is strikingly different in the present sample than in other studies reported in the literature.

Hemmendinger (1953) and Friedman (1952) report similar patterns of development in Rorschach performance, i.e., increasing differentiation and articulation of percepts as well as a hierarchical integration of more primitive structures into more mature and advanced processes. Their



results, however, differ in the rate or the ages at which these processes appear. While the well integrated and organized response appears at 9 to 10 years in the studies cited above, they occur at 7 or 8 years in the present sample. These findings can be discussed in accordance with another aspect of Werner's developmental approach, i.e., a comparative analysis of perceptual and conceptual development. When making a comparative analysis of development in different cultures and societies, Werner speaks of parallelism:

. . . development follows certain general and formal rules whether it concerns the individual or the species. Such a principle implies that, apart from general and formal similarities, there do exist specific material differences in the comparable phenomena. (Werner, 1948)

These parallels must be taken to indicate that two groups from differing cultures or socio-economic backgrounds will exhibit certain similar mental structures and functions while also striking differences in rate of acquisition and even quality of the observed structure or function. These differences are a result of the organism's interaction with his physical and social environment which mediates patterns of stimulation and provides opportunities for development. Relating these theoretical concepts to our findings, it should be remembered that the children in this study were in many ways privileged: they were in a special school with no more than fifteen children per class and they were exposed

to an enriched program. They had also been carefully screened and recognized by a clinical team as socially and emotionally mature, additionally, they were all well above average intelligence on standardized scales and from middle to high socio-economic levels. Whether or not the results obtained in the present study are replicable in a less fortunate population of children remains an issue which can only be resolved with further research.

The second issue which needs to be discussed in this section deals with the quality of perceptual-cognitive processes observed and their relevance for Werner's orthogenetic principle.

To recapitulate:

. . . the orthogenetic principle asserts that development is a process of increasing differentiation and specification of the organism's relatively global organization, coupled with a process of progressive centralization and hierarchic integration of the more individual systems so that progressive equilibrium is achieved. . . . On the one hand, differentiation is a process of altering a relatively global structure into a more individuated whole, while hierarchic integration serves to maintain the organism's integrity in the face of change over time. (Langer, 1970)

At each successive stage of development, the organism is simultaneously directed toward maintaining continuity or stability while generating discontinuity or transformation. Continuity and discontinuity are presented by Langer (1970) as a central aspect of Werner's theory of development. The organism changes and yet through the integration of previous stages, it maintains its integrity. Therefore development

is not seen as an additive process where behaviours are accumulated in a continuous temporal sequence and Werner did not conceive of differentiation, articulation and integration as three processes occurring in sequence at different periods of life. There is a dynamic interplay between these processes which means that development proceeds through concomitant and simultaneous differentiation and integration of structures.

Keeping these concepts in mind, let us look briefly at the findings of this study and draw some conclusions regarding Werner's orthogenetic laws. The five scoring categories highlight many different aspects of orthogenesis. The Form Level category appears sensitive to the aspects of differentiation and articulation of perceptual-cognitive processes, while Organizational Activity and the Human Response seem to have produced a wide range of differentiating and integrative functions. In the production of more accurate and precise percepts (Form Level; reduction of W-, D-) and more clearly defined human figures (H and [H]), the processes of differentiation and articulation certainly appear evident. Concurrently, the increase of well organized and integrated percepts (W++, D++; W+, D+; Wm, Dm) upholds the important synthetic aspect of hierarchical integration. With regard to the Shading and Colour categories, although there was a slight but nonsignificant reduction of the undifferentiated elements of the structure, development evidenced itself in the process of integration

and organization. These two categories would seem to be a typical example that the reduction of the global, undifferentiated elements of the stimuli are not a prerequisite to the appearance of organization and integration. These processes do not necessarily appear in a strict temporal sequence, and the organism can move back and forth from level to level, experiencing change at times as improved specificity of structures, at other times as reorganization and integration of previously acquired functions. The categories of Shading and Colour demonstrate an important notion in the concept of hierarchical integration: the developmentally less mature processes did not disappear nor were they eliminated, but they became integrated and organized within a more complex and developmentally more mature structure. In other words the more primitive processes in Colour and Shading perception were possibly the sources or precursors of a more advanced stage, although development did not proceed by the elimination or disappearance of primitive structures.

Having briefly discussed the specific categories of responses as well as the relevance of the overall findings, and having attempted to show how these findings demonstrate Werner's orthogenetic laws of development, the final chapter will try to summarize the basic findings and offer recommendations for future research.

## SUMMARY AND CONCLUSIONS

This study attempted to verify the hypothesis that, as children develop and mature, cognitive structures and functions change and evolve towards greater differentiation, articulation and higher order integration. The design and methodology of the study did not control or produce results via manipulation of variables, but rather the context was more naturalistic and observational. The behavioural samples which were utilized consisted of Rorschach responses from a longitudinal sample of children varying in age from 6 to 8 years. The Rorschach was selected because it had shown promising results in previous studies (Friedman, 1953; Hemmendinger, 1953) and it was felt that such unstructured and ambiguous stimuli would place the child in a relatively unknown situation in order to compel him to utilize problem-solving abilities typical of his perceptual-cognitive development.

Three of the five scoring categories (Form Level, Organizational Activity, Human Response) selected in the Rorschach analysis produced evidence in support of the general developmental hypothesis stated above; two other categories (Colour and Shading) provided significant results at the level of organization and integration but not in

the reduction of crude, undifferentiated responses. Qualitative changes reflected the child's increased ability to perceive in a clearer, more precise and differentiated way the stimulus material. Concomitantly, the enhanced and improved precision in perceptual-cognitive functioning was supported for the most part by a reduction in diffuse, undifferentiated and erroneous percepts.

Apart from the improvements noted in the precision and definiteness of the child's percepts, another striking qualitative change was apparent in the child's ability to integrate and organize perceptual material within a broader context. These changes appeared to occur in the present sample at an earlier age than had been previously reported in the literature. In other words, as the child grew older, even when comparing groups as young as 6 or 7 years, the most dramatic developmental phenomenon was the child's increasing propensity to structure and organize the perceptual data, and the high level of success that a young child was capable of achieving in the complex task of perceptual-cognitive integration. This finding was interpreted as supportive of Werner's concept of hierarchical integration.

A discussion of the results led to comments relative to the practicality of Werner's theory in the study of perceptual-cognitive functioning. With regard to the Rorschach, a final evaluative statement indicated that this inkblot technique had produced data, in analyzable form,

which could be meaningfully interpreted in the context of Werner's developmental theory. Having reviewed the basic findings, it seems appropriate to conclude with suggestions for future research in the area of perceptual-cognitive development and the Rorschach technique.

If one speculates for a moment as to other research projects which might be undertaken as a natural sequel to the present study, a few broad areas come to mind.

First, the same type of methodology and approach could be applied once again to psychologically healthy children, but this time, selecting a more representative sample of average intellect and also extending the age range to include younger and older children. Unfortunately, the present study was limited to a sample of psychologically healthy children over a two year span in development.

Second, the methodology might also prove useful to the study of psychopathology in groups of problem children. A developmental framework which focuses on maturational and functional delays or arrests in the quality and direction of normally evolving perceptual-cognitive functions seems a natural and valuable way of studying psychopathology in children. It would be interesting, for example, to compare well defined groups of children who are experiencing problems in specific areas such as reading, spelling or mathematics, and other areas relating to behavioural and/or emotional symptomatology, and ascertain how such problems are related to perceptual-cognitive functioning. A learning

disability might best be understood as a disability of the perceptual-cognitive integrative and organizational capabilities of the child or an immaturity or developmental delay of certain perceptual-cognitive structures for learning.

As a final statement, it seems appropriate to say that the present study does not pretend to have made a definitive evaluation of Werner's developmental theory, but has attempted to explore with clear and defensible methodology some of the processes which appear to be central issues in our understanding of children.



## REFERENCES

## REFERENCES

- Abrams, E. N. Prediction of Intelligence from Certain Rorschach Factors. Journal of Clinical Psychology, 1955, 11, 81-83.
- Allison, J., & Blatt, S. J. The Relation of Rorschach Whole-Response to Intelligence. Journal of Projective Techniques, 1964, 28, 355-360.
- Allport, Floyd H. Theories of Perception and the Concept of Structure. New York: Wiley, 1955.
- Altus, W. D. Group Rorschach and Q-L Discrepancies on the ACE. Psychological Bulletin, 1958, 4, 469.
- Ames, Louise Bates, & August, Judith. Rorschach Responses of Negro and White 5 to 10 Year-olds. Journal of Genetic Psychology, 1966, 109, 297-309.
- Ames, Louise Bates; Métraux, Ruth W., et al. Child Rorschach Responses. New York: Brunner/Mazel, 1974.
- Ausubel, David P., & Sullivan, Edmund V. Theory and Practice of Child Development. New York: Grune & Stratton, 1970.
- Baldwin, Alfred L. Theories of Child Development. New York: Wiley, 1967.
- Bandura, A. The Rorschach White Space Response and Oppositional Behavior. Journal of Consulting Psychology, 1954, 18, 17-21.
- Beck, S.J. Introduction to the Rorschach Method. American Orthopsychiatric Association, 1937, 1.
- \_\_\_\_\_. Psychological Processes in the Schizophrenic Adaptation. New York: Grune & Stratton, 1965.
- \_\_\_\_\_. Rorschach's Test. Vol. I in Basic Processes. New York: Grune & Stratton, 1961.

- Becker, Wesley C. A Genetic Approach to the Interpretation and Evaluation of the Process-reactive Distinction in Schizophrenia. Journal of Abnormal and Social Psychology, 1956, 53, 229-236.
- Beizman, Cécile. Handbook for Scorings of Rorschach Responses. New York: Grune & Stratton, 1966.
- Bendick, M. R., & Klopfer, W. G. The Effects of Sensory Deprivation and Motor Inhibition on Rorschach Movement Responses. Journal of Projective Techniques and Personality Assessment, 1964, 28, 261-264.
- Berger, David. The Rorschach as a Measure of Real Life Stress. Journal of Consulting Psychology, 1953, 17, 355-358.
- Binder, H. Die Helldunkeldeutungen im Psychodiagnostischen Experiment bon Rorschach. Translated by Ewald Bohm, in M. A. Rickers-Ovsiankina, ed., Rorschach Psychology. New York: Krieger, 1977. pp. 202-221.
- Blatt, Sidney, J.; Brenneis, Brooks C., et al. A Developmental Analysis of the Object on the Rorschach Scoring Manual. Yale University, 1976.
- Blatt, Sidney J.; Brenneis, Brooks C., et al. Normal Development and Psychopathological Impairment of the Concept of the Object on the Rorschach. Journal of Abnormal Psychology, 1976, 85, 364-373.
- Bosgang, Irwin. A Construct Validation Study of the Level-sharpening Cognitive Control by Means of Rorschach Response Behavior. Unpublished doctoral dissertation, New York University, 1961.
- Breecker, S. The Rorschach Reaction Patterns of Maternally Overprotected and Rejected Schizophrenics. Journal of Nervous and Mental Disorders, 1956, 123, 41-52.
- Broekmann, N. C. A Physiological Investigation of the Rorschach Color and Form Determinants. Journal of Projective Techniques and Personality Assessment, 1970, 34, 98-103.
- Campo, Vera & DeSantos, Diana R. A Critical Review of the Shading Responses in the Rorschach, I. Scoring Problems. Journal of Personality Assessment, 1971, 35, 3-21.
- Cohex, I. H. Adaptive Regression, Dogmatism and Creativity. Unpublished doctoral dissertation, Michigan State University, 1960.

- Cooper, L., & Caston, J. Physical Activity and Increase in M Response. Journal of Projective Techniques and Personality Assessment, 1970, 34, 295-301.
- Cox, F. N., & Sarason, S. B. Test Anxiety and Rorschach Performance. Journal of Abnormal Psychology, 1954, 49, 371-377.
- Cronbach, Lee J. Statistical Methods Applied to Rorschach Scores. A Review. Psychological Bulletin, 1949, 46, 393-429.
- Dona, R. H. Review of Rorschach Studies. In O. K. Buros, ed., Sixth Mental Measurements Yearbook. Highland Park: Gryphon Press, 1965.
- Dudek, S. Z. A Longitudinal Study of Piaget's Developmental Stages and the Concept of Regression. Journal of Personality Assessment, 1972, 36, 463-478.
- Dworetzki, Gertrude. L'évolution de la perception et le test de Rorschach. Archives de Psychologie, 1939, 27, 233-316.
- Eichler, Robert M. Experimental Stress and Alleged Rorschach Indices of Anxiety. Journal of Abnormal and Social Psychology, 1951, 46, 344-356.
- Elkind, David. Developmental Studies of Figurative Perception. In Lewis P. Lipsitt and Hayne W. Reese, Advances in Child Development. New York: Academic, 1969.
- Elstein, Arthur S. Behavioral Correlates of the Rorschach Shading Determinant. Journal of Consulting Psychology, 1965, 29, 231-236.
- Exner, John E. The Rorschach. A Comprehensive System. New York: Wiley, 1974.
- Fast, Irene. Concrete and Abstract Thought: An Alternative Formulation. Journal of Projective Techniques and Personality Assessment, 1969, 33, 331-336.
- Fonder, C. P. The Nature and Meaning of the Rorschach White Space Response. Journal of Abnormal and Social Psychology, 1951, 46, 367-377.
- Friedman, H. Perceptual Regression in Schizophrenia: A Hypothesis Suggested by the Use of the Rorschach Technique. Journal of Projective Techniques, 1953, 17, 171-185.

- Friedman, H., & Orgel, S. Rorschach Developmental Scores and Intelligence Level. Journal of Projective Techniques, 1964, 28, 425-428.
- Garlow, L.; Zinet C. H., et al. The Validity of Anxiety and Hostility Rorschach Content Scores among Adolescents. Journal of Consulting Psychology, 1952, 16, 73-75.
- Gibson, Eleanor J. Principles of Perceptual Learning and Development. New York: Appleton-Century-Crofts, 1969.
- Gill, H. S. Delay of Response and Reaction to Color on the Rorschach. Journal of Projective Techniques and Personality Assessment, 1966, 30, 545-552.
- Glixman, M. Cognitive Functioning on the Rorschach as a Diagnostic Tool. Unpublished doctoral dissertation, City University of New York, 1976.
- Goldfried, Marvin. Friedman's Developmental Level Scoring. In Marvin Goldfried, George Stricker et al., Rorschach Handbook of Clinical and Research Applications. New York: Prentice-Hall, 1971.
- Goldman, A. E., & Herman, J. L. Studies in Vicariousness: The Effects of Immobilization on Rorschach Movement Responses. Journal of Projective Techniques, 1961, 25, 164-169.
- Goodstein, Leonard D., & Goldberger, Leo. Manifest Anxiety and Rorschach Performance in a Chronic Patient Population. Journal of Consulting Psychology, 1955, 19, 339-344.
- Greenberg, R. P., & Fisher, S. A Muscle Awareness Model for Changes in Rorschach Human Movement Responses. Journal of Projective Techniques and Personality Assessment, 1973, 65, 512-518.
- Harris, Dale B., ed. The Concept of Development. An Issue in the Study of Human Behavior. Minneapolis: University of Minnesota Press, 1957.
- Hemmendinger, L. A Genetic Study of Structural Aspects of Perception as Reflected in the Rorschach Test Response. Unpublished doctoral dissertation, Clark University, 1951.
- \_\_\_\_\_. Perceptual Organization and Development as Reflected in the Structure of Rorschach Test Responses. J. Prog. Tuli., 1953, 17, 162-170.

- Hemmendinger, L. Developmental Theory and the Rorschach Method. In M. A. Rickers-Ovsiankina, et., Rorschach Psychology. New York: Krieger, 1977.
- Hersch, Charles. The Cognitive Functioning of the Creative Person. A Developmental Analysis by Means of the Rorschach Test. Unpublished doctoral dissertation, Clark University, 1958.
- Hertz, Marguerite. Rorschach Norms of an Adolescent Age Group. Child Development, 1935, 6, 69-75.
- Hofman, K., & Melnick, B. Response Inhibition and the Rorschach M Response. Journal of Projective Techniques and Personality Assessment, 1967, 31, 29-31.
- Hurwitz, I. A Developmental Study of the Relationship Between Motor Activity and Perceptual Processes as Measured by the Rorschach Test. Unpublished doctoral dissertation, Clark University, 1954.
- Kagan, J. Biological Aspects of Inhibition Systems. American Journal of Disturbed Children, 1967, 114, 507-512.
- \_\_\_\_\_. American Longitudinal Research on Psychological Development. Child Development, 1964, 35, 1-32.
- \_\_\_\_\_. Reflection-impulsivity: The Generality and Dynamics of Conceptual Tempo. Journal of Abnormal Psychology, 1966, 71, 17-24.
- Kagan, J., & Lembin, J. Form, Color and Size in Children's Conceptual Behavior. Child Development, 1961, 32, 25-28.
- Kalter, Neil, & Marsden, Gerald. Response Productivity in Research with the Rorschach: A Caution on Method. Journal of Projective Techniques and Personality Assessment, 1970, 34, 10-15.
- Katz, Judith Milstein. Cognitive Tempo and Discrimination Skill on Color-Form Sorting Tasks. Perceptual and Motor Skills, 1972, 35, 359-362.
- \_\_\_\_\_. Reflection-impulsivity and Color-Form Sorting. Child Development, 1971, 42, 745-754.
- Kahn, M. W. Correlates of Rorschach Reality Adherence in the Assessment of Murderers who Plead Guilty. J. Prog. Tuli., 1967, 31, 44-47.

- Kissel, S. A. Brief Note on the Relationship between Rorschach Developmental Scores and Intelligence. Journal of Projective Techniques, 1965, 29, 45-49.
- Klopfer, Bruno et al. Developments in the Rorschach Technique. Yonkers-on-Hudson, N.Y.: World Book Co., 1954-1970, 3 vols.
- Kohlberg, Lawrence. Early Education: A Cognitive-developmental View. Child Development, 1968, 38, 1013-1062.
- Korchin, S. J. Form Perception and Ego Functioning. In M. A. Rickers-Ovsiankina, ed., Rorschach Psychology. New York: Krieger, 1977.
- Kruger, Alice Kastenbaum. Direct and Substitutive Modes of Tension Reduction in Terms of Developmental Level: An Experimental Analysis by Means of the Rorschach Test. Unpublished doctoral dissertation, Clark University, 1954.
- Langer, Jonas. Theories of Development. New York: Rinehart & Winston, 1969.
- \_\_\_\_\_. Werner's Comparative Organismic Theory. In Paul Mussen, ed., Manual of Child Psychology, Vol. I. New York: Wiley, 1970.
- Lebo, D. Rorschach Performances in the Amelioration and Continuation of Observable Anxiety. Journal of General Psychology, 1960, 63, 75-80.
- Lerner, B. Rorschach Movement and Dreams: A Validation Study Using Drug-induced Dream Deprivation. Journal of Abnormal Psychology, 1966, 17, 75-86.
- Lerner, Paul M. The Genetic Level Score: A Review. In Paul Lerner, ed., Handbook of Rorschach Scales. New York: International Universities Press, 1975, pp. 20-35.
- Levine, D. Rorschach Genetic-level Score and Mental Disorder. Journal of Projective Techniques, 1959, 23, 436-439.
- Levitt, E. E., & Grosz, H. J. A Comparison of Quantifiable Rorschach Anxiety Indicators in Hypnotically Induced Anxiety and Normal States. Journal of Consulting Psychology, 1960, 24, 31-34.

- Levitt, E. E., & Persky, H. Relation of Rorschach Factors and Plasma Hydrocortisone Level in Hypnotically Induced Anxiety. Psychosomatic Medicine, 1960, 22, 218-223.
- Levitt, E. E., & Truuma, Aare. The Rorschach Technique with Children and Adolescents. Application and Norms. New York: Grune & Stratton, 1972.
- Lewin, Kurt. A Dynamic Theory of Personality. New York: McGraw-Hill, 1935.
- Lofchie, S. H. The Performance of Adults under Distraction Stress: A Developmental Approach. Journal of Psychology, 1955, 39, 109-116.
- Lohrenz, Leander J., & Gardner, Riley W. The Mayman Form-level Scoring Method: Scorer Reliability and Correlates of Form Level. Journal of Projective Techniques and Personality Assessment, 1967, 31, 17-24.
- Marsden, G. Intelligence and the Rorschach W Response. Journal of Projective Techniques and Personality Assessment, 1970, 34, 470-476.
- Mayman, Martin. Form Level Scoring Manual. Unpublished manuscript, 1956.
- Meili-Dworetzki, Gertrude. The Development of Perception in the Rorschach. In B. Klopfer, Developments in the Rorschach Technique, Vol. II. New York: World Books, 1956, pp. 140-176.
- Meltzoff, J., & Litwin, D. Affective Control and Rorschach Human Movement Responses. Journal of Consulting Psychology, 1950, 20, 463-465.
- Mirin, B. The Rorschach Human Movement Response and Role Taking Behavior. Journal of Nervous and Mental Disorders, 1955, 122, 270-275.
- Misch, Robert C. The Relationship of Motoric Inhibition of Developmental Level and Ideational Functioning: An Analysis by Means of the Rorschach Test. Unpublished doctoral dissertation, Clark University, 1954.
- Molish, H. B. Psychological Structure in Four Groups of Children. In S. J. Beck, Psychological Processes in the Schizophrenic Adaptation. New York: Grune & Stratton, 1965.



- Montalto, F. D. Maternal Behavior and the Child Personality: A Rorschach Study. Journal of Projective Techniques, 1952, 16, 151-178.
- Ogdon, D. P., & Allee, R. Rorschach Relationship with Intelligence among Familial Mental Defectives. American Journal of Mental Deficiency, 1959, 63, 889-896.
- O'Neill, Patrick; O'Neill, Pamela C., et al. Perceptual Development on the Rorschach. Journal of Personality Assessment, 1976, 40, 115-121.
- Paulsen, A. A. Personality Development in the Middle Years of Childhood: A Ten Year Longitudinal Study of Thirty Public School Children by Means of Rorschach Tests and Social Histories. American Journal of Orthopsychiatry, 1954, 24, 321-345.
- \_\_\_\_\_. Rorschach of School Beginners. Rorschach Research Exchange, 1941, 5, 24-29.
- Pelt, W. Van. Perceptual-cognitive Development as Reflected by Rorschach Test Content. Unpublished doctoral dissertation, Syracuse University, 1961.
- Phillips, John L. The Origins of Intellect. Piaget's Theory. San Francisco: Freeman, 1969.
- Phillips, Leslie, & Framo, James L. Developmental Theory Applied to Normal and Psychopathological Perception. Journal of Personality, 1954, 22, 464-474.
- Phillips, Leslie; Kaden, Stanley, et al. Rorschach Indices of Developmental Level. Journal of Genetic Psychology, 1959, 94, 267-285.
- Phillips, L., & Smith, J. G. Rorschach Interpretation: Advanced Technique. New York: Grune & Stratton, 1953.
- Piaget, Jean. La psychologie de l'intelligence. Paris: Armand Colin, 1957.
- Piotrowski, Z. A. A Rorschach Compendium. Psychiatric Quarterly, 1950, 24, 79-101.
- \_\_\_\_\_. Perceptanalysis. Philadelphia: Ex Libris, 1965 (2nd printing).
- \_\_\_\_\_. Positive and Negative Rorschach Organic Reactions. Rorschach Research Exchange, 1940, 4, 147.

- Piotrowski, Z. A. The Rorschach Inkblot Method in Organic Disturbances of the Central Nervous System. Journal of Nervous and Mental Diseases, 1937, 86, 525-537.
- Piotrowski, Z. A., & Abrahamsen, D. Sexual Crime, Alcohol and the Rorschach Test. Psychiatric Quarterly, 1952, 26, 248-260.
- Rabkin, J. G. Psychoanalytic Assessment of Change in Organization of Thought after Psychotherapy. Unpublished doctoral dissertation, New York University, 1967.
- Rapaport, D.; Gill, M. M., et al. Diagnostic Psychological Testing. New York: International Universities Press, 1968.
- Rickers-Ovsiankina, Maria A., ed. Rorschach Psychology. New York: Krieger, 1977.
- Rorschach, H. Psychodiagnostics. A Diagnostic Test Based on Perception. Bern: Huber, 1942.
- Santostefano, S. Beyond Nosology: Diagnosis from a Developmental Point of View. In Herbert E. Rie, ed., Perspectives in Child Psychopathology. Chicago: Aldine-Atherton, 1971.
- Scarlett, Helaine H.; Press, Allan N., et al. Children's Descriptions of Peers: A Wernerian Developmental Analysis. Child Development, 1971, 42, 439-453.
- Schachtel, E. G. The Experiential Foundation of the Rorschach Test. New York: Basic Books, 1966.
- Schon, Martha, & Bard, Morton. The Effects of Hypophysectomy on Personality in Women with Metastatic Cancer as Revealed by the Rorschach Test. Journal of Projective Techniques, 1958, 22, 440-445.
- Schwartz, Fred. Rorschach Performance, Anxiety Level and Stress. Journal of Projective Techniques, 1957, 21, 154-160.
- Singer, J. L., & Herman, J. Motor and Fantasy Correlates of Rorschach Human Movement Responses. Journal of Consulting Psychology, 1954, 18, 325-331.
- Singer, J. L., & Spohn, H. E. Some Behavioral Correlates of Rorschach's Experience-type. Journal of Consulting Psychology, 1954, 18, 1-9.

- Sommer, R., & Sommer, D. Assaultiveness and Two Types of Rorschach Color Responses. Journal of Consulting Psychology, 1958, 22, 57-62.
- Suinn, Richard M., & Oskamp, Stuart. The Predictive Validity of Projective Measures. Springfield, Ill.: Thomas, 1969.
- Tanaka, F. Rorschach Movement Responses in Relation to Intelligence. Japanese Journal of Educational Psychology, 1958, 6, 85-91.
- Thetford, William H., & Molish, Herman B. Developmental Aspects of Personality Structure in Normal Children. Journal of Projective Techniques, 1951, 15, 58-78.
- Townsend, J. K. The Relation between Rorschach Signs of Aggression and Behavioral Aggression in Emotionally Disturbed Boys. Journal of Projective Techniques and Personality Assessment, 1967, 31, 13-21.
- Vernon, M. D. Perception in Relation to Cognition. In A. Kidd and J. Rivoire, eds., Perceptual Development in Children. New York: International Universities Press, 1966.
- Vurpillot, Eliane. The Developmental Emphasis. In Edward C. Carterette and Norton P. Friedman, Handbook of Perception. New York: Academic, 1974.
- Warshaw, L. The Clinical Significance and Theory of Sodium Amytal Rorschach Testing. Journal of Projective Techniques, 1954, 18, 248-251.
- Weiner, I. B. Psychodiagnosis in Schizophrenia. New York: Wiley, 1966.
- \_\_\_\_\_. Three Rorschach Scores Indicative of Schizophrenia. Journal of Consulting Psychology, 1961, 25, 436-438.
- Werner, Heinz. Comparative Psychology of Mental Development, 2nd ed. New York: International University Press, 1957.
- \_\_\_\_\_. The Concept of Development from a Comparative and Organismic Point of View. In D. B. Harris, ed., The Concept of Development: An Issue in the Study of Human Behavior. Minneapolis: University of Minneapolis Press, 1957.
- Werner, Heinz, & Kaplan, Bernard. Symbol Formation. An Organismic-developmental Approach to Language and the Expression of Thought. New York: Wiley, 1963.

- Werner, Heinz, & Wapner, Seymour. The Non-projective Aspects of the Rorschach Experiment, II. Organismic Theory and Perceptual Processes. Journal of Social Psychology, 1956, 44, 193-198.
- Werner, Heinz, & Wapner, Seymour. Toward a General Theory of Perception. Psychological Review, 1952, 59, 324-333.
- Willensky, H. Rorschach Developmental Level and Social Participation of Chronic Schizophrenics. Journal of Projective Techniques, 1959, 23, 87-92.
- Wilson, Mary Tewksbury. Regression in Perceptual Organization. A Study of Adolescent Performance on the Rorschach Test. Unpublished doctoral dissertation, Clark University, 1952.
- Witkin, H. A., & Dyk, R. B. Psychological Differentiation. Studies in Development. New York: Wiley, 1974.
- Wursten, Helmut. The Relationship between Piaget's Developmental Theory and the Rorschach Method. In Bruno Klopfer, M. Mortimer, et al., Developments in the Rorschach Method, Vol. III. New York: Harcourt, 1970.
- Zubowsky, E. Measuring Primary and Secondary Process Thinking in Schizophrenics and Normals by Means of the Rorschach. Unpublished doctoral dissertation, Michigan State University, 1961.

## APPENDICES

## APPENDIX 1

### FORM LEVEL SCORING MANUAL\*

#### Introductory Notes

Standard Rorschach abbreviations and notations are used throughout the manual: "l.c.D" means lower center Detail; "u.s. d proj." means upper side small-usual-detail projection; "v" means the response is seen with the Rorschach card in an inverted position; ">" means the Rorschach card is to be turned 90° to the right by the viewer, etc.

Area designations are based upon a synthesis of all the available, published and unpublished, frequency counts of responses to each of the areas identified in the accompanying location charts.

| Response | CARD I                                                                                | Form<br>Quality |
|----------|---------------------------------------------------------------------------------------|-----------------|
| <hr/>    |                                                                                       |                 |
| (W)      |                                                                                       |                 |
| a.       | Mask, animal face or jack-o-lantern (if well perceived). But,                         | +               |
|          | Skull of cow with horns (horns are d2 proj., eye sockets are usual space areas)       | s               |
| b.       | Person in costume with arms outstretched with draped sleeves or wing-like attachments | +               |
| c.       | v Crown                                                                               | +               |
| d.       | v Chinese pagoda                                                                      | +               |

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\* Martin Mayman, Form Level Scoring Manual, unpublished manuscript, 1956.

|    |                                                                                                    |    |
|----|----------------------------------------------------------------------------------------------------|----|
| e. | Emblem (if specified as to general shape and wings)*                                               | +  |
| f. | Cross-section of spinal cord or brain stem (explained with a good grasp of the technical details)* | +  |
| g. | Bat or butterfly                                                                                   | 0  |
| h. | Pelvis                                                                                             | w+ |
| i. | Bug with feelers (area dl) and wings (area Dl)                                                     | w+ |
|    | Bird                                                                                               | w+ |
| j. | Crab                                                                                               | w+ |
| k. | Airplane (if "delta wing," or similar elaboration that takes into account the form)                | w- |
|    | No specification                                                                                   | -  |
| l. | Animal skin; no legs seen                                                                          | v  |
|    | if legs specified                                                                                  | w- |
| m. | Map (of nothing specific)                                                                          | v  |
|    | Map of United States                                                                               | -  |
| n. | X-ray                                                                                              | v  |
|    | X-ray of the thorax with rib cage partly delineated                                                | w+ |
| o. | A spider                                                                                           | -  |

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\* Often, particularly with anatomical and sexual responses, the response is not good enough to be easily scored F+, not common enough to be scored Fo, and yet is seen often enough to indicate that it is "better" than a w+. Such "cheap" F+ responses need not be distinguished from the more creative F+ for ordinary clinical purposes, but probably should be separated out as a lower grade of F+ response in some research studies where this distinction may have an important bearing on the results of the study.

(D1) (side D)

- |    |                                                                                                           |    |
|----|-----------------------------------------------------------------------------------------------------------|----|
| a. | Two people, leaning back, with peaked caps on, each gesturing back, as if saying, "No, come this way."    | +  |
| b. | Two Santa Claus figures (or two witches dancing around an object in the center)                           | +  |
|    | Two people facing outward; d1 not seen as hand; no further specification regarding feet, arm, or clothing | w+ |
| c. | Animal figures (d2 is paw; Dr1 is nose pointing up and out)                                               | +  |
| d. | < Toy elephant (ears in d2 and Dr1; tail is d3)                                                           | +  |
| e. | < Bizarre pig with long ears and legs (snout is Dr1; ear is d2; legs are projections touching D4)         | w+ |
| f. | < Side of a mountain                                                                                      | v  |
| g. | Animal with big pointed head (Dr1), wing (d2) and four legs (touching D2)                                 | s  |
| h. | Profile of a witch's face, big nose, toothless mouth, and a cap                                           | w- |
| i. | Bird (d2 seen as beak)                                                                                    | -  |

(D2)

- |    |                                                                                                      |    |
|----|------------------------------------------------------------------------------------------------------|----|
| a. | A headless woman (with or without area d1 as hands upraised)                                         | 0  |
|    | Human figure (with head as D7, and without arms)                                                     | s  |
| b. | Beetle, head and thorax                                                                              | w+ |
| c. | Crawd--the claws and in the center it looks like a spine                                             | w- |
| d. | Two people standing back to back (or with arms around shoulders), heads; each has one hand raised    | w+ |
|    | with further appropriate specifications (e.g., wearing hoods, gauntlets, tightly belted heavy coats) | +  |



(D3)

- |    |             |   |
|----|-------------|---|
| a. | Bowling pin | + |
| b. | Legs        | 0 |

(D4) (l.c.D.)

- |    |                                                                                                |    |
|----|------------------------------------------------------------------------------------------------|----|
| a. | Bell                                                                                           | +  |
| b. | v An eagle (area Dr3 is seen as the head;<br>the rest of it is body with wings at<br>its side) | +  |
| c. | Cello                                                                                          | w+ |

(D5) (u.  $\frac{1}{2}$  s.D)

- |    |                                                                                      |    |
|----|--------------------------------------------------------------------------------------|----|
| a. | Squirrel or cat (Dr1 is nose, d2 is tail,<br>body is twisted around)*                | +  |
| b. | Chicken, turkey or bird roosting (facing<br>inward with d2 as tail, and Dr1 as comb) | +  |
| c. | Winged creatures (wings are d2 and Dr1)                                              | w+ |
| d. | Head and paw of animal (scored Do. See<br>response D1)**                             | +  |
| e. | Head of donkey or elephant (Dr1 and d2 are<br>ears--score Do, see D1d)               | +  |
| f. | Head of a dog. Long wolf-like nose (d2)<br>and ear (Dr1)                             | w- |

(D6) (large s. De with card help upside down)

- |    |           |   |
|----|-----------|---|
| a. | v Profile | + |
|----|-----------|---|

(D7) (u.  $\frac{1}{2}$  c.D)

- |    |                                                                   |    |
|----|-------------------------------------------------------------------|----|
| a. | Two hooded and robed figures with hands<br>raised (heads are Dr2) | +  |
| b. | Beetle (eyes in Dr2; d1 pincers)                                  | w+ |
| c. | Lobster (d1 pincers)                                              | w+ |

---

\* See footnote, p. 136.

(dl) (on u.c.D)

|    |                                                       |    |
|----|-------------------------------------------------------|----|
| a. | Mittened hands (Do tend.)                             | 0  |
| b. | Claws (Do tend.)                                      | w+ |
| c. | Rabbit head with the upper bulges seen<br>as the ears | w+ |
| d. | Antlers                                               | w+ |
| e. | Baby birds with open mouths                           | w+ |
| f. | Cup of Tantalus                                       | w+ |
| g. | Tail of whale or fish                                 | w+ |

(d2) (s. proj. d)

|    |                  |    |
|----|------------------|----|
| a. | < A fir tree     | w+ |
| b. | Wings (Do tend.) | w+ |
| c. | Dunce cap        | w+ |
| d. | A penis          | -  |

(d3) (l.s.d)

|    |                                                           |    |
|----|-----------------------------------------------------------|----|
| a. | v Head and neck of a person (if seen with<br>good detail) | +  |
| b. | v Sheaf of wheat                                          | +  |
| c. | v Tree                                                    | w- |
| d. | Peninsula                                                 | v  |

(Dr1) (u. corner)

|    |                                               |   |
|----|-----------------------------------------------|---|
| a. | Head of a bear (score Do; see D5a and<br>Dlc) | + |
|----|-----------------------------------------------|---|

(Dr2) (u.c.Dr)

|    |                  |    |
|----|------------------|----|
| a. | Breasts          | w+ |
| b. | Two bulbous eyes | w- |
| c. | Vagina           | w+ |

d. < Lips

w+

(Dr4) (s. De)

a. Jovial man's head with a long nose  
uptilted

+

b. Profile (with no further elaboration  
forthcoming on inquiry)

w-

(D or DS) (u  $\frac{1}{2}$  of blot, usually inverted)

a. v Archway

+

b. v Anvil

+

c. ^ Fountain with wide flat bowl

w+

d. ^ A bat

w+

(Dr--detached dots at lower side)

a. Musical notes

w+

(S--with lower two spaces)

a. Arrowheads

w+

b. Triangles

w+

(S--upper spaces)

a. Ghost

w+

| Response | CARD II | Form<br>Quality |
|----------|---------|-----------------|
|----------|---------|-----------------|

(W)

|    |                                                                           |    |
|----|---------------------------------------------------------------------------|----|
| a. | Two people sitting at a bar clinking glasses with knees touching          | +  |
| b. | Two clowns (head is area D3; hands are area D4)                           | 0  |
| c. | Two people playing patty-cake                                             | 0  |
| d. | Butterfly or other flying insect (with area Dr3 seen as antennae)         | w+ |
| e. | Cross section of brain stem (WS. See D1 j.)                               | w+ |
| f. | Animal face (mouth in DS5, eyes are "s" areas adjacent to D4; ears at d2) | w- |
| g. | Fireworks at night                                                        | v  |
| h. | Mask                                                                      | w- |

(D1) (black area)

|    |                                                                                                                                               |    |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. | v Two poodles' heads touching noses (in dark part of area D2)                                                                                 | +  |
| b. | < Dog (nose is the black tip touching the faint pink of area D3; forepaw is part of D4; ears are d2)                                          | w+ |
| c. | < Same dog, "just skidded to a stop, trying to pull back from what he sees." (Or other verbalization taking into account the distorted form.) | +  |
| d. | ^ Two dogs touching noses                                                                                                                     | 0  |
| e. | ^ Headless bears touching forepaws (same as W a. without area D3 "heads")                                                                     | 0  |
| f. | Cross section of brain stem                                                                                                                   | w+ |
| g. | Pelvis                                                                                                                                        | w- |
| h. | Head of animal with mouth wide open (mouth is area DS5)                                                                                       | w- |

|    |                                                            |    |
|----|------------------------------------------------------------|----|
| i. | Animal skin (paws at the four corners;<br>tail is area D4) | w- |
| j. | Cave (DS)                                                  | v  |
| k. | Animal skin (no legs; only the texture is<br>used)         | v  |
| l. | Ridges or ripples                                          | v  |
| m. | Tissue on slide                                            | v  |
| n. | A bat (D4 is head; d2 are tips of<br>wings)                | -  |

(D2) (l.d.D)

|    |                                                                  |    |
|----|------------------------------------------------------------------|----|
| a. | Butterfly                                                        | 0  |
| b. | Two horseshoe crabs                                              | +  |
| c. | v Thistle blossom                                                | +  |
| d. | Crab, crustacean                                                 | w+ |
| e. | Jellyfish, with tentacles                                        | +  |
| f. | Setting sun                                                      | v  |
| g. | Fire, explosion                                                  | v  |
| h. | Blood (with or without area D3) if<br>splattered, splashed, etc. | v  |
|    | if merely "because it is red"                                    | a  |
| i. | Sting ray (either half)                                          | w+ |
|    | if whole D                                                       | w- |
| j. | Heart                                                            | w+ |

(D3) (u. red D)

|    |                                                                     |   |
|----|---------------------------------------------------------------------|---|
| a. | Bird or butterfly with wings raised<br>(facing center)              | + |
| b. | < Stocking (toe at upper tip; heel is<br>lower curve of inner edge) | + |

|    |                                                                                                                       |    |
|----|-----------------------------------------------------------------------------------------------------------------------|----|
| c. | Veiled woman, sitting with legs folded under her (or Bedouin, may be seen facing either way; head is upper shaded Dr) | +  |
| d. | Thumb sticking up, thumb-nail seen in shading of upper tip                                                            | +  |
| e. | Face and cap of a clown (Do)                                                                                          | +  |
|    | if just the upper, smoothly contoured part (Dr)                                                                       | w+ |
| f. | Two rabbits, forepaws raised, ears standing straight up                                                               | w+ |
| g. | The head of a rooster (upper projection of red is seen as comb)                                                       | w- |
| h. | Blood stain; fire (CF)                                                                                                | v  |
| i. | Mitten                                                                                                                | w+ |
| j. | Kidney                                                                                                                | w+ |
| k. | Worm                                                                                                                  | w- |

(D4) (u.c. small black D)  
(scored Dd by Rapaport)

|      |                                                                                                                                                         |    |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a.   | Clamp, pincers, grinding or piercing tool                                                                                                               | +  |
| b.   | Man with a tall cap on, hands up in front of his face, in a posture of prayer. (Cap is the lighter gray; face, ears and shoulders are the blacker area) | +  |
| c.   | Two men in tall caps leaning against each other back to back (caps are the lighter gray divided by center line)                                         | +  |
| d. v | Ice cream cone (cone is lighter gray; ice cream is darker area)                                                                                         | +  |
| e.   | Penis                                                                                                                                                   | w+ |
| f.   | Vagina                                                                                                                                                  | w- |
| g.   | Arrowhead                                                                                                                                               | w+ |
| h.   | Pagoda                                                                                                                                                  | w+ |

(DS5) (center white space)

- |    |                                                                       |    |
|----|-----------------------------------------------------------------------|----|
| a. | A top (v or )                                                         | +  |
| b. | Chandelier, or light globe or lampshade                               | +  |
| c. | Ballet dancer on her toes, with wide skirt<br>and tight bodice        | +  |
|    | Skirt or dress (alone)                                                | +  |
| d. | Parachute (with area Dr2 seen as a man<br>hanging from the parachute) | +  |
| e. | Jet fighter (with D2 seen as exhaust flame),<br>delta wing            | +  |
| f. | Rocket ship (same as jet fighter, plus D4 as<br>nose cone)            | w+ |
| g. | Manta, ray fish                                                       | w+ |
| h. | Bird                                                                  | w+ |
| i. | Vagina                                                                | -  |

(dl) (l. corner d, with card inverted)

- |    |                     |    |
|----|---------------------|----|
| a. | v Head of the devil | w+ |
|----|---------------------|----|

(d2) (side profile)

- |    |                                            |   |
|----|--------------------------------------------|---|
| a. | Profile of an ape                          | + |
| b. | Profile of an Indian with long hooked nose | + |

(Dr1) (l. edge profile)

- |    |                                                             |    |
|----|-------------------------------------------------------------|----|
| a. | < Profile with sharply hooked nose, long<br>upper lip       | +  |
| b. | Face (no further specification, nose may<br>be pointed out) | w+ |

(Dr2) (l.c. Drs)

- |    |                     |    |
|----|---------------------|----|
| a. | Perineum of a woman | +  |
| b. | Vagina              | w+ |

(Dr3) (l. Dr proj. from l.c.D)

- |    |                        |    |
|----|------------------------|----|
| a. | Peppermint candy stick | +  |
| b. | Icicles, stalactite    | w+ |
| c. | Antennae (Do)          | w+ |

(Dr4) (l.  $\frac{1}{2}$  of u. red)

- |    |                                                           |    |
|----|-----------------------------------------------------------|----|
| a. | Swimming turtle (with head protruding<br>from inner edge) | +  |
| b. | Snail (same as Dr4a. without legs)                        | w+ |



| Response                                                                                                                                                                                     | CARD III | Form<br>Quality |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| <u>(W or D)</u> (Black areas with or without red areas,<br>and with or without lower center D)                                                                                               |          |                 |
| a. Two waiters in tails bowing to each other;<br>two people bowling, or cooking over a pot,<br>or two women washing                                                                          |          | 0               |
| b. Same figures seen as eighteenth-century<br>dandies--they have haughty expressions,<br>beards, a fluff or lace or projecting<br>lapels, high heels                                         |          | +               |
| c. A vase (outline of black area)                                                                                                                                                            |          | +               |
| d. v Two Negroes with arms upraised, or kicking<br>feet high in the air (heads in area D5,<br>arms or legs in area D4)                                                                       |          | +               |
| e. v An orchestra conductor with arms raised<br>(head is area D3, arms area D4)                                                                                                              |          | w+              |
| if some of the identifying details are<br>clearly seen: tufts of hair on each<br>side of head; broad chest, white shirt<br>front, etc., making the response<br>sufficiently well articulated |          | +               |
| f. v Monster with two heads, arms upraised to<br>grab you (like orchestra conductor)                                                                                                         |          | +               |
| g. Lambs, dogs, monkeys (same as popular<br>humans)                                                                                                                                          |          | 0→s             |
| h. v A crab (head and claws in areas D3 and D4<br>respectively)                                                                                                                              |          | w-              |
| i. v A spider (same as crab. Center red is<br>marking on black widow spider.)                                                                                                                |          | w-              |
| j. Grasshopper (parts of the body the same as<br>popular figure)                                                                                                                             |          | s               |
| k. Pelvis                                                                                                                                                                                    |          | -               |
| l. Tiger face (c. red are glaring eyes)                                                                                                                                                      |          | -               |
| m. A gossip with mouth wide open                                                                                                                                                             |          | -               |
| n. v Crown                                                                                                                                                                                   |          | w-              |

- o. Popular figures, with usual arm seen as one leg s

(D1) (side red D)

- a. < Running animal (with long proj. as tail, head seen as looking backward) +
- b. < Rooster (with long tail and a comb) +
- c. v An old, stopped man with a cane; dancer on one leg, bent over +
- d. A flying pixie smoking a cigar (without Dr2; facing center) +
- e. Monkey (like D1 running animal or diver). Or seen as hanging upside down by its tail +
- f. Stomach and intestine, or kidney and ureter +
- g. Diver plunging downward w+
- h. v Palm tree w+
- i. v Burning match (match stick is Dr2) w+
- j. Light fixture hanging from ceiling w-
- k. An amoeba v
- l. Blood or fire v
- m. v Bird on a pedestal or perch w+

(D2) (center red D)

- a. Cross-section of the spinal cord +  
A vertebrae w+
- b. Butterfly 0
- c. Bowtie, hair ribbon 0
- d. Pelvis w+
- e. Kidneys, lungs w+
- f. Petals or orchid w+

|    |                                             |    |
|----|---------------------------------------------|----|
| g. | Flower (no further specification)           | v  |
| h. | < Baby chick (upper half)                   | w+ |
| i. | < Valentine heart (upper half)              | w- |
| j. | Human heart (whole detail, any orientation) | -  |

(D3) (entire lower center D, see also D5)

|    |        |    |
|----|--------|----|
| a. | Pelvis | w- |
| b. | Crab   | w- |

(D4) (lower side black D)

|    |                        |    |
|----|------------------------|----|
| a. | Hand and arm, pointing | +  |
| b. | Fish                   | +  |
| c. | Leg (Do); Italy        | 0  |
| d. | Branch of tree         | w+ |
| e. | Island                 | v  |
| f. | Head with big nose     | w- |

(D5) (lower center black D)

|    |   |                                                  |     |
|----|---|--------------------------------------------------|-----|
| a. | v | Negro heads (Do tend.)                           | +   |
| b. | v | Tree                                             | +   |
| c. |   | Two crabs fighting                               | w+  |
|    |   | One crab (whole D)                               | w+  |
| d. | v | Small furry fat animals showing head and one paw | w+  |
| e. |   | Kidneys                                          | w+  |
| f. |   | Pelvis                                           | w-* |

---

\* See footnote, p. 136.

(D6) ("chest" and "head" areas of W a.)

a. Lamb (head and leg as in W) S

(d1) (1. center light gray area)

a. Rib cage +

b. African witch-doctor's mask, stylized with long nose and chin w+

c. Crab w+

d. v Face or mask (white spaces are eyes and mouth) w-

e. Ox-skull with horns w-

(d2) ("head" of W a.)

a. Head of bird (Do) 0

(d3) ("shoe" of W a.)

a. Hoof, or cowboy boot (Do) +

b. Crocodile mouth, open w+

(d4) ("middle" area of W a.)

a. v Face of an animal (tiny white space is the eye) w+

if the pointedness of the nose and the shape of the head are specifically taken into account +

b. Bird with wings w+

(Dr1) (central pink in center red)

a. The tablet of Moses, or an open book +

b. Tooth w+

(Dr2) (long thin proj. of D2)

a. Snake w+

| Response | CARD IV | Form<br>Quality |
|----------|---------|-----------------|
|----------|---------|-----------------|

(W) (or cut-off W)

- |      |                                                                                                                                            |    |
|------|--------------------------------------------------------------------------------------------------------------------------------------------|----|
| a.   | Mexicans with big sombreros sitting, with head bowed, legs outstretched, asleep against a tree (D7 is tree; D2 are sombreros; D4 are legs) | +  |
|      | Man sitting on stump of a tree, seen in foreshortened perspective                                                                          | 0  |
| b.   | Gorilla or monster (D2 are arms; D3 are legs)                                                                                              | 0  |
| c.   | Animal skin (with four legs; head may be D1 or D5)                                                                                         | 0  |
|      | if legs are not seen                                                                                                                       | v  |
| d.   | Tree (D1 is trunk, D2 and D3 are drooping branches)                                                                                        | w+ |
|      | if D2 and part of D3 are omitted                                                                                                           | +  |
| e.   | A bell with clapper (D1)                                                                                                                   | w+ |
| f. v | Bat with wings spread (area D3 is wings, area D1 is head)                                                                                  | w+ |
| g.   | The head of a scotty dog or elephant (D2 is "ears")                                                                                        | w- |
| h.   | A leaf                                                                                                                                     | w- |
|      | A tattered leaf                                                                                                                            | v  |
| i.   | Charred piece of coal                                                                                                                      | v  |
| j.   | Bat (D5 is head)                                                                                                                           | -  |

(D1) (lower center D)

- |    |                                                               |   |
|----|---------------------------------------------------------------|---|
| a. | Animal head (with eyes seen clearly, or not mentioned)        | 0 |
|    | if eyes are seen in an <u>unusual</u> way, score              | s |
|    | Top view of dragon's head (eyes, horns and tusks pointed out) | + |

- |    |   |                                                                                 |    |
|----|---|---------------------------------------------------------------------------------|----|
| b. | v | A tower                                                                         | w+ |
|    |   | if described as having gargoyles and crenelations                               | +  |
| c. |   | Animal skin (with the tiny projections on the sides of area D1 seen as the legs | w+ |
| d. |   | Skeleton of an animal head (like D1 a.)                                         | s  |

(D2) (upper side D)

- |    |  |                                                                   |    |
|----|--|-------------------------------------------------------------------|----|
| a. |  | Handles of an urn or coffee pot                                   | +  |
| b. |  | An acrobat bent over backwards, hands touching heels (head is D2) | +  |
| c. |  | Person bending forward, nearly touching his toes (head not seen)  | +  |
| d. |  | Swan's head and neck                                              | +  |
|    |  | Head and neck of a dead chicken or duck                           | +  |
| e. |  | Horns of a mountain goat; one horn on each side                   | w+ |
| f. |  | Dead limb of a tree                                               | w+ |
| g. |  | A drooping penis                                                  | -  |
| h. |  | Alligator                                                         | +  |

(D3) (lower side D)

- |    |   |                                                                                                                                                                       |    |
|----|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. | v | Head of a camel (area d1 is the nost; the small projection at the "instep" of the "boot" is the eyelash of the camel). (This last may be added but is not necessary.) | +  |
| b. |   | Boots, shoes                                                                                                                                                          | 0  |
| c. |   | Map of Italy                                                                                                                                                          | w+ |

(D4) (light gray area in lower side D)

- |    |  |                                   |   |
|----|--|-----------------------------------|---|
| a. |  | Scotty, sitting up, or lying down | + |
|----|--|-----------------------------------|---|

(D5) (upper center D)

- |    |                                                                                            |    |
|----|--------------------------------------------------------------------------------------------|----|
| a. | Head of cat seen from above (lower outer edge bulges are the ears. Seen as fore-shortened) | +  |
| b. | Flower with petals                                                                         | +  |
| c. | Vagina                                                                                     | w+ |
| d. | Sting ray                                                                                  | w- |
|    | if with downward projecting center line as tail                                            | w+ |

(D6) (black area of lower side D)

- |      |                                                                         |    |
|------|-------------------------------------------------------------------------|----|
| a.   | A grand piano                                                           | +  |
| b. v | A performing seal with nose in the air                                  | +  |
| c. v | A witch or nun in a long black cape or robe                             | +  |
| d. v | Head of a witch with a high peaked cap and a sharp nose (facing center) | +  |
| e.   | Map of South America (right side of card)                               | +  |
| f.   | Dinosaur                                                                | w- |

(D7) (all of center)

- |    |           |    |
|----|-----------|----|
| a. | Vagina    | w- |
| b. | Blackbone | w- |

(dl) (outer tip of lower light gray area)

- |    |                                                            |   |
|----|------------------------------------------------------------|---|
| a. | < Man walking uphill with a pack on his back               | + |
|    | May also be expanded to D3: Sherlock Holmes in a graveyard | + |
| b. | < Head of a dog, mouth open                                | + |
| c. | < Woman's head with long upturned nose, fluffy bangs       | + |

(d2) (upper edge profile)

- a. > Profile of a person (nose and hair well seen) +
- b. Profile (on left side of card) w+

(Dr1) (upper center Dr)

- a. Head (eyes pointed out; area D5 seen as helmet) +

(Dr2) ("nose" section of lower center D)

- a. v A crown +

(Dr3) (upper center Dr)

- a. Neural groove +
- b. Vagina w+
- c. Penis s

(Dr4) (inner Dr)

- a. Face (with forehead and features well seen) +

(S) (largest and lowest of the three between D1 and D3)

- a. Dog w+

(s) (middle one between D1 and D3)

- a. Camel, lying down +



| Response | CARD V | Form<br>Quality |
|----------|--------|-----------------|
|----------|--------|-----------------|

(W) (or cut-off W)

- |    |                                                                                                                                                  |    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. | Dancer, in rabbit costume, and with lone wing-like extensions at the arms                                                                        | +  |
| b. | Two antelopes, lunging at each other, with horns locked                                                                                          | +  |
| c. | < An old woman in fur coat, hunched over, with umbrella under her arm (the tips of umbrella are areas D2 and D4; woman's profile is same as Dr1) | w+ |
| d. | Two peacocks facing each other (D2 are heads, D are wings)                                                                                       | w+ |
| e. | Bat, butterfly                                                                                                                                   | 0  |
|    | bird                                                                                                                                             | w+ |
| f. | v Butterfly                                                                                                                                      | 0  |
| g. | < Delta-wing (or swept-wing) plane                                                                                                               | w+ |
| h. | A black droopy moustache which needs trimming                                                                                                    | w+ |
| i. | Scarf                                                                                                                                            | w+ |
| j. | A boomerang                                                                                                                                      | w+ |
| k. | A hill                                                                                                                                           | w- |
| l. | Two women with long training gowns (bodies are same as D5 d)                                                                                     | -  |
| m. | < A seagull with mouth open (D2 is mouth) swooping down on a fish                                                                                | +  |

(D1) (outer side D)

- |    |                                                            |   |
|----|------------------------------------------------------------|---|
| a. | Alligator head with open mouth (Dr3 seen as the lower jaw) | + |
| b. | Leg of a person                                            | 0 |
| c. | Drumstick of a chicken                                     | 0 |
| d. | Leg of an animal                                           | 0 |

- |    |                     |    |
|----|---------------------|----|
| e. | Goose head          | w+ |
|    | Duckbilled platypus | +  |

(D2) (lower center D)

- |    |                                                    |   |
|----|----------------------------------------------------|---|
| a. | Ice tongs or tweezers                              | + |
| b. | Bird's beak, open                                  | + |
| c. | v Two snakes or cobras with heads reared up (D→Dr) | + |
| d. | Two meat cleavers (D→Dr)                           | + |

(D3) (large side D, with or without area D1)

- |    |                                                                                                  |   |
|----|--------------------------------------------------------------------------------------------------|---|
| a. | Profile (moustache and beard may or may not be pointed out, but nose and brow must be well seen) | + |
| b. | Man lying down, with arms crossed on chest (area Dr2 is profile of face)                         | + |
|    | Woman lying down (sees breasts instead of folded arms)                                           | s |
| c. | < Person in fur coat and hat, hunched up (see W c. and Dr1 a.)                                   | + |

(D4) (upper center D)

- |    |                                                                                     |    |
|----|-------------------------------------------------------------------------------------|----|
| a. | v Lower half of a girl or baby (see next response)                                  | +  |
| b. | v Legs of a little girl, from the knees down, or legs and feet of a rag doll (D→Dr) | +  |
| c. | Rabbit's head (asymmetry to right is nose; see D5) (Do)                             | +  |
| d. | Two elves with baker's hats on, kissing (D→Dr)                                      | +  |
| e. | Slingshot                                                                           | +  |
| f. | < Jaws of a crocodile, wide open                                                    | +  |
|    | Beak of a bird                                                                      | w+ |

- g. v Stockings hanging (D→Dr) +
- h. Pliers w+
- i. v Fork of a riding spur w+

(D5) (entire center D)

- a. An English Bobby, or a man with a derby on  
(without u. proj. of D4; Dr4 is the hat) +
- b. Rabbit (ears in area D4, legs area D2;  
see D4) +
- c. Insect with antennae (Do tend) w+
- d. Two people pressed together face to face  
(heads same as D4d.; legs are D2) s

(Dr1) (lower edge profiles)

- a. < Profile of figure (seen in upper half;  
head is same as in W c.) w+
- b. < Profile with pug nose and open mouth  
(seen in lower half) w+

(Dr2) (upper edge small profile)

- a. < Three-quarters rear view of face  
(eyelash, lip pointed out) +
- b. < Profile (Do tend.; see D3) +

(Dr3) (thin lateral proj.)

- a. Peg leg (do) w+
- b. Snake (with head end designated) w+

(Dr4) (inner Dr in area D4)

- a. A derby hat or pitch helmet (see D5)  
(Do tend.) +
- b. An acorn +

(Dr5) (small upper De adjacent to area D4)

- a. Devil's profile (horns are the "hair"  
of Dr2; Van Dyke beard)

+

| Response | CARD VI | Form<br>Quality |
|----------|---------|-----------------|
|----------|---------|-----------------|

(W)

- |    |   |                                                                                                                         |    |
|----|---|-------------------------------------------------------------------------------------------------------------------------|----|
| a. | < | Castle on a hillside, with its reflection showing in a lake (area D1 may or may not be used) (D→W) (compare with D4 f.) | +  |
| b. | < | A gun boat on the water (area Dr3 is the gun) (D→W)                                                                     | +  |
| c. |   | Turtle (d.D is head sticking out, l.D is shell, side projs. are the feet)                                               | +  |
| d. |   | Cross-sectional view of an oil well (u.D is the well above ground level, with oil gushing out)                          | +  |
| e. |   | Animal skin (with side projs. as the legs; u.D may be head or tail)                                                     | 0  |
|    |   | if legs are not seen                                                                                                    | v  |
| f. | v | Hydraulic drill (s. proj. are handles)                                                                                  | +  |
| g. |   | Wild goose flying, neck and wings stretched out                                                                         | w+ |
| h. |   | Sylvester the cat, stretched out or flattened by a roller (head as in D1 b.)                                            | +  |
|    |   | if not "flattened" or "spreadeagled"                                                                                    | s  |
| i. | v | A tree                                                                                                                  | w- |
| j. |   | An inverted cross                                                                                                       | w- |
| k. |   | A cat (u.D is head, areas D6 or Dr4 are whiskers, l.s. projs. are legs)                                                 | s  |
| l. |   | Violin                                                                                                                  | -  |
|    |   | if cut-off W                                                                                                            | w- |
| m. | v | Two scarecrows on a pole, or two men leaning against a post                                                             | w+ |

(D1) (upper D)

- |    |  |                                                                                                   |   |
|----|--|---------------------------------------------------------------------------------------------------|---|
| a. |  | A lighthouse (with area D6 seen as the rays of light and area Dr5 seen as the base of lighthouse) | + |
|----|--|---------------------------------------------------------------------------------------------------|---|

- |    |                                                                                           |    |
|----|-------------------------------------------------------------------------------------------|----|
| b. | Head of Sylvester the cat with his straggly whiskers (area D6 is whiskers, d1 is omitted) | +  |
| c. | A totem pole                                                                              | 0  |
|    | Totem pole with thunderbird wings and a human figure in center (D3 b.)                    | +  |
| d. | An insect (with antennae and wings; area D1 is head, area Dr4 is antennae)                | 0  |
|    | if seen as dragon fly or devil's darning needle                                           | +  |
| e. | A fanciful oriental kite                                                                  | w+ |
|    | if the irregular shape is not taken into account                                          | w- |
| f. | A bird (unelaborated)                                                                     | w+ |
|    | with convincing details (e.g., "fluttering wings")                                        | +  |
| g. | Rocket taking off                                                                         | w+ |
| h. | Winged animal (no further specificity)                                                    | w- |
| i. | Because of animal skin being scored 0, head of lion or cat or animal is also scored 0.    |    |

(D2) (lower D)

- |    |                                                                |    |
|----|----------------------------------------------------------------|----|
| a. | Animal skin (same as W e. but with D1 excluded)                | 0  |
| b. | An alleyway; or a deep ravine (center area primarily)          | w+ |
| c. | An aerial photograph or relief map                             | v  |
| d. | A smashed and flattened-out snake (see D5 a. and D3 d.)        | s  |
| e. | A dissected worm (see D5 a.)                                   | s  |
| f. | A six-cornered star                                            | -  |
| g. | Fur rug (no details seen; just irregular outline or furriness) | v  |

(D3) (upper center D without  
"wing" projections)

- |    |                                                                          |    |
|----|--------------------------------------------------------------------------|----|
| a. | Carved or turned wood--leg of table<br>(black Dr in area D3)             | +  |
| b. | A doll, statue or mummy (head is the<br>inner dark part of area d1) (Dr) | +  |
| c. | A handbell (with Dr5 as the bell and D3 as<br>the handle)                | +  |
| d. | Snake or worm                                                            | 0  |
| e. | Penis                                                                    | 0  |
| f. | Violin (with Dr5)                                                        | w+ |

(D4) (side half of lower D)

- |    |   |                                                                                                            |    |
|----|---|------------------------------------------------------------------------------------------------------------|----|
| a. | v | Profile of a man (Cyrano) with a long<br>nose and Van Dyke beard (area d2 is nose,<br>area Dr3 is beard)   | +  |
|    |   | if length of nose is not pointed out or<br>accounted for                                                   | w+ |
|    |   | if seen ^                                                                                                  | w- |
| b. |   | Head of a king (area Dr3 is tip of crown;<br>area d2 is beard) (Dr)                                        | +  |
| c. | v | Two bears standing up back to back with<br>front paws raised (paws are area d2)                            | +  |
| d. | < | A prophet in a long robe, exhorting people<br>(d2 and Dr3 are raised arms)                                 | +  |
| e. | < | A lady on a chaise-longue looking at her<br>upraised foot                                                  | +  |
| f. | < | A hill sloping down to a lake, with<br>shrubby and grass all reflected in the<br>water (compare with W a.) | w+ |
| g. | < | A fish (area d2 is the fin)                                                                                | -  |
| h. | < | Tugboat; submarine surfacing (with details)                                                                | +  |
|    |   | Ship (not well justified)                                                                                  | w+ |

(D5) (entire center)

|    |                               |    |
|----|-------------------------------|----|
| a. | A snake or worm (see also D3) | 0  |
| b. | Vagina (without u.D)          | w+ |
| c. | Spinal column                 | w- |
| d. | Penis                         | s  |
| e. | Drumstick                     | w- |

(D6) (upper D wings)

|    |                                     |     |
|----|-------------------------------------|-----|
| a. | Varicoloured wings or feathers (Do) | 0   |
| b. | Many snake heads (D→Dr)             | w+  |
| c. | Splashing water                     | v+* |

(d1) (upper knob of upper D)

|    |                                                           |    |
|----|-----------------------------------------------------------|----|
| a. | Head of an insect with bulbous eyes<br>(Do tend.; see D1) | w+ |
| b. | Man's head                                                | w- |
| c. | Skull                                                     | w- |
| d. | Cat's head (Dr4 as whiskers) if well<br>described         | w+ |
|    | if based mainly on whiskers                               | w- |

---

\* Several responses like this one must be scored "v" by definition, yet are different in quality from other Fv's. The Fv+ score is reserved for responses which visualize objects that do not have definitive, clear-cut boundaries or shapes, yet which do tend to take on distinctive configurations recognizably similar to the ones in the blot. For other examples, see VII W e., h.; VIII Dr1 a.; X D1 e.; X D4 c., d. In research work one may need a sensitive measure of departure from optimal reality testing, and will not consider such responses to meet the criterion of an F+ percept. In clinical work, where we often see much evidence of pathology and need to assess how much reality testing is preserved, we will be more prone to view these responses more leniently.



(d2) (outer tip of lower side projection)

a. v Dog head +

(d3) ("head" area of D4)

a. v Head of bear (see D4 c.) (Do) +  
     if nose and mouth are not well seen w-  
 b. < Owl's head (beak is Dr2) w+

(Dr1) (lower center Dr)

a. Vagina; buttocks w+  
 b. v Heads of two elves w+

(Dr2) (lower center hooklike proj.)

a. v Eagle's beak w+  
 b. v Bird's head w+  
 c. Claw, talon, grappling hook w+

(Dr3) (upper outer corner Dr of lower D)

a. < A foot, with a deep instep, as if the foot  
     were bent sharply at the ankle +  
 b. Bust of a man with arms crossed on chest  
     (left side of card) w+  
 c. Ghost or shmoo w+

(Dr4) (Dr whiskers)

a. Animal whiskers or antennae (Do) 0

(Dr5) (light gray area at base of D1)

a. Squirrels or chipmunks standing up facing  
     each other +

- b. Heads of two nuns in white habits talking  
to each other

+

(Dr6) (lower Dr half of inner  
black of D3)

- a. A chess piece--bishop or pawn
- b. Top of a lamp post (with center light gray  
spots seen as the lamp and the black about  
these spots seen as the ornamental metal  
top)

+

+

(S) (below Dr1 and Dr2)

- a. Crown

w+

(s) (two on center axis)

| Response | CARD VII | Form<br>Quality |
|----------|----------|-----------------|
|----------|----------|-----------------|

(W)

|      |                                                                                                   |    |
|------|---------------------------------------------------------------------------------------------------|----|
| a.   | Two women going bumps-a-daisy with arm and hairdo accounted for (head and bust same as D4)        | +  |
|      | if posture with buttocks touching is not accounted for                                            | 0  |
| b. v | Two dancers or skaters (l. proj. = leg; s. proj. = arm; hair or hats touching)                    | +  |
| c. v | An armchair in three dimensional perspective (area D1 is the headrest; area D3 the armrests) (WS) | +  |
| d. v | A wig                                                                                             | w+ |
|      | A torn English barrister's wig                                                                    | +  |
| e.   | Several fried shrimp, tails pointed out                                                           | w+ |
|      | Fried fritters, misshapen cookies                                                                 | v  |
| f.   | (Ws) An atoll with protected harbour                                                              | w+ |
| g.   | Clouds, smoke or islands                                                                          | v  |
| h.   | Rocks precariously balancing on each other                                                        | v  |
| i.   | (Ws) Head of a man with sideburns (area D3) and whiskers (area D1)                                | -  |
| j.   | Horns of an elk                                                                                   | -  |
| k. v | A fat woman (all of area D1 is head; area Dr3, arms; area D2 her legs)                            | -  |
| l.   | A nut cracker (area dl is hinge)                                                                  | -  |
| m.   | Lambs gamboling (P)                                                                               | w+ |
| n.   | Pelvis                                                                                            | w- |

(D1) (lower third)

- |    |                                                                                                                                   |    |
|----|-----------------------------------------------------------------------------------------------------------------------------------|----|
| a. | < Head of airedale (half of l.D; nose is touching area D3; sometimes seen with D4 as "two dogs kissing")                          | +  |
| b. | A butterfly                                                                                                                       | +  |
| c. | Two furry animals touching foreheads                                                                                              | w+ |
| d. | Woman with legs spread showing thighs (outer half of area D1), buttocks (inner top curves), vagina (area Dr2) and anus (area Drl) | w+ |
| e. | An open clam (area dl is the "hinge")                                                                                             | w- |
| f. | Pelvis                                                                                                                            | w- |
| g. | Hinge                                                                                                                             | w+ |

(D2) (upper D)

- |    |                                                                                                           |    |
|----|-----------------------------------------------------------------------------------------------------------|----|
| a. | Elephant's trunk and part of the head (u. proj. is trunk)                                                 | +  |
| b. | A cornucopia                                                                                              | w+ |
| c. | < An anteater (area d2 is the long snout; the legs as in D4 Scotty)                                       | w+ |
| d. | Two heads of women or children (same as W and D4)                                                         | 0  |
| e. | Fish (u. proj. is tail)                                                                                   | w+ |
| f. | v Front part of head of a tiger with mouth open (without area d2) (Dr)                                    | w+ |
| g. | Man doing a handstand (d2 are legs; head is in Dr area usually seen as "nose" of popular Hd or Ad) (D→Dr) | w+ |
| h. | Rabbit head with wide-open mouth                                                                          | +  |

(D3) (middle third)

- |    |                                |   |
|----|--------------------------------|---|
| a. | v Elephant head (Dr3 is trunk) | + |
| b. | Man's head with fool's cap on  | + |

- |    |                                |    |
|----|--------------------------------|----|
| c. | Bear's head                    | +  |
| d. | v Lion's head                  | +  |
| e. | < Map of South America         | w+ |
| f. | v Fish (flounder; Dr3 is tail) | w- |
| g. | < A tornado funnel             | w+ |
| h. | Iberian peninsula              | w+ |

(D4) (upper two-thirds)

- |    |                                                                                                                                                                           |    |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. | v Headless dancers (see W) (Do)                                                                                                                                           | +  |
| b. | < Scotty (area Dr3 is ears; area d2 is tail)<br>sometimes seen with D1 a. as two dogs<br>kissing                                                                          | +  |
| c. | < Lion (head is same as D3; D2 is hindquarters;<br>Dr3 is foreleg; some reference will be made<br>for the need to bridge the triangular white<br>space between D2 and D3) | +  |
| d. | Heads and busts of two elves, children or<br>women talking to each other, dancing, etc.                                                                                   | 0  |
|    | if arm and hairdo are described convin-<br>cingly                                                                                                                         | +  |
| e. | Toy dogs (head same as D4 d.; Dr3 is tail)                                                                                                                                | 0  |
|    | Two bunnies hopping or playing                                                                                                                                            | 0  |
|    | Two lambs or donkeys                                                                                                                                                      | w+ |

(d1) (lower center d)

- |    |                                                                                                 |    |
|----|-------------------------------------------------------------------------------------------------|----|
| a. | Woman's perineum (see also Dr2 and<br>Dr1)                                                      | +  |
| b. | A waterfall in the mountains framed by a<br>steep gorge, with spray and foam spreading<br>below | +  |
| c. | A worm trying to dig its way out to the<br>top of the ground (see Dr2 d.)                       | w+ |

(d2) (upper proj.)

- |    |                                      |    |
|----|--------------------------------------|----|
| a. | Caterpillar, worm or snake           | w+ |
| b. | Horn                                 | w+ |
| c. | Woman standing up, looking backwards | w- |

(dS3) (S)

- |    |   |                                      |    |
|----|---|--------------------------------------|----|
| a. | v | Silhouette of Washington or Napoleon | +  |
| b. |   | Vase or lamp                         | +  |
| c. |   | Arrowhead                            | w+ |
| d. |   | Birthday cake with white frosting    | w- |
| e. | v | Mushroom cloud from A-bomb           | w- |
|    |   | if well elaborated                   | w+ |

(d4) (d on "nose" area D2)

- |    |   |                                   |    |
|----|---|-----------------------------------|----|
| a. |   | Steeple of a town in the distance | +  |
| b. | v | Icicles; stalactites              | w+ |

(Dr1) (lower center light gray Dr)

- |    |   |                                                                                  |    |
|----|---|----------------------------------------------------------------------------------|----|
| a. |   | Two people (or a man and woman) standing with arms around each other's shoulders | +  |
| b. |   | An elaborate gate                                                                | +  |
| c. |   | House or cathedral, showing windows or door                                      | w+ |
| d. | v | A wig spread out (excluding that part of the area used in Dr1 two people)        | w+ |
| e. |   | Vagina (compare with D1 a.)                                                      | w+ |
| f. | v | Sun setting behind some clouds                                                   | v  |

(Dr2) (upper elongated half lower center)

- |    |  |                 |    |
|----|--|-----------------|----|
| a. |  | Hinge of a door | +  |
| b. |  | A waterfall     | w+ |

- |    |                                        |    |
|----|----------------------------------------|----|
| c. | Vagina (compare with dl a.)            | w+ |
| d. | A worm (see also dl c.)                | w+ |
| e. | Human torso without head or lower legs | w+ |
| f. | A thermometer or hypodermic needle     | w- |
| g. | Penis                                  | -  |

(Dr3) (side proj. of middle third)

- |    |                   |    |
|----|-------------------|----|
| a. | Worm partly erect | w+ |
| b. | Penis             | w- |

(Dr4) (Dè on upper edge of lower D)

- |    |                                                     |   |
|----|-----------------------------------------------------|---|
| a. | Profile, with sharp nose (forehead touches area D3) | + |
|----|-----------------------------------------------------|---|

|          |           |                 |
|----------|-----------|-----------------|
| Response | CARD VIII | Form<br>Quality |
|----------|-----------|-----------------|

---

(W)

- |    |                                                                                               |    |
|----|-----------------------------------------------------------------------------------------------|----|
| a. | Head-on view of a clipper ship (D1 are unfurled sails; center is mast)                        | +  |
| b. | A decorative bowl (with upper D as the lid)                                                   | +  |
| c. | Shield or coat of arms                                                                        | w+ |
|    | with specification of several components, as " . . . with lions rampant, a rose and a crown." | +  |
| d. | A tulip (outline)                                                                             | w+ |
|    | Flower (no particular kind)                                                                   | w- |
|    | Flowers (CF)                                                                                  | v  |
| e. | A crown                                                                                       | w+ |
| f. | Human chest                                                                                   | w- |
| g. | Crab (D1 are the legs)                                                                        | w- |
| h. | Coral or rock                                                                                 | v  |
| i. | Anatomical chart                                                                              | v  |
| j. | Easter colours                                                                                | a  |
| k. | Human figure (D3 is cap; D4 is face; D1 are arms or gauntlets; rest is body. See D4 b.)       | s  |
| l. | Bat                                                                                           | -  |

(D1) (side D)

- |    |   |                                                                                                                                    |   |
|----|---|------------------------------------------------------------------------------------------------------------------------------------|---|
| a. | > | Moles, bears, animals (seen with or without tail). (If seen as climbing over rocks or reflected in the water, score D→W)           | 0 |
| b. | v | Anteater (legs same as in D1 moles; head is the area seen as tail or hind leg in D1 moles; rear end left only vaguely articulated) | + |
| c. |   | Fish; frog; monkey                                                                                                                 | s |



|                              |                                                                                       |    |
|------------------------------|---------------------------------------------------------------------------------------|----|
| d.                           | Crab                                                                                  | -  |
| <u>(D2) (lower center D)</u> |                                                                                       |    |
| a.                           | Iris; orchid; sweet pea                                                               | +  |
|                              | Other flowers (CF)                                                                    | v  |
| b.                           | Cross-section of spinal cord (if details are accurately articulated)                  | +  |
| c.                           | Butterfly*                                                                            | +  |
| d.                           | Two Arab women sitting back to back, knees up                                         | +  |
| e.                           | v Woman's blouse, with short sleeves (area dl)                                        | w+ |
| f.                           | v Mantilla, draped as if it were being worn                                           | w+ |
| g.                           | Edge of a plow cutting through the earth, or prow of a ship cutting through the water | w+ |
| h.                           | Fire                                                                                  | v  |
| i.                           | Stratified rocks                                                                      | v  |
| j.                           | Ice cream or cotton candy                                                             | v  |

(D3) (upper D)

|    |                                    |    |
|----|------------------------------------|----|
| a. | Large circus tent                  | +  |
| b. | Roof of a pagoda                   | +  |
| c. | v A nest in the branches of a tree | +  |
| d. | v Skeleton of a deer head          | +  |
|    | Deer head and antlers              | w+ |
| e. | Evergreen tree                     | 0  |
| f. | Mountain or hill                   | w+ |

---

\*This response occurs not quite frequently enough in a patient population to merit an "0" score on the basis of available norms.

|    |                     |    |
|----|---------------------|----|
|    | Castle on a hill    | w+ |
| g. | Delta-wing airplane | w+ |
| h. | Rayfish             | w- |
| i. | Arrowhead           | w- |

(D4) (center "ribs")

|    |                                                                                                                                           |   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------|---|
| a. | Vertebrae (the white space seen as the vertebrae) (DS)                                                                                    | + |
| b. | Old mandarin's face (S) with triangular hat (D3) and hunched shoulders (D5). For example of a spoiled variant of this response, see W k.) | + |
| c. | Spine and ribs (the thin lines as ribs)                                                                                                   | 0 |

(D5) (blue D)

|    |                                         |    |
|----|-----------------------------------------|----|
| a. | Two flags                               | +  |
| b. | Two cushions, rumped velvet covers      | +  |
| c. | A corset, with the strings loosely tied | +  |
| d. | A torn piece of cloth                   | v  |
| e. | Two slices of bread                     | w+ |
| f. | Butterfly                               | w- |
| g. | Mountain ranges                         | v  |
| h. | Water                                   | a  |
| i. | Lungs                                   | w- |

(D6) (lower pink D)

|    |                                                                                                                        |    |
|----|------------------------------------------------------------------------------------------------------------------------|----|
| a. | Head of lamb, calf (eye is dark red streak close to center line; nostril is dark streak on upper outer corner of pink) | +  |
| b. | Head of frog (mouth is the nostril of D6 a.)                                                                           | +  |
| c. | Butterfly                                                                                                              | w+ |

d. Lungs w-

(D7) (lower orange)

a. Part of woman's thighs and perineum  
(see Dr3) w+

b. Sandstone v

(dl) (side orange proj.)

a. < Dog's head (nose points toward area D1;  
usually seen on left side of card) +

b. A dog's head (ears are the "snout" area  
of dl dog's head; nose is the "ears" area  
of dl dog's head; seen in the projection  
on right-hand side of card) +

(Dr1) (center long, thin Dr)

a. Stain made by a drop of water running down  
a watercolour painting v+

A thread or stain (no further  
specification) v

b. Stick, twig w+

c. Spear w-

(Dr2) (Dr corners of upper D)

a. A hand reaching out, or a claw w+

b. Hindquarters and rear legs of an  
animal w+

(Dr3) (lower center Dr)

a. Vagina w+

b. Candle in candlestick (including con-  
tinuation of light area above) w+

(Dr4) (upper center topmost Dr)

- |    |                                         |    |
|----|-----------------------------------------|----|
| a. | Eyes and antennae or proboscis of a bug | w+ |
| b. | Person's legs hanging down              | w+ |
| c. | Two people on a hilltop                 | w- |

| Response | CARD IX | Form Quality |
|----------|---------|--------------|
|----------|---------|--------------|

(W)

- |    |                                                                                                                                       |     |
|----|---------------------------------------------------------------------------------------------------------------------------------------|-----|
| a. | v Two women standing back to back (dressed as in other woman: d, with bustles, one foot behind the other, resting on its toe)         | +   |
| b. | v Atom bomb explosion (see D4) (elaborated)                                                                                           | +   |
|    | Explosion (with card not inverted)                                                                                                    | v   |
| c. | A fountain (no details seen)                                                                                                          | v   |
|    | A fountain illuminated by coloured lights, three jets at top, and one basin above the other                                           | 0   |
| d. | v A woman with legs (orange area) spread apart, wide skirt, a green shawl draped around shoulders, hands on hips, and a huge pink hat | w+  |
| e. | Cross-section of a flower                                                                                                             | w+  |
|    | A flower (D1 and D4 are leaves; D2 are petals; and with emphasis placed on the configuration rather than the colour)                  | w-* |
| f. | Coral formation                                                                                                                       | v   |
| g. | Inside of the human body if specifically elaborated                                                                                   | -   |
|    | If no particular organs are mentioned                                                                                                 | v   |

(D1) (green D)

- |    |                                                                                                          |   |
|----|----------------------------------------------------------------------------------------------------------|---|
| a. | Face with unruly hair (nose is the proj. from lower edge of the green; hairlock on forehead is area Dr4) | + |
|----|----------------------------------------------------------------------------------------------------------|---|

---

\* Scored w- rather than v because the response specifically (and arbitrarily) accepts the shapes of these areas as leaf-like. If the shape had not been mentioned, response would be scored CF, with an implied Fv. Compare with X D10 d., and D11 d.

- b. v Irishman with beard (nose same as above; mouth is "eye" of figure in above) +
- c. < A fat woman wearing an apron, holding her child's hand (sees child, arm, and bow of apron; the bow is the "nose" area of D1 a.; face may be seen only vaguely, may be seen as chasing child who is running away) +
- d. < A lumbering bear or gorilla, standing up on his hind legs. (Same as fat woman; "apron bow" is seen as tail) +
- e. A slender woman in a full-length flaring dress, holding up the train of her dress (Dr3; arm same as in fat woman; foot is the "nose" area of first face with hair; "s" separates arm from waist; head is lost in area D3) +
- f. Two exotically shaped fish (mouths are the darker parts of area D1) w-
- g. Two pigs' heads almost touching snouts (same as two fish). Mostly because of the snouts. w-
- h. Clown's face with big nose and silly expression (Ed Wynn) (s is eye; Dr4 is nose) w+
- Animal head w-

(D2) (orange D)

- a. Bearded man dressed in heavy clothing sighting down the barrel of a machine gun or peering through a telescope, or holding out some branches +
- A witch, or man in a dunce cap. (Arms in area d1 and Dr6 may or may not be seen) 0
- Santa Claus with a pack on his back 0
- b. Head and neck of a dragon ("s" between arms of man in dunce cap is the eye of the dragon) +
- Same seen as a seahorse w+
- c. A pair of angel wings w+

- |    |                                                                                                                                        |    |
|----|----------------------------------------------------------------------------------------------------------------------------------------|----|
| d. | Two fish swimming downward                                                                                                             | w+ |
| e. | v Pouter pigeons on a twiggy branch (head not seen but curve of breast and neck are sharply seen)                                      | w+ |
| f. | v Bird on limb (limb is area dl)                                                                                                       | w- |
| g. | Crab or lobster (with area dl as claw)                                                                                                 | w- |
| h. | Looks like little fish scurrying off in different directions. Can't see the fish; just the impression of movement downward and outward | v  |
| i. | Two men with pot bellies (usual, but inner bulge is belly)                                                                             | s  |
| j. | Seahorse (s is eye; upper of two Des's is mouth)                                                                                       | w+ |
|    | if lower Des is mouth                                                                                                                  | w- |
| k. | Buck with antlers                                                                                                                      | w- |

(D3) (brownish D in the green)

- |    |                                                               |   |
|----|---------------------------------------------------------------|---|
| a. | < Head of a reindeer with antlers, or a goat with whiskers    | + |
| b. | < Head of a person (same nose and eye as in head of reindeer) | s |

(D4) (lower D or outer quarter)

- |    |                                                                                                                    |    |
|----|--------------------------------------------------------------------------------------------------------------------|----|
| a. | v Mushroom cloud of atom bomb                                                                                      | +  |
| b. | < Teddy Roosevelt's or Mark Twain's head                                                                           | +  |
|    | Man's head                                                                                                         | 0  |
| c. | < Sitting baby (or a foetus) (head same as Roosevelt's or Twain's; buttocks and legs are inner quarter of area D4) | w+ |
|    | if arm and leg are pointed out (umbilical cord may also be seen near feet)                                         | +  |
| d. | v Elephants, head to head, mouths open (all of D4; trunks and eyes are at midline)                                 | +  |

|    |                                                                                                            |    |
|----|------------------------------------------------------------------------------------------------------------|----|
| e. | Four apples or tulips                                                                                      | +  |
| f. | Woman with legs apart, genitalia exposed<br>(all of pink; thighs and genitalia only<br>are seen) (see Drl) | w+ |
| g. | Pink, fluffy bed jacket                                                                                    | w+ |
| h. | Four fluffy plumes or cones of cotton<br>(floss) candy                                                     | w+ |
| i. | Flower (no particular kind; if mainly<br>colour)                                                           | v  |
|    | if determined by form alone                                                                                | w- |

(D4 + D5)

|    |                                                    |    |
|----|----------------------------------------------------|----|
| a. | v Beach umbrella                                   | +  |
|    | Umbrella, type unspecified                         | w+ |
| b. | Bunsten burner                                     | +  |
| c. | Candle in candle holder                            | +  |
| d. | v A trimmed tree with pink blossoms                | w+ |
| e. | A rocket taking off (pink is flames<br>or exhaust) | +  |

(D5) (center D)

|    |                                                                |    |
|----|----------------------------------------------------------------|----|
| a. | Candle and flame (may be combined with D4<br>as candle-holder) | +  |
| b. | Spinal cord                                                    | w+ |
| c. | Pistil of a flower                                             | w+ |
| d. | Water hose                                                     | w+ |
|    | Fountain (including light blue as<br>fine mist)                | w+ |

(dl) (upper inner d)

|    |                    |   |
|----|--------------------|---|
| a. | Antlers            | + |
| b. | Anti-aircraft guns | + |



- |    |                                         |    |
|----|-----------------------------------------|----|
| c. | Claw of a crab or lobster               | 0  |
| d. | > Dead tree: leafless branch with twigs | w+ |
| e. | Cactus                                  | w+ |

(dS2) (S)

- |    |                        |    |
|----|------------------------|----|
| a. | Violin (including D5)  | +  |
| b. | Vase                   | +  |
| c. | v Hourglass            | +  |
| d. | v Dressmaker's dummy   | +  |
| e. | v Doorknob             | +  |
| f. | Goblet                 | w+ |
| g. | The globe, on its axis | -  |

(Dr1) (lower center Dr)

- |    |                  |   |
|----|------------------|---|
| a. | Female genitalia | + |
|----|------------------|---|

(Dr2) (center Dr s)

- |    |                             |    |
|----|-----------------------------|----|
| a. | Gun turret on a castle wall | +  |
| b. | Saddle                      | w+ |
| c. | Mask (with eye slits)       | w- |
| d. | Pelvis                      | w- |

(Dr3) (Dr connecting green and red D's)

- |    |                              |    |
|----|------------------------------|----|
| a. | A fist                       | +  |
| b. | A comb or pitchfork          | w+ |
| c. | Rain falling in the distance | w+ |
| d. | Claws                        | w+ |

(Dr4) (head Dr on green)

- a. < Head of a baboon or camel +
- b. < Head of a Scotty w+
- c. < Wren huddled in nest +

(Dr5) (thin upper center proj.)

- a. Drawbridge +
- b. Trajectory of anti-aircraft gun  
(see also D1 b.) w+

(Dr6) (inner orange Dr)

- a. < A boot +
- b. A machine gun +
- c. < A man in knickers climbing a hill,  
carrying something in front of him +

(Dr7) (upper corner Dr)

- a. Head and cap (Do; See D2 a.) +  
if brim of hat is seen as nose, score w+
- b. < Head of an anteater w+

(Dr8) (Dr in area D3)

- a. Eyes (Do tend.) w+

| Response | CARD X | Form<br>Quality |
|----------|--------|-----------------|
|----------|--------|-----------------|

(W or cut-off W)

- |                                                         |    |
|---------------------------------------------------------|----|
| a. v Tulip or orchid (area D3 plus area D8)             | w+ |
| b. Underwater scene                                     | v  |
| c. Floral display                                       | v  |
| d. Fourth of July                                       | a  |
| e. Mardi Gras--the excitement and bright<br>gay colours | a  |

(D1) (side blue D)

- |                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| a. Octopus, crab, spider                                                                      | 0  |
| b. Two insect ballet dancers, one carrying<br>the other                                       | +  |
| c. A mythological horse (with or without<br>a rider; head is same as Dr5 a.);<br>flying horse | w+ |
| d. Gnarled roots of a tree                                                                    | w+ |
| e. Splash of ink splattered in all directions                                                 | v  |
| f. Decayed leaf with only the veins showing                                                   | w- |
| g. Sea algae                                                                                  | v  |
| h. A lake                                                                                     | v  |
| i. The sky, because of the colour                                                             | a  |

(D2) (lower center green D)(See also D5)

- |                                                      |    |
|------------------------------------------------------|----|
| a. v Seahorses                                       | +  |
| if seen ^                                            | w- |
| b. Heavy drapes drawn back, with bottom<br>tacked up | +  |
| c. Bowlegs of a cowboy wearing chaps                 | +  |

- |    |                                                                    |    |
|----|--------------------------------------------------------------------|----|
| d. | Two women in old-fashioned dress leaning forward toward each other | +  |
| e. | Tomato worms, caterpillars                                         | 0  |
| f. | String beans                                                       | w+ |
| g. | Calipers                                                           | w- |
| h. | See D5 a.                                                          |    |

(D3) (upper center D)

- |    |                                                                                                                   |    |
|----|-------------------------------------------------------------------------------------------------------------------|----|
| a. | Eiffel tower                                                                                                      | +  |
| b. | Tall, slim, ornate bud vase                                                                                       | w+ |
| c. | Esophagus and lungs                                                                                               | +  |
| d. | Plant with roots below ground level                                                                               | +  |
|    | if seen as stalk of a flower with no reference made to root structure                                             | w+ |
| e. | Animals, insects, birds, bugs, Martian creatures, snarling at each other, gnawing at a tree, or leaning on a post | 0  |
| f. | Cross-sectional view of penis and testicles                                                                       | w- |
| g. | A lamppost                                                                                                        | w- |

(D4) (inner yellow)

- |    |                                                                  |    |
|----|------------------------------------------------------------------|----|
| a. | > Woman seated on the floor or leaning back on a reclining chair | +  |
| b. | Lions or dogs, stretching                                        | 0  |
| c. | An amoeba with nucleus and pseudopods                            | v+ |
| d. | Fried egg with yolk                                              | v+ |
| e. | Canaries (with the head, body and tail distinctly seen)          | w- |

(D5) (lower center "rabbit head" D)

- |    |   |                                                                                                             |   |
|----|---|-------------------------------------------------------------------------------------------------------------|---|
| a. | v | A man hanging from a parachute (area D2 is the parachute) or a little girl swinging in a velvet-roped swing | + |
| b. |   | Head of a rabbit, or of a grasshopper with antennae                                                         | 0 |
| c. |   | Head of a donkey (same as above)                                                                            | 0 |

(D6) (center blue)

- |    |   |                                                                                                                                                     |    |
|----|---|-----------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. |   | Bluebirds (without area Dr6) (Dr tend.)                                                                                                             | +  |
| b. | v | Fox heads (noses touch area Dr6) (Dr tend.)                                                                                                         | +  |
| c. | v | Chihuahua dogs fighting over a bone (same as fox heads) (Dr tend.)                                                                                  | +  |
| d. |   | Brassiere                                                                                                                                           | +  |
| e. | v | Two men reaching out to each other across a chasm (blue extension connecting up to the red areas are seen as legs and an arm holding on) (Dr tend.) | +  |
| f. |   | Pelvis                                                                                                                                              | w+ |
| g. |   | Bat; only the wings shown here                                                                                                                      | w+ |
| h. |   | Butterfly                                                                                                                                           | -  |
| i. |   | Bagpipes                                                                                                                                            | w+ |

(D7) (middle side brown)

- |    |  |                                                           |    |
|----|--|-----------------------------------------------------------|----|
| a. |  | Swimmer, or a woman falling with hair streaming above her | +  |
| b. |  | Deer or animal leaping (head is brown in the D1 area)     | +  |
| c. |  | A crab                                                    | w+ |
| d. |  | A bug, grasshopper                                        | w+ |
| e. |  | A mouse (head is touching area D8)                        | w+ |
| f. |  | Seahorse (same as mouse)                                  | w+ |

(D8) (all red D or only upper half of it)

- |    |                                                                                                                                                                                  |    |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| a. | Head of a pixie or child, with mouth open and wearing a little pointed cap on back of his head (sometimes seen sucking on the D6 area)                                           | +  |
| b. | (All red.) Fireman dragging a hose (D3 is the helmet; D6 are the hands; or one arm may be the red Dr projecting out to area D1; one foot is the red projection touching area D4) | +  |
| c. | Map of California (the area on the right-hand side)                                                                                                                              | w+ |
| d. | Foetus (head only vaguely seen)                                                                                                                                                  | w- |
| e. | Map of England                                                                                                                                                                   | w- |
| f. | Caterpillar                                                                                                                                                                      | w- |
| g. | Coral                                                                                                                                                                            | v  |
| h. | Map of Pacific Isles                                                                                                                                                             | v  |
| i. | Seahorse (head as in a.)                                                                                                                                                         | w- |

(D9) (center orange)

- |    |                              |    |
|----|------------------------------|----|
| a. | Cherries attached to twig    | +  |
| b. | Governor                     | +  |
| c. | Wind instrument (anemometer) | +  |
| d. | Pawn-broker's balls          | +  |
| e. | Maple seed                   | +  |
| f. | Wishbone                     | 0  |
| g. | A new type of airplane       | w- |

(D10) (lower side orange)

- |    |                                            |    |
|----|--------------------------------------------|----|
| a. | > Collie lying down                        | +  |
| b. | v Dog's head (pointing upward and outward) | +  |
| c. | Potato; sweet potato                       | w+ |

- |    |                         |    |
|----|-------------------------|----|
| d. | Autumn leaf; the colour | v  |
| e. | An island               | v  |
| f. | Sea shell               | w+ |

(D11) (upper green)

- |    |                                                 |     |
|----|-------------------------------------------------|-----|
| a. | Sheep, bull, ram                                | +   |
| b. | Witch on a broomstick                           | +   |
| c. | Grasshopper, insect or beetle                   | w+  |
| d. | A leaf; the general shape of it, and the colour | w-* |

(D12) (outer yellow)

- |    |                                                                                                   |   |
|----|---------------------------------------------------------------------------------------------------|---|
| a. | Yellow rosebud on a stem, or a cotton ball on a stem (stem is the adjacent projecting area of D7) | + |
| b. | > Bird, canary (head is the brown area in the yellow; tail is the projecting yellow Dr)           | + |

(D13) (upper center "pole")

- |    |                                      |    |
|----|--------------------------------------|----|
| a. | Telephone pole                       | +  |
| b. | v Lamppost (with "s" as light globe) | +  |
| c. | Thermometer                          | w+ |
| d. | Tree trunk                           | w+ |
| e. | Spinal column                        | w- |
| f. | Penis                                | -  |

(Dr1) (dark spot in D4)

- |    |                          |   |
|----|--------------------------|---|
| a. | Walnut                   | + |
| b. | Leaf, with veins showing | + |

---

\* See footnote, page 174.

- c. Lemon w+
- d. Seed w+

(Dr2) (De on middle inner edge of D8)

- a. v Profile of an Indian, with a hooked nose +

(Dr3) (lower section of D2)

- a. v Seahorse's head (Do tend.) +
- b. Horse's hoof w+
- c. Rooster's head w+

(Dr4) (lower tip of D8)

- a. v Head of a cat (seen from the side and rear) +

(Dr5) (small center area of D1)

- a. Horse's head (with eye, ears and nose clearly seen) +

(Dr6) (faint blue area between the two sections of D6)

- a. v Tooth w+
- b. v Skull of an Ox w+



## APPENDIX 2

### FRIEDMAN'S DEVELOPMENTAL LEVEL SCORING FOR ORGANIZATIONAL ACTIVITY\*

#### Scoring Criteria for Developmentally High Scores

- A. W++ A response in which a unitary blot is perceptually articulated and then reintegrated into a well-differentiated unifying whole, the specific form of which matches the blot. A W++, since it involves the breaking down of a uniform total blot area, can occur only on "unbroken blots" (Cards I, IV, V, VI and IX).

#### Examples:

"Two figures holding onto a woman" (Card I, W).

"A man sitting on a stool" (Card IV, W).

"A lighthouse on a rock" (Card VI; D2 being lighthouse, and D1 rock).

"Two people sleeping back to back" (Card V, W).

"Witches brewing a potion" (Card IX; D3 being witches, the remainder is pot and fumes from potion).

- B. D++ A response to a D location where there is both the articulation and reintegration into a percept of good form level.

#### Examples:

"Two women with their arms around each other" (Card I, D4).

---

\* From H. Friedman, Friedman's Developmental Level Scoring, in Marvin Goldfried, George Stricker et al., Rorschach Handbook of Clinical and Research Applications, New York: Prentice-Hall, 1971, pp. 19-55.

"A parrot on a swing" (Card III, D2).  
 "A clown about to throw a stick" (Card VII, D2).  
 "A man blowing a bugle" (Card IX, D3).  
 "A puppet sticking out of a stocking" (Card X, D9).

- C. W+ A response in which all the discrete portions of a broken blot are combined into a unifying whole, and in which the specific form implied in the content matches the blot. Since a W+ response involves the integration of blot areas already broken down, this score can be obtained only on broken blots (Cards II, III, VII, VIII and X).

Examples:

"Two clowns dancing together" (Card II).  
 "Two people decorating a room for a party" (Card III).  
 "Two women talking" (Card VII).  
 "Lions climbing on a hill" (Card VIII).  
 "An aquarium" (Card X).

- D. D+ A response in which two or more discrete blot areas (two or more D) are combined into one percept, the specific form of which matches the blot. It is essential that the areas be integrated meaningfully. Thus, "two bears" on Card VII should be scored Dm as integration is not indicated.

Examples:

"Two bears rubbing noses" (Card II, D6).  
 "Cannibals standing over a pot" (Card III, D1).  
 "Indians arguing" (Card VII, D2).  
 "Two animals climbing a tree" (Card VIII, D1 and D8).  
 "A crab who just caught a fish" (Card X, D1 and D12).

- E. Wm A mediocre response in which the gross outline and articulation of an unbroken card are taken into account so that the specific form implied in the content matches the blot. The Wm response is the "cheap" or "lazy" W response which has certain fairly definite form demands on the content. While a Wm response is usually obtained on

unbroken cards, there is one exception: responses to Card VII which imply a definite "U" shape.

Examples:

"Bat"; "cat's face"; "airplane" (Card I).

"Butterfly"; "bear" (Card IV).

"Bat"; "butterfly" (Card V).

"Animal hide"; "large violin" (Card VI).

"Bowl"; "harbor" (Card VII).

"Water fountain" (Card IX).

- F. Dm      An F+ response to a single D area, where the content has definite form elements, but where the blot is not broken down and reintegrated.

Examples:

"Woman with her hand raised" (Card I, D4).

"Bow tie" (Card III, D3).

"Cow's head" (Card IV, D1).

"Butterfly" (Card VI, D3).

"Sea horse" (Card X, D9).

Scoring Criteria for Developmentally  
Low Scores

- G. Wv      A vague response in which there is a diffuse general impression of the blot. Although some form element is present, it is of such an unspecific nature that almost any perceptual form is adequate to encompass the content. It should be noted that despite the fact that vague responses typically (although not always) receive plus scorings on a normative basis, this type of response is considered to be developmentally low. The essence of the vague response is that it can conceivably be attributed to any of the ten blots.

Examples:

"A map" (Card I).

"A rock formation" (Card II).

"An island"; "emblem" (Card IV).

"Clouds"; "torn paper" (Card VII).

"Insides of a body" (Card IX).

- H. Dv A vague response to a D area, the content of which involves unspecific form demands. Analogous to the Wv response, the Dv response may be attributed to practically any D area.

Examples:

"Explosion" (Card II).  
 "Splotches of blood" (Card III, D2).  
 "A piece of land" (Card VI, D1).  
 "Ice cream" (Card VIII, D2).  
 "Clouds" (Card IX, D1).

- I. Wa An amorphous response in which the shape of the blot plays no determinable role. Such responses are based solely on chromatic or achromatic aspects of the blot, and in customary scoring procedures no form element would be included in the score.

Examples:

"Black paint" (Card I).  
 "Ink mixed with blood" (Card II).  
 "Night" (Card IV).  
 "Colors of the rainbow" (Card VIII).  
 "Colors on an artist's palette" (Card X).

- J. Da An amorphous response given to a D location.

Examples:

"Blood" (Card II, D2).  
 "Fire" (Card III, D2).  
 "Smoke" (Card VII, D5).  
 "Grass" (Card VIII, D5).  
 "Green water" (Card IX, D1).

- K. W- A response in which the content produced requires a definite specific form which, however, is not provided by the blot. The normative tables for plus and minus scoring (Beizmann) are used to determine whether or not the content matches the blot.

Examples:

"A man riding a bike" (Card I).

"A spider" (Card III).

"A map of the United States" (Card V).

"Statue" (Card VIII).

"Butterfly" (Card IX).

- L. D- A response to a D location which, according to normative tables, is classified as being minus.

Examples:

"A cat" (Card I, D4).

"Crab" (Card II, D3).

"A snail" (Card IV, D1).

"A duck" (Card VII, D1).

"Chicken" (Card X, D2).

- M. DW A confabulatory response, where the content is generalized to the whole blot on the basis of what is seen in a D area. To score DW, it is essential to determine, from either the free association or the inquiry, that the entire percept was indeed based on the subject's response to the D area.

Examples:

"A bird, because of the wings" (Card I, D8).

"A cat's face, because of the nose" (Card III, D3).

"A dog, because here are the ears" (Card IV, D4).

"A rabbit, because this is his head" (Card V, D6).

"A cat, because of his whiskers" (Card VI, D6).

- N. DdD A confabulatory response, where the response to a D area is generalized from what is seen as a Dd area. As is the case with the DW score, it is important to determine that the Dd percept was in fact responsible for the response to the D area.

Examples:

"A cat, because of his tail" (Card I, Dd31).

"A monkey, because of his ear" (Card II, Dd31).

"A boat, because of his gun" (Card VI, Dd25).

"A bird, and here are his feet" (Card IX, Dd21).

"A bear, because of its face" (Card X, Dd25).

- O. FabC A fabulized combination response in which two or more separately interpreted areas are combined on the basis of their spatial relationship; the resulting response is a percept which does not usually occur in nature.

Examples:

"A leg (D2) on the head of a bear (D1)" (Card II).

"A rabbit (D7) with wings (D4)" (Card V).

"Two rabbits (D1), sitting on two masks (D3), sitting on two rocks (D10)" (Card VII).

"Two bears (D1) waving blankets (D5)" (Card VIII).

"Puppets (D9) blowing glass (D6), with bugs controlling the strings (D11)" (Card X).

- P. ConR A contaminated response, in which two separate responses are fused, and attributed to the same blot area.

Examples:

"Front of a bug-ox" (Card V; both front of a bug and front of an ox).

"Two figures lying in a forest" (Card V; D4 both figures and forest).

"Flags flying in the sky" (Card VIII; D5 both flags and sky).

"Two gnomes sitting on the grass" (Card IX; D1 both gnomes and grass).

"A spidery elf" (Card X; D1 both spider and elf).

### APPENDIX 3

#### SCORING SYSTEM FOR COLOUR RESPONSES

##### A. Level 1

This score is given to a colour response where colour is used in a nonspecific manner, often in a perseverative way, with no differentiation or articulation of response. Since perseveration becomes an important element in scoring this level, the examiner should take into account all the colour responses of a record. Nonspecific is meant to indicate that the general, overall impact of the response is simply colourful in the sense of a colourful impression with no formal aspects given to the response and no specific attention given to the natural colour of the content (colour is used in an arbitrary manner).

##### Examples:

"Looks like blood" (Card VIII; W).

"Like colored water" (Card IX; W).

"Like a flower" (Card VIII; W).

"Like a flower" (Card IX, perseveration).

This score is also given to responses where colour is used in a natural way (the correct or acceptable colour for the concept given), but where still no elements of differentiation or articulation are present and formal aspects are absent. The impact of the colour and the inability of the subject to do anything with the colour is still prevalent. Colour naming is also placed in this category.

##### Examples:

"Blood" or "fire" (Card II; D2).

"Pink and orange ice cream" (Card VIII; D2).

"Seaweed" (Card X; D10).

"Water" (Card X; D1).

#### B. Level 2

This level is scored if the percept indicates a natural or forced use of colour, with semi-definite formal qualities, and indications of the beginnings of the process of differentiation or articulation. Although formal aspects appear, they still remain subservient to colour.

##### Examples:

"A spill of blood" (Card II; D1).

"A light up in the air" (Card III; D2).

#### C. Level 3

This level is scored for a response where the formal aspects predominate over colour and differentiation and articulation are present. The form level of such responses is usually ordinary, but can also be minus or nonspecific, never vague or amorphous. The Ws which receive this score are unitary, i.e., the subject pays attention to the general outline of the blot, but puts little effort into differentiating and articulating the various elements within a blot. The main criterion for scoring such responses is that the form-colour combination is present, but essentially it is an easy combination which requires little cognitive effort.

##### Examples:

"A red butterfly" (Card III; D3).

"A Christmas tree, all the colors" (Card VIII; W).

#### D. Level 4

Scored for responses which have easily attained a level 3, but also indicate that the subject is trying or struggling to integrate the colour with other blot elements such as movement, shading, or simply form. Often this effort to appreciate the chromatic elements is done at the expense of good form: such responses lack in adequacy of fit, have some incongruent elements which clash with the overall idea the subject tried to convey, and might even be scored a form minus response. The important criterion for



scoring is that a struggle to organize the colourful aspects of the blot with other location areas is present, and that the overall result is somewhat lacking in realism or is of doubtful quality. These responses, because of the emphasis placed on integration, cover large blot areas, usually Ws, at least large Ds or Dds.

Examples:

"A monster with a red tie on" (Card II).

"An animal spitting fire out" (Card II; D3 + D2).  
[Scored at this level because some incongruent elements exist: the red on the top of the animal is not really in the shape of flames, nor is it in spatial relation to the animal's mouth; also the response is a bit confabulatory in the sense that animals do not usually spit fire.]

"A martian wearing a pink hat" (upside down, Card IX; D5 is the hat; face located in D/S; feet are in D2).

[Scored at this level because effort is made to integrate some chromatic elements, but generally the form is unconvincing and of poor quality.]

E. Level 5

Scored for responses which indicate, as in level 4, a struggle to organize and integrate the chromatic elements with other blot areas and other determinants, but the factor which distinguishes this level from the previous one is that the subject has generally done a better job; the integration is either more realistic or of better quality. The subject has fully succeeded in appreciating the chromatic elements of the blot and of integrating these elements in a broader perspective, and most importantly he has done so in a sensible and rational way. These responses are usually Ws or at least large Ds or Dds.

Examples:

"A rocket ship taking off" (Card II; S + D1).

"A man wearing a red hat" or "A clown with a painted face" (Card II; D2 + D3).

"Two men fighting; they have kicked each other and their legs are bleeding" (Card II; W).

"A colorful parasol buried in the sand" (Card VIII; D8 + D5 + D7).

"Two mooses standing along the side of a stream.  
We can see their heads through the green leaves"  
(Card IX; D1 + D3 + D5).

"A colorful crest of a country. I can see the  
animals on the side and a piece of paper with  
writing in the middle" (Card VIII; W).

## APPENDIX 4

### SCORING SYSTEM FOR SHADING

#### RESPONSES

##### A. Level 1

This score is given to shading responses which lack differentiation, articulation, and which indicate a diffuse and global reaction to the shading elements of the blot without the capability on the subject's part to give any structure to his concept.

##### Examples:

"It looks black, a lot of black stuff" (Card I).

"Like water all over" (Card IV; no other specification is provided).

"Some clouds" (Card I).

"Some smoke," "some sand" (Card VI).

"A lot of rocks" (Card VII).

##### B. Level 2

The response begins to show a constructive use of the shading element. The subject uses one or more of the shading characteristics, i.e., diffusion, texture or achromatic colour, in the structuring of his response. Differentiation and articulation of parts is still non-existent and the structure remains diffuse and undifferentiated. The only factor which distinguishes this level from the previous is that, although structural elements are not apparent, the subject is capable of utilizing some characteristic within the shading to specify an important aspect of his concept.

##### Examples:

"It looks like a rain cloud, all black" (Card I).

"A piece of fur, all nice and fluffy" (Card IV).

"Like a big hole dug in some rocks" (Card II; S).

"Like water, a black river" (Card IV).

"Some grass, a field" (Card IV).

### C. Level 3

The response indicates that the subject is now able to utilize one of the formal characteristics of the shading, i.e., diffusion, texture or achromatic colour, and integrate it with a definite form which is well differentiated. The form level of the response is usually ordinary, but can also be minus or nonspecific, but never vague or amorphous. The main criterion for scoring these responses is that form predominate over the shading elements, but that the combination of form and shading be an easy one that requires little cognitive effort. When this level is scored on a whole response, the W is of the unitary kind where the general outline of the blot is used by the subject.

#### Examples:

"A black bat" (Card I or IV or V).

"A furry pussy cat" (Card VI).

"A black tree" (Card IV).

"A greyish looking cigarette" (Card X; D14).

"A bear rug" (Card IV or VI).

"A big black cave with windows" (Card I).

### D. Level 4

This level ushers in the beginning of the process of integration. The response is necessarily differentiated and articulated, but in addition, the subject attempts to integrate important shading elements (at least one-half of the blot area for the given response) with other blot elements. Since integration is essential to score this level, the response is usually a W, at least a large D or Dd. The overall quality of the response might leave much to be desired and might even be scored minus. The essential criterion is that there is cognitive effort to integrate or encompass shading within a large blot area.

Examples:

"Some butterflies flying in the night" (Card I; S is butterflies, all the black represents the night).

"A leaf floating on some water" (Card II; S is leaf, black is water).

"A stick stuck in some mud" (Card IV; D5 is stick).

"A little boat floating on some water" (Card VI; D3 is boat, D1 is water).

"A fur collar and you can see the little things to tie the collar with" (Card VII; D5 is indicated as the collar ties).

"A volcano with fire and a lot of smoke" (Card IX; D, S is volcano; D11, smoke; D3 fire).

E. Level 5

These responses indicate that the subject is able to integrate the shading elements (at least one-half of the response given) with other blot elements, with good differentiation and articulation of the response. The overall quality of the response is better than level 4 and the response gives an impression of balance and cohesion.

Examples:

"A rocket ship flying through space with the exhaust here" (Card II; S is rocket; the black is space; D3 exhaust).

"A furry monster, all big and black and sitting on a stump" (Card IV).

"A fur coat that is hanging on a hangar" (Card VI, upside down).

"A bird has come in for a landing and you can see the path in the dust" (Card VI; D3, bird; D1, dust).

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IN APPENDIX 5, LEAVES 199 - 223,

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199 ff. - A Developmental Analysis of the Concept of the Object on the Rorschach, by Sidney J. Blatt, C. Brooks Brenneis, Jean G. Schimek, Yale University and Marion Glick, Southern Connecticut State College, 1976.

MAY BE OBTAINED FROM

The authors.

A DEVELOPMENTAL ANALYSIS OF THE CONCEPT OF THE  
OBJECT ON THE RORSCHACH

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and  
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The importance of the human response on the Rorschach has been noted often in a variety of contexts, but generally with a minimum of theoretical elaboration. Aspects of these responses may have particular relevance for the study of the development of the concept of the object and its impairment in psychopathology. This scoring system is an attempt to apply developmental principles of differentiation, articulation, and integration (Werner, 1948; Werner & Kaplan, 1963) to the study of human responses given to the Rorschach.

Differentiation is defined as the nature of the response with human content; Articulation is defined as the degree to which the response was elaborated, and Integration is defined as the way the concept of the object is integrated into a context of action and interaction with other objects. Within each of these areas, categories were established along a continuum based on developmental levels. Within each category, ratings ranged from developmentally lower to developmentally higher levels.

#### CATEGORIES OF ANALYSIS AND SCORING PROCEDURES

##### I. SELECTION OF RESPONSES

###### A. Human and quasi-human responses.

All human and quasi human [H and (H)] responses are scored. Human and quasihuman details are scored if they 1) involve human activity, (e.g., talking, pointing, struggling) or 2) involve a substantial portion of the card and are not just a small rare or edge detail and 3) contain some description of explicit human or humanoid characteristics. Thus, independent of their location, the following responses would be scored:

"the face...of an old man with wisps of hair on the side"

" a man with sunglasses on"

"a girl's head"

"a baby's face"

"baby's hands with mittens on"

"face with a large hooked nose"

"faces of 2 angels"

#### B. Animal Responses

In some rare instances, animal responses are classified as quasi-human if the animal is explicitly given qualities that only a human could have. The exceptional quality of this classification must be emphasized. It is not meant to include all responses scored Animal Movement FM. Though the following responses might be scored FM, they would not be included as a human or quasi-human response:

1. Human-like actions which could be achieved as the result of special training and which might, therefore, be expected in the context of a circus act.
2. Activities which humans perform, but which can also be performed by animals (e.g., rubbing noses). The human content must be explicit. If, for example, "Bugs Bunny" is given as a response, it is scored only if Bugs Bunny is engaged in a clearly human action. Thus, Bugs Bunny crying or talking would be scored as a quasi-human [ (H) ] response.

Applying these criteria, the following animal response would be scored as quasi-human:

"a hookah smoking caterpillar...from Alice in Wonderland."

"two drunken penguins leaning on a lamp-post...they're definitely sloshed."

"two lobsters coming out of a saloon...and they kind of have their arms around one another."

"sea gull...laughing, making fun of somebody."

"two frogs...tete-a-tete...two angry frogs, their mouths are downcast."

"spiders (at an insect ball) eating spareribs."

## II. SCORING PROCEDURES

A. Accuracy of the response. Responses are classified as perceptually accurate or inaccurate ( $F_+$ ,  $F_+$ ,  $F_+$ ,  $F_-$ ).  $F_+$  or  $F_+$  responses are classified as accurate and  $F_-$  responses and  $F_+$  responses are classified as inaccurate (Rapaport, Gill & Schafer, 1945; Allison, Blatt & Zimet, 1968).

### B. Differentiation

Here responses are classified according to types of figures perceived; whether the figure or subject of the action are quasi-human details (Hd), human details Hd; full quasi-human figures (H); and full human figures, H.

1. Human Responses. To be classified as a human response, the figure must be whole and clearly human. Examples:

"People"

"Men"

"Baby"

"African natives"

2. Quasi-human responses. Here the figures are whole but less than human or not definitely specified as human. Examples:

"Witches"

"Dwarfs"

"Two opposing forces, sticking out arms and hands.

Opposing forces, pitted against each other... looking  
at each other. With complicated...of talons, appendages,  
arms raised in combat...Person maybe...standing there, being  
very offensive and attacking."

3. Human details. Here only part of a human figure is specified.

Examples:

"hands strangling"

"faces staring at each other"

4. Quasi-human details. Here only part of a quasi-human figure  
is specified. Examples:

"angel's face"

"witch's head"

"devil's face"

### C. Articulation .

Here responses are scored on the basis of types of attributes ascribed to the figures. A total of seven types of attributes are considered. These types of attributes were selected because they seem to provide information about human or quasi-human figures. The analyses are not concerned with the sheer detailing of features or with inappropriate articulation. The analyses are only concerned with articulations that enrich a human or quasi-human response, that enlarge a listener's knowledge about qualities which are appropriate to the figures represented. For example, a response which states that a man has a head, hands, and feet does not enlarge the listeners'

knowledge about the man. Possession of these features is presupposed by the initial response, "man." An articulation such as "a man with wings" is not scored as an articulation because it is an elaboration which does not add to the specifications of the human or quasi human features of the figure.<sup>1</sup>

There are two general types of articulation: the articulation of 1) perceptual and 2) functional attributes.

1. Perceptual characteristics.

- a. Size or physical structure. For this aspect to be scored as articulated, descriptions of the figure must have adjective status. Thus, no credit is given in a response where an examinee only says that a man has feet or that a hand has fingers. Size or structure is only scored as articulated if there is a qualitative description of aspects of body parts or the whole body. Descriptions of bodies or body parts as "funny" or "strange" are not scored as indicating articulation of body structure.

Certain aspects of facial expression can be scored as articulations of size or structure. Included in this category are responses like "eyes closed" or "mouth open" in which the description of facial expression amounts to something more than just a description of physical appearance.

Applying these criteria, the following responses would be scored as articulations of size or physical structure:

"slim men"

"big feet"

"the top of the body is sort of heavy and her legs are  
real, real teeny"

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<sup>1</sup> Inappropriate articulations were not scored in the initial research with this manual (Blatt, Brenneis, Schimek & Glick, 1976). In subsequent research it may prove useful to score both appropriate and inappropriate elaborations.

"slanted eyes"

"chins protruding down from the face"

"eyes closed"

"mouths open"

"tongue was sticking out"

By contrast, the following responses are not scored as articulations of size or structure:

"women with breasts"

"they're shaped like people"

"eyes, nose, mouth"

"woman doesn't have a head"

"a pervert with bunny ears"

"person with wings instead of arms"

- b. Clothing or hairstyle. For this aspect to be scored as articulated, there has to be a qualitative description of some aspect of either clothing or hairstyle. It must enrich the description of the figure. Simple mention of items of clothing implied by the response does not enrich one's understanding of the figure and is, therefore, not scored as an articulation. Using these criteria, the following responses are scorable as articulations of clothing or hairstyle.

"some kind of moustache..right above its mouth"

"girls with ponytails"

"hair and the things sticking out of them, feathers"

"their pants would have to be skintight and when they lean down, their jackets go pointing out, makes it look like a very tight jacket."

"a couple of witches with red hats"

"wearing a black coat and a homburg hat. Black coat is sort of billowing behind him..."

"...a full-tailed coat"

"two little girls, all dressed up in their mother's things"

"Gay 90's type women...Both wearing a long bustle and feathers in hair."

"An American Indian in some ceremonial costume with wings and paraphernalia."

"a man...with sunglasses on."

By contrast, the following responses would not be scored as articulations of clothing or hairstyle:

"Two women with skirts on."

"shoes on"

- c. Posture Posture is scored if the response contains: a) a description of body posture which is separate from the verb describing the activity of the figure, or b) a description of facial expression that goes beyond mere articulation of the physical appearance of features in that it contains a sense of movement or feeling. Posture is not scored if body posture is implied in the verb rather than being separately articulated or if it is simply a description of a figure's position in space (e.g., facing outward).

Thus, the following responses are scored as articulations of posture:

"arms flung wide"

"head tilted"

"standing with legs spread apart"



"leaning on a lamp post"

"shoulders hunched"

"somebody hanging...dangling down, drooped,  
formless, shapeless"

"eyes look piercing"

"gritting teeth"

"smiling"

The following responses are not considered articulations of posture:

"sitting"

"standing"

"doing a high dive"

"back to back"

"facing outward"

"mouth closed"

## 2. Functional characteristics.

- a. Sex. For sex to be scored there either has to be a specific mention of sex of the figure or an assignment to an occupational category which clearly implies a particular sexual identity. If the final sexual identity is not decided but alternatives are precisely considered, sex is scored as articulated. If, however, the indecision is based upon a vague characterization of the figures with an emphasis upon the sexual nature of the figure as a whole, sex is not considered articulated. In the following responses, sex is scored as articulated:

"Man"

"Girl"

"Witch"

"Mother"

"Priest"

"either an old man or an ugly woman"

"2 boys putting on a disguise kit or a girl with her  
makeup kit"

By contrast, sex is not scored as articulated in these responses:

"Well, these look like two human figures. I think when  
you look at the breasts there, they're girls. Then down  
here could look like phalluses. I don't know. It's rather  
ambiguous, confusing...protrusions from the thorax, you  
know."

"Looks like two people. Could be a woman or a man. I debated  
this for a minute. (mean?) Well, this form could be women  
or the costuming of man. (?) Well, I guess it would be tights  
and sort of loose shirt. I don't know exactly."

"Two people beating drums in a way like both might be women.  
In another way, like men. Doesn't seem to be any real  
indication whether they are male or female. The rather ex-  
tended chests seem to represent breast of women and protuber-  
ance on bottom seems to be leg. In these respects it has a  
bisexual appearance. There is something barbaric about the  
figures. Seems to be something of a representation of gods  
or something like that. They seem to be wearing high heel  
shoes. Both of the figures seem to be very awkward and look  
as though they're doing some clumsy movements in beating the  
drums. The heads also don't look human--look as though  
they're some kind of bird's heads."

- b. Age. For this aspect to be scored, specific reference must be made to some age category to which the figure belongs. Thus, age is assumed to be delineated in the following responses:

"child"  
 "baby"  
 "old woman"  
 "young girl"  
 "little boys"  
 "teenagers"

By contrast, although some indication of age is implied in the following responses, the references are not specific. Thus, age is not scored in these responses:

"man"  
 "girls"  
 "boys"  
 "priest"

- c. Role. When figures are human, a clear reference to the work a figure does (occupation) is scored as an articulation of role. With regard to quasi-human figures, role is scored if the manner in which the figure is represented implies that it would engage in certain activities rather than others. Thus, role is assumed to be articulated in the following responses:

"soldier"  
 "priest" 2

"Spanish dancer"

"ballet dancer"

"Princess"

"mother"

"witch"

"devil"

"elves"

Role is not scored in the following responses because there is no clear indication that they refer to occupation rather than a momentary activity.

"dancer"

"singers"

- d. Specific identity. Here a figure must be named as a specific character in history, literature, etc.<sup>3</sup> Examples:

"Charles DeGaulle"

"Theodore Roosevelt"

### 3. Degree of articulation.

This is the simple enumeration of the total number of types of features articulated. In the preceding section, seven types of attribution were described (size, clothing or hairstyle, posture, sex, age, role and specific identity). Thus, for any single Rorschach response, a total of seven types of features could be articulated. The average number of features taken into account in each human or quasi-human response constitutes the score for the degree of articulation of individual figures. If, for example, a subject gave four human responses

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To the degree that age, sex, and occupation are clearly indicated in the specific identity, these features are also scored as articulated. Thus, in the response, "Charles DeGaulle," sex and occupation are specified. Such is not the case in the response, "piglet."

and attributed a total of ten types of attributes to them, his score for degree of articulation is 2.5.

#### D. Integration

Integration of the response was scored in three ways: a) the degree of internality of the motivation of the action (unmotivated, reactive, and intentional), b) the degree of integration of the object and its action (fused, incongruent, nonspecific, and congruent), and c) the integration of the interaction with another object (malevolent-benevolent and active-passive, active-reactive, and active-active). These analyses can only be applied to figures engaged in human activity.

##### 1. Motivation of action.

The articulation of action in terms of motive implies a developmentally advanced perception of action as differentiated from but related to the subject. Moreover, motive can be ascribed in two ways: as reactive or as intention. Reactive explanations involve a focus on past events and behavior is explained in terms of causal factors; one assumes that, for certain prior reasons, an individual had to do a certain thing. By contrast, intentionality is proactive and implies an orientation toward the present or future. The individual chooses to do something to attain a certain end or goal. The ability to choose between motives and to purposefully undertake an activity implies a greater differentiation between subject and action than is the case when an individual is impelled to take an action because of past occurrences. For this reason, the analysis of action will consider whether or not a motive was provided and whether the motivation was reactive (causal) or intentional.

a. Unmotivated activity.

Here action is described with no explanation of why it occurs. Examples:

"Two people kissing each other."

"Women looking at each other."

"Men leaning against a hillside."

b. Reactive motivation.

Here perceived activity is described as having been caused by a prior situation (internal or external) and the subject is seen as having little choice in his reaction. Examples:

"A German soldier on guard duty. I think he sees something and points his gun at it."

"Arabs recoiling from an Israeli bomb."

"A person afraid of a snake, standing on a rocky cliff with arms upraised as if he's going to hit it with something."

"Two women struggling over ownership of a garment."

c. Intentional motivation.

For motivation to be scored as intentional the action must be directed toward some future moment and the subject must be seen as, in some sense, choosing his action rather than having to react. Examples:

"Halloween witches, making incantations over the fire, in preparation for all hallows' eve."

"An orchestra conductor, his arms raised, about ready to begin."

## 2. Object-action integration.

In this analysis, four levels of integration of the object with its action are distinguished (fused, incongruent, nonspecific, and congruent).

- a. Fusion of object and action. For a response to be included within this category, the object must be amorphous and only the activity articulated. In such situations, object and action are fused. The object possesses no separate qualities of its own. It is defined only in terms of its activity. This type of response is exemplified below. In both instances, nothing is known about the object except what it is doing.

Examples:

"Two opposing forces, sticking out arms and hands. Opposing forces, pitted against each other...looking at each other. With complicated...of talons, appendages, arms raised in combat...Person maybe...standing there, being very offensive and attacking."

"Figure there with hands, standing with legs spread apart, reaching out with hands as if trying to grab something."

- b. Incongruent integration of object and action.

For a response to be included within this category, there should be some separate articulation of object and action. Something must be known about the object apart from its activity. Nevertheless, the activity is incongruous, unrelated to the defined nature of the object. The articulation of action detracts from, rather than enriches, the articulation of the

object. Examples:

"A great big moth, dancing ballet."

"Two figures, one half human and one half animal holding  
two sponges."

"A little baby throwing a bucket of water."

"A satyr-thing bowling."

"Two sphinxes pulling a decapitated woman apart."

"Two beetles playing a flute."

c. Nonspecific integration of object and action.

Inclusion within this category also requires some separate articulation of object and action. However, the relationship between the two elements is nonspecific. The figures, as defined, can engage in the activity described but there is no special fit between object and action. Many other kinds of objects could engage in the activity described. Thus, while the articulation of action does not detract from the articulation of the object, neither does it enrich it.

Examples:

"One big person standing with arms raised."

"A knight, standing ready to do his job."

"Cavemen leaning against a hillside."

"Two figures dancing."

"Two older women trying to pull something away  
from each other."

"Two men fighting."

"A man running away."

"A person, sort of a girl, standing on her toes."



d. Congruent integration of object and action.

For a response to be assigned to this category, the nature of the object and the nature of the action must be articulated separately. In addition, the action must be particularly suited to the defined nature of the object. By way of contrast with the preceding category, the action must not only be something the object might do; it must be something that the object would be especially likely to do. There is an integrated and particularly well-suited relationship between the object and the specified action. Moreover, the articulation of the action enriches the image of the object.<sup>4</sup>

3. Integration of interaction with another object.

a. Nature of interaction.

This analysis applies to all responses involving at least two human or quasi-human figures. In addition this analysis can also pertain to situations where a second figure is not directly perceived, but its presence is necessarily implied by the nature of the action.

1. Active-passive interaction.

Two figures can involve a representation of one figure acting upon another figure in an active-passive inter-

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<sup>4</sup> In situations where the role definition of the object amounts to nothing more than a literal restatement of the action, object and action are not considered integrated. Responses like "dancer's dancing, " or "singer's singing" are scored as nonspecific (level 3) relationships. However, responses such as "ballerina dancing" or "character from a Rudolph Falls opera, singing" are classified as a congruent (level 4) relationship.

action. One figure is active and the other entirely passive so while acted upon, it does not respond in any way.

2. Active-reactive interaction.

In another type of interaction the figures may be unequal. One figure is definitely the agent of the activity, acting upon another figure. The second figure is reactive or responsive only to the action of the other. This is defined as an active-reactive interaction.

3. Active-active interaction.

In a third type of interaction, both figures contribute equally to the activity, and the interaction is mutual.

b. Content of interaction<sup>5</sup>

1. Malevolent: The interaction is aggressive or destructive or the results of the activity implies destruction or harm or fear of harm.
2. Benevolent: The activity is not destructive, harmful or aggressive. It may be neutral or it may reflect a warm positive relationship between objects.

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Attached are examples for scoring both the nature and content of interactions. Notations in the left hand margin indicate scoring for the nature of the interaction. [Active-Passive (A-P), Active-Reactive (A-R), and Active-Active (A-A)]. Notations in the right hand margin indicate the scoring for the content of the interaction [Malevolent (M) and Benevolent (B)].

Integration of Interaction

| <u>Nature of Interaction</u> |                                                                                                                                                        | <u>Content of Interaction</u> |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A-P                          | A couple of undertakers lowering babies into the pit.                                                                                                  | M                             |
| A-P                          | A prostitute rolling a drunk.                                                                                                                          | M                             |
| A-P                          | Crucified man.                                                                                                                                         | M                             |
| A-P                          | A mother holding out her arm and telling her kid never to come back.                                                                                   | M                             |
| A-P                          | Two sphinxs pulling a decapitated woman apart.                                                                                                         | M                             |
| A-P                          | Two people kneeling down with hands extended toward and touching other people.                                                                         | B                             |
| A-R                          | African natives beating a drum, Martians applaud..                                                                                                     | B                             |
| A-R                          | Eve being tempted by a snake (snake seen on card)                                                                                                      | M                             |
| A-R                          | Two people with hands up as if trying to ward off the two people coming to get them. Two guys with black capes... coming in to get the other people... | M                             |
| A-R                          | German soldier - think he sees something and points gun at it.                                                                                         | M                             |
| A-R                          | An orchestra conductor, arms raised, just about to begin.                                                                                              | B                             |
| A-R                          | A man running away.                                                                                                                                    | M                             |
| A-R                          | A woman crying out for something...two forces pulling her apart, one is depression, one is suicide.                                                    | M                             |
| A-R                          | A man trying to kill a little girl, who's running away.                                                                                                | M                             |
| A-A                          | A woman with a child looking up at her.                                                                                                                | B                             |
| A-A                          | Someone having intercourse, a man child and a woman child, trying to make love but not knowing how.                                                    | B                             |
| A-A                          | One person there is pointing and the other is listening.                                                                                               | B                             |
| A-A                          | Two people and two martians fighting.                                                                                                                  | M                             |

Integration of Interaction

Nature of  
Interaction

Content of  
Interaction

|     |                                                                            |   |
|-----|----------------------------------------------------------------------------|---|
| A-A | Two women having a fight, calling each other names.                        | M |
| A-A | Two gremlins ready to hit each other.                                      | M |
| A-A | People pledging hands together - like victors, walking<br>along like that. | B |

## Scoring Outline

### Categories of Analysis

- I. Accuracy of response (F+ or F-)
- II. Differentiation (Types of figures perceived)
  - (1) Human
  - (2) Quasi-human
  - (3) Human detail
  - (4) Quasi-human detail
- III. Articulation
  - (a) Perceptual attributes
    - (1) Size or physical structure
    - (2) Clothing or hairstyle
    - (3) Posture
  - (b) Functional attributes
    - (1) Sex
    - (2) Age
    - (3) Role
    - (4) Specific identity
  - (c) Degree of articulation (# features articulated/ # responses)
- IV. Integration
  - (a) Motivation of action
    - (1) Unmotivated
    - (2) Reactive
    - (3) Intentional
  - (b) The integration of object and action
    - (1) Fusion of object and action
    - (2) Incongruent action
    - (3) Non-Specific action
    - (4) Congruent action

(c) Integration of the interaction with another object

(1) Nature of interaction

(a) Active-passive

(b) Active-reactive

(c) Active-active

(2) Content of interaction

(a) Malevolent

(b) Benevolent

### References

- Blatt, S. J., Brenneis, C. B., Schimek, J. G., Glick, M. The normal development and psychopathological impairment of the concept of the object on the Rorschach. Journal of Abnormal Psychology, 1976.
- Werner, H. Comparative psychology of mental development. New York: International Universities Press, 1957.
- Werner, H., and Kaplan, B. Symbol formation. New York: Wiley, 1963.





## APPENDIX 6

### SCORING SYSTEM FOR HUMAN MOVEMENT

#### RESPONSES

##### A. Level 1

It is scored when a full human or quasi-human figure or figures are perceived as involved in a passive movement which is unmotivated and reflects a giving in to the force of gravity. One or two people are involved in the action, but the two people have minimal interaction and are usually mentioned by the subject to account for the symmetry of the blot. Blocked movements, when only one person is involved, are also scored at this level.

##### Examples:

"Two people standing up" (Card I).

"A man lying down" (Card IV).

"A man with his arms up" (Card I, middle).

N.B. The only exception is a single human figure who is involved in passive activity but with another part of the blot (because of the aspect of integration which is stronger here than in other instances of such responses).

##### Example:

"A man sitting on a stool" (Card IV).

##### B. Level 2

This level is scored when a movement is active and reflects the ability of the subject to act upon and change the environment. Most of these movement responses are extensor and involve one person or individual.

Examples:

"A man lifting a rock" (Card III).

"A man lifting his arms up and screaming" (Card I).

"A man running and coming at you" (Card IV).

C. Level 3

The movement involves two participants (human or quasi-human) interacting together in a well integrated activity whether the act is passive or active in nature.

Examples:

"Two people kissing" (Card II).

"Two people talking to each other" (Card VII).

D. Level 4

These movements involve two participants and another part of the blot in a well integrated activity, which is logical and congruent.

Examples:

"Two people lifting a basket" (Card III).

"Two people pulling a headless woman" (Card I).

"Two ladies standing on a rock and talking to each other" (Card VII).

N.B. If the combination is incongruent or fabulized, the response should be scored level 3 instead of level 4.

ABSTRACT OF  
AN EMPIRICAL STUDY OF WERNER'S ORTHOGENETIC  
LAW OF DEVELOPMENT UTILIZING THE  
RORSCHACH TECHNIQUE

The aim of this dissertation was to study Werner's orthogenetic law of development as applied to perceptual cognitive functioning. Simply stated, Werner's orthogenetic law of development says that: "From a state of relative undifferentiatedness and disorganization, the organism evolves to a state of better differentiation, articulation and hierarchical integration."

This general law of development was verified through an analysis of the Rorschach responses of a longitudinal sample of thirty-one subjects ranging in age from 6 to 8 years.

Five broad scoring categories were utilized in the analysis of Rorschach responses: Mayman's Form Level Rating Scale, Friedman's Developmental Level Scoring, Blatt's Developmental Analysis of the Concept of the Object on the Rorschach, along with a 5-point scale for the scoring of Colour and Shading.

Apart from the equivocal results obtained for the Shading category, all other findings were in support of Werner's general law of development. Qualitative changes

changes reflected the child's increased ability to perceive in a clearer, more precise and differentiated way the Rorschach stimuli. Concomitantly, the enhanced and improved precision in perceptual-cognitive functioning was supported for the most part by a reduction in diffuse, undifferentiated and erroneous percepts.

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Raymond Proulx, doctoral thesis presented to the School of Graduate Studies, University of Ottawa, Ottawa, Ontario, Spring 1980.