

**RHYTHMICAL AUDITORY PROJECTION**  
**AS A NEW TOOL FOR PERSONALITY ASSESSMENT**

**Claus Bahnson, Ph.D.**  
**Boston University**  
**School of Medicine**  
**Psychosomatic Research Unit**  
**August, 1957**

## INTRODUCTION

The aim of the present study was to investigate the possibilities for assessment of personality by means of rhythmical apperception of auditory equally spaced tempi. The research attempted to determine the feasibility of evaluating central personality characteristics through structure analysis and interpretation of reported auditory apperceptions of simple, repetitive sequences of sound.

Such analysis constitutes one of three parts of a more complex auditory diagnostic technique, the other two parts of which deal with emotional projection and free association, respectively. This investigation thus dealt with one of three interpretative approaches, all based on the same auditory material.

The part of the diagnostic technique with which we are concerned here differs from other current visual as well as auditory techniques in its conceptual modality and level of approach. The "abstract" rhythmical time factor holds the focus instead of memories, associations, and concepts closer to the individual's conscious everyday functioning. Time experiences, formation of Gestalts, and apperceptive functions in flux are under observation. Not the conscious product, but the apperceptive process itself is studied.

Earlier auditory techniques may be classified in three groups: (1) "musical fantasy" tests; (2) "reality sound" tests; and (3) verbal projective tests. These tests all have in common that they duplicate in an auditory medium visual techniques already in use and that they apparently do not in their interpretations utilize the interesting, but elusive, time apperceptions. It is, however, exactly these time experiences which permit the approach to and study of a level of mental functioning which seems to loom closer to primary psychological organization and to be implicit in basic emotional processes, at the same time resting further from cognitive control than the levels tapped by other current diagnostic techniques. The emphasis on the time factor is one characteristic of the present approach. Another of its important features is linked to the modality of auditory sensation per se. Diagnostic studies simultaneously utilizing visual and auditory approaches have suggested that non-verbal abstract sounds tend to spontaneously arouse diffuse emotional experiences which in turn set off cognitive representations; whereas visual material tends to arouse cognitive representations which then in turn bring about emotional reactions. In other words, the sequence is reversed. Visual cues trigger first cognition then emotion; auditory cues trigger first emotion then cognition. Where the visual cues function as pointers for effective manipulation of the outer world, non-verbal auditory cues seem to be linked to a broader psychological matrix closely related to mood and usually dissociated from immediate reality-relations. This study is as such not concerned with the emotional matrix established, but because this matrix influences the cognitive Gestalt, the mentioned differences between the sensory modalities deserve keen attention. These differences were among the factors which supported the hope that the present approach might add to rather than duplicate current visual diagnostic techniques.

The theoretical framework within which the research was conducted was constituted by a fusion of two different, but inter-

acting, overlapping and compatible theoretical constructs: Neo-Phenomenology and modified Psychoanalytic Theory. Neo-Phenomenology, as formulated by the author, is mainly concerned with epistemological problems. Psychoanalytic theories were tentatively employed as an explanatory device relating basic cognitive-apperceptive and affective phenomena to economical processes. The emphasis on economical distributions served to bridge the gap between reported temporal apperceptions and clinical personality aspects, such as anxiety or ego strength. In order to conceptualize different patterns of energy discharge, as these were believed to appear in the different personality groups, it seemed helpful to the experimenter to enact imaginary rather anthropomorphic dramas involving the classic psychoanalytic trilogy of personality.

## EXPERIMENTAL PROCEDURE

In general, experiments involving personality variables may be performed in two different ways. The first is characterized by efforts to experimentally change measurable effects of a particular personality aspect by manipulating factors, which are believed to momentarily modify these aspects. The second method is not concerned with momentary changes in the personality variables, but is rather oriented towards the study of experimentally unmodified traits or aspects of the personality which are held to be relatively static and stable, and which characterize the individual by the special configuration. Without doubt, these two artificially categorized techniques overlap to some extent. However, the second of the mentioned methods was the one employed in the present research.

The gross methodological aim was to select groups of subjects with unambiguous and characteristic phenomenology of apperception and test the hypothesis, that these groups exhibit different personality characteristics. This general goal resulted in the formulation of three phases of the actual experiment. The first phase was constituted by auditory testing of groups of subjects, the results of which formed the basis for selection of subjects for individual testing. The second phase comprised all individual auditory testing; in the third phase all the subjects selected for the second phase were criterion-tested with the Rorschach Test.

Six hundred eleven undergraduates at the University of Rochester constituted the gross body of subjects from which the subjects for the main, or individually tested, experiment - phase two and three - were selected. Twenty-eight group experiments were performed in the classrooms of the students. Due to heterogeneity of instructions, 105 subjects were not considered for individual testing. Sixty-two subjects who exhibited apperceptive traits of a certain previously defined character were selected for individual testing. Fifty-four of these 62 subjects were criterion-tested with the Rorschach and other projective tests not utilized in the final analysis. Finally, the 40 "best fit" subjects, 20 males and 20 females, were selected for predictive evaluation and statistical analysis.

Operational criteria for final selection of subjects for experimental analysis were outlined in terms of four different,

mutually exclusive, and characteristic ways of apperceiving equally spaced sounds. These criteria were as follows:

2-4-8 Sequential Group. These subjects had reported apperceptive groupings of only two's or four's or eight's in the group experiment.

Upon individual testing, the majority of their reported apperceptive groupings were two's or four's or eight's. They must have grouped the stimuli in this manner for at least four of the six tempi.

2-4-8 Constructive Group. These subjects had reported apperceptive groupings of two's and four's and eight's in the group experiment.

Upon individual testing, at least five of their six reported groupings were two's and four's and eight's with all three of these groupings being represented. A subject's reporting a single grouping of six, on the basis of three groups of two's, was permitted.

All the "multi-groupers", which made up the two final groups, had reported at least five different groupings in the group experiment. This criterion also held for selection for the individual-tested experiment.

Multi-Sequential Group. These subjects tended in the individual-tested experiment to repeat the same modes of grouping for all the tempi. Where these subjects did not repeat the same patterns throughout the six tempi, they clearly tended to repeat structurizations from tempo to tempo; i.e., in a sequential manner, without regard for the differential character of the temporal sounds.

Multi-Constructive Group. These subjects tended to apperceive the groupings of the different tempi in such a differential manner that an underlying constancy in their apperceptions could be inferred. Not the structurization of the preceding tempo but the specific character of the tempo they apperceived was the determining factor for them. This could be ascertained when one rearranged the "groupings" in an order from slowest to fastest tempo instead of the fixed random order given in the experiment. That is, it was observed that these subjects, without concern for sequence, increased their grouping-span as the tempi increased from slow to faster.

Each of these four categories contained ten subjects of which five were males and five were females. Thus, twenty male and twenty females, providing a total of forty subjects, were used in the design of the individual-tested experiment.

Two different tape-recorded sound tracks, one for each situation, were used for the group and individual-tested experiments. The group-tape presented three different tempi in the form of clicks or beats. The individual-tape presented six

different tempi, of which three were identical with the tempi played in the group experiment. Both tape recordings were made under the same recording conditions by means of a Tektonix Type 160-162 Pulse Generator.

The pulse fed into the tape recorder was characterized by a width of .04 millisecond, an amplitude of 50 volts, and a positive pulse polarity. The wave forms were, of course, recurrent. The durations of the wave forms were the following for the two tapes.

(a) The tape for the group experiment:

Tempo 1:	.80 second
Tempo 2:	.32 second
Tempo 3:	.20 second

(b) The tape for the individual-tested experiment:

"Adjustment tempo":	.40 second
Tempo 1:	.80 second
Tempo 2:	.50 second
Tempo 3:	1.30 seconds
Tempo 4:	.32 second
Tempo 5:	.20 second
Tempo 6:	.63 second

The different wave form durations, which represent the interval between the equally spaced beats, or clicks, were presented in the order given above. The shortest wave form duration represented the fastest tempo as defined from an "objective" physical frame of reference. If the stimuli were ranked from the longest to the shortest wave form duration (i.e., from the slowest to the fastest tempo) with 1 indicating the longest wave form duration (slowest tempo) and 6 the shortest wave form duration (fastest tempo), then the order of presentation in terms of this ranking was 2, 4, 1, 5, 6, 3. In other words, the tempo presented third was the slowest and the one presented fifth was the fastest.

On the individual-tape a tempo with a wave form duration of .40 and pulse characteristics identical with the other tempi was recorded preceding these tempi on the tape. This prior tempo was used to permit the subject to adjust to optimal clearness and comfort the loudness of the clicks he was to hear.

In the individual-tested experiment it was pointed out to the subject that six tempi, and not three as in the group experiment, would be presented, and that these tempi would not be presented in linearly increasing order of speed, but played in a fixed random order. Each subject was told further that the time of presentation would be clocked to one minute per tempo, and that the pauses between the tempi would depend upon the time he needed to record his apperceptions. These and other practical features of the experimental settings were communicated to the subjects by means of a fixed instruction.

One especially important part of the instructions clearly stated to the subjects that their task was to determine how the "objectively equally spaced" clicks sounded "subjectively". Preliminary experiments showed that such a statement obliterated much resistance in the subjects against permitting themselves to apperceive rhythm. When the "objective regularity" was not

stated, 52% of the subjects reported not to apperceive any rhythm; when stated, only 7% of the subjects did not apperceive rhythm.

The subjects reported in their own way, by means of verbal or figurative notations on recording paper containing only blank cells, what they had been hearing. An earlier prepared and utilized testing blank denoting some of the different possibilities of apperception was discarded as being too suggestive. It would be extremely difficult to determine which inference the features of a "structured" answer sheet would have exerted on the subject's apperceptions.

In order to obviate any bias in scoring and scaling either the auditory apperceptions or the criterion test results an elaborate system, coding all the obtained data, was instituted. As a consequence all scoring and scaling was done "blind" by the experimenter.

**The Criterion Test.** The Rorschach was selected as the criterion test because it was believed that this projective technique would provide the best available basis for a depth-evaluation of the personalities under study. It was the contention of the experimenter that the criticism of the Rorschach test as a research tool had been based in some cases on misunderstandings of the proper procedure of test interpretation. Much too often single Rorschach variables had been taken out of context and used as criteria in themselves. Such limited methodology obviously leads to failure and confusion and unjustly throw discredit on the Rorschach test itself instead of on the limited methods applied. This experimenter holds that the Rorschach test, when utilized in a holistic, global, and integrated fashion provides one of the best, if not the best, contemporary means of personality assessment. The paper and pencil tests much too often suffer from being limited to conscious and ego defensive phenomena, therefore leaving us without information about central, and sometimes unconscious, personality aspects. The Rorschach test was administered in the typical fashion with no changes from the standardized procedure. The only part of the procedure which might be considered somewhat atypical was the unusually thorough inquiry, which was thought to be essential in order that additional scorings might be made in as refined a fashion as possible. The scoring system followed was a combination of the systems utilized by Rorschach, Klopfer, and Beck. In addition, certain new scorings of determinants, introduced by this experimenter, were employed.

In order to evaluate the obtained Rorschach data in a holistic and also quantitative fashion, five seven-point Rorschach scales were constructed on the basis of personality variables which each were defined in terms of ten integrated traits.

The operational definitions of the chosen personality variables came into being through the following stages: (a) On the basis of a central concept of each of the variables a number of traits, all relating to this variable, were tentatively defined. (b) An effort was made to "translate" these verbally defined traits into configurations of corresponding Rorschach scores. (c) The tentative operational definitions, as constructed under state (a), were then modified in a way so that (1) all the traits included would lend themselves to measurement and evaluation by means of at least one configuration of Rorschach variables and (2) a full verbal "translation" of all



Rorschach scores and ratios utilized was included in the verbal definitions. (d) The fourth stage consisted of "tightening up" and semantically clarifying the definitions. An effort was made to reduce the number of sub-traits defining each variable to ten.

The scales could now be expected to measure fairly accurately the "same" configuration of traits the verbalization of which constituted the operationally defined variables. A gain in precision of measurement of the defined variables was thus obtained at the cost of the definitions themselves, which became slightly atypical. They came to include some personality aspects which in clinical practice are usually not conceived under their general heading. In contrast to earlier attempts to construct Rorschach scales, utilizing the content of responses as their main source, the present approach leaned most heavily on the formal location- and determinant-scores as units for the scale configurations.

The five selected verbally defined personality variables and the five corresponding Rorschach dimensions were: Introversion-Extraversion; Constriction-Dilation; Ego-Strength; Anxiety; and Hedonic Level. These dimensions were selected because they were thought to cover essential personality aspects and because they were believed to represent such spectra of the personality about which the auditory technique would provide rich information.

## PREDICTIONS

In order to make the different modes of apperceiving equally spaced tempi understandable in terms of economical discharge processes an effort was made to arrive at precise predictions, on the basis of such dynamic concepts, of the expected position on the five criterion scales for each of the four auditory apperception groups as a whole. The hypothetical rationales for relationships between apperception and personality were thus indicated. The expected position of the mean of the majority of subjects within each group, and in a number of cases, the position of the mean of the minority of cases, was predicted. Each personality variable, and in turn, each trait constituting this variable, was first considered separately. Only after tentative isolated predictions had been made, on the mentioned theoretical basis, for all four auditory groups on the five personality variables was an attempt undertaken to adjust the predictions, so that the intervariable and cross-group consistencies would be maximal.

Predictions were made for both sexes combined because sex differences were expected to be insignificant for these groups which were matched in respect to auditory apperception.

The general level of thinking and a few rationales behind the predictions will be presented in summary in the following paragraphs. However, considering the size of the original predictions (approximately 140 pages were needed to outline these alone) this presentation can only comprise the most essential concepts employed.

Each of the five personality dimensions will be considered separately, and for each variable, in turn, the four apperceptive

groups will be shortly discussed.

#### Variable Introversion-Extraversion.

The two-four-eight Sequential (2-4-8 s) groupers were ascribed high-pitched energy consuming conflicts because their apperception of the coarctated temporal units were believed to require only the smallest output of mental energy. Their ego was conceived as "squeezed in" between combating id and super-ego forces, consequently left only with minimal energy resources for its purposes. This was in line with the hypothesized low cathexis of the apperceptive process apparent in the fixed, rigidly perseverating, stereotyped, unelaborated, superficial, and piecemeal patterns exposed. These characteristics suggested extraversion as defined, and they made sense when compared with Witkin's description of his field-dependent category. Rorschach's concept of the introverted as the "reworking-reality-type" certainly did not permit the 2-4-8 s groupers to fall within this category.

A minimal involvement of imaginary processes and fantasy material in the apperceptive function was believed to parallel lack of emotional rapport with the fellow man and a rather practical minded extraversion.

However, some of the traits constituting the definition of introversion, such as a low relative level of aspiration, suggested these apperceivers to belong at the introverted end, and the final main prediction, therefore, became: six, and the additional prediction: three, on the seven-point scale.

The two-four-eight Constructive (2-4-8 c) groupers were believed to represent in several respects a transition group between the 2-4-8 s group and the multi c group. Their degree of involvement of imaginary processes in apperception, their reactivity to outer changes, and their general variability are thus average on a continuum represented by our four groups. They were held to represent a tug-of-war between fertile fantasies and a severe punitive control. The high absolute drive level furnishing rich energy for the apperceptive act is counteracted by a sustained and consistent, super-ego sponsored, control which enforces order on the threatening fantasy formations. It bridles the emanating imaginations and only those, which are in concordance with a prefixed attitude, are allowed to enter consciousness. These Ss refrain from direct emotional communications due to anxiety for an unstructured situation, and by this inhibitory process they become representatives of formalization, abstraction, and restrained cognition.

On the basis of an integrative convergence of these considerations the predictions for the 2-4-8 c group became: Main prediction 3; additional prediction none.

The multi Sequential (multi s) groupers confound in their apperceptive pattern two different primitive approaches. On the one hand an amorphous, confused uncertainty prevails in the highly varied multitude of unrelated reactions. The apperceptions are disjointed, loose, haphazard, and undifferentiated. On the other hand marked, stereotyped rigidity and perseveration are apparent. These subjects repeat the same confusion from tempo to tempo.

In order to account for these characteristics different personality features and dynamics were hypothesized. One was an autistic, syncretic and qualitatively undeveloped fantasy life. Another was the lack of ego organization, with pronounced in-



ability to integrate and establish new relationships. The distant and weak ego is dissociated from other topological personality areas, and reacts with alarm to threatening cues without, in its exile, being able to steer the unbridled individual away from these cues. Such inability to select cues indicates a cleavage between the ego and other personality functions, id and super-ego, which in these Ss are dynamically dominant. The only ego defenses available, in absence of integrative, organizing and sublimating activity, and perseveration are repression.

The final prediction for the multi s group was: Main 5, additional none.

The multi Constructive group (multi c) comprises our fourth category. The great variability, flexibility, and complexity of the elaborated apperceptive patterns suggest that a high level of energy potentials are at free disposal for a full cathexis of the apperceptive act. There is involvement of a considerable and mature symbolic fantasy life which molds the apperceptive structures into a variety of symbolically affective forms. An orderly ego masters the complex apperceptions by relating them to general underlying constructs, but in contrast to the 2-4-8 c groupers, these subjects are not confined to one single underlying pattern, but are able to carry on from a number of different foundations. There is optimal laxity and "free play" in their cognitive functioning, and a higher differentiation than in the other groups. The abstract cognitive functions are not confined to a restricted area due to repressions and denials, but include and integrate elements from highly different layers of the personality. Their attitude is one of "both-and" rather than "either-or". Their emotional interaction with the social surroundings is free and highly differentiated; the lack of repressions and blockings allow them to unfold in interpersonal relationships.

The predictions for the multi c group thus became: Main 2, and additional 6.

These are, in a crudely summarized form, the arguments behind the final predictions for the variable Introversion-Extraversion. In order to understand which bearing such arguments may have in terms of the variable introversion, it must be kept in mind that the definitions of the variables, as already mentioned, were atypical.

The next variable under consideration is Constriction-Dilation. Constriction is in this study considered an ego defense against anxiety. Constriction takes place in order to reduce the psychological field to the point where it can be mastered and controlled. Three important aspects of constriction are considered to be rigidity, frigidity, and compulsiveness.

2-4-8 s. The few apperceptive constructs presented by these subjects are stereotyped, perseverating, stiff, and stifled. They present a flat and formal oversimplification of a compulsive and neat cut. These small and simple Gestalten, two's or four's, are the easiest to produce in their repetitive familiarity.

This apperceptive indigence was hypothesized to appear because only sharply reduced and insufficient energy resources were at the ego's disposal, due to the central immobilizing battles between id and super-ego -- battles in which the super-

ego always kept the upper hand with ensuing repression as the result. Intrapunitive activities thus "check-mate" free realizations of undesirable inclinations, such as affective, displaced relief in rhythmical activity. The impoverished ego is forced to focus on the most important practical and obvious regulating functions, thereby favoring a simple, precise, and clear-cut registration of outer phenomena, vital for its reality operations.

The inner conflict is indicated behaviorally in an effort to bring interpersonal relationships within the mode of behavior acceptable to the super-ego. Conformistic, conservative, and rigid attitudes serve as appeasing maneuvers for the unfriendly and demanding conscience. On the inner emotional front, the never receding pressure becomes observable in a poverty-stricken and strictly controlled fantasy life.

The final predictions on the seven-point scale for the 2-4-8 s group on this variable were: Main prediction: 2, and additional prediction seven. The additional prediction of 7 was given because a close relationship between uncontrolled dilation and constriction was hypothesized. It was believed that a full dilation might precede constriction. Dilation and constriction were not conceived as completely static characteristics of personality, but these processes were believed to be closely interrelated, especially for the fully dilated or completely constricted. Anthropomorphically speaking, it was believed that the super-ego might take over the command and enforce a violent coercion when unbridled release of impulses endangered the reality control exerted by the weak ego. This conceptualization of constriction is in line with the mutual interdependence of Cameron's functional concepts: "Overinclusion" and "Overexclusion". He holds that a manifest Overexclusion may follow a period of Overinclusion, and he relates these vacillations to important aspects of the schizophrenic process.

Another argument employed, in order to arrive at the additional prediction, was that the present auditory stimulation was believed to pose a greater emotional threat to the subjects than did the Rorschach test, so that a possible dilation on the Rorschach test might be matched by a manifest constriction in the auditory test situation.

The apperceptions of the 2-4-8 c groupers show some flexibility and creativity, but on the basis of fixed expectancies. The original underlying richness seems to be contrived, maybe because ambiguity cannot be tolerated.

These subjects again form a link between the 2-4-8 s and multi c groupers on this variable. They show an average energy output in their relatively high production of different patterns, but they are held back from full creativity by a too heavy ballast of controls.

The monitoring ego is in these subjects considerably more dominant than in the 2-4-8 s people resulting in a somewhat smoother and more extensive integration of their personality. Their ego can allow for some drive release when this takes place under full and guarded control, so that no conflict areas become involved in the process. However, conflictual drives are being displaced, often to activities not consciously involving the own person. It may be that many of these subjects

are among the unselfish and guarding idealists which act as the pillars of society. They compromise in this fashion between individualistic and conformistic behavior.

Their conflicts are partly resolved, sublimated, or displaced. However, some aspects of their personality are too painful and unacceptable, even in sublimated or displaced form, to the strong intrapunitive authorities, and in these circumscribed areas avoidance, or the typical "burnt-child reaction", results.

An intermediate position is held by these subjects also in the area of interpersonal emotional interaction, where they show some openness and warmth, but can go only "so far", lest such aspects of their personality, which are unacceptable to themselves, should be involved.

Due to these considerations the main prediction became 5, and no additional prediction was given.

The multi s groupers are characterized by their kaleidoscopic variations of appearances, by their lack of "system" which results in a piecemeal, "jumpy", scattered and unpredictable manner of approach. There is no coherence, but a vacillation between a large variety of ill-defined patterns and no patterns at all. The constant perseveration and the occasional "blocking" are inobtrusive indicators that the multi s subjects are very closely related to the rigid 2-4-8 s groupers.

The confused apperceptions, indicating a loss of even the most essential control, suggest that these subjects dispose only over a week ego and further, that there probably is a cleavage between their affective psychological representations and their reality testing activities. There seems to be no energy investment in ego activities such as monitoring or repressing functions, so that all control over discharge processes is lost. Indulgence in symbolically affective, but uncontrolled, discharge leads to an open impulsivity and marked unconcern about others. These subjects can feel no empathy.

The stream of mental events are for the multi s groupers not satisfied or ordered, but appears in a syncretic fusion of characteristics stemming from different developmental layers. The stream turns now left, now right, and shows swellings of fluctuating inner currents. When the turmoil becomes too intolerable, a sudden defense is activated in the form of manifest constriction, and the subjects then show perseverating rigidity akin to the 2-4-8 s groupers.

The main prediction therefore falls on 7, and the additional on two.

The multi c subjects with their manifold and complex apperceptions, show a continuous remodelling of patterns. A diversity of possibilities crystallize under cognitive control.

The free energy potentials available, due to the relatively inconsequential inner tensions, must again be brought to a focus. A tolerant super-ego and an ego which serves as a perfect coordinator of drives, moral codes, and demands from the surroundings present us with the keys for understanding of their position also on this variable. These subjects can accept and handle their own impulses and make only occasionally

use of repressions. Their well-organized ego can permit spontaneous, impulsive inclinations to enter consciousness side by side with highly integrated and sublimated formations. The undifferentiated pressures from the id are not threatening because a sovereign ego control is assured, and the crude raw material of fantasies may appear in the service of the ego. Reality testing, which is easily maintained, sequesters but little of the available energy.

Emotional life plays a great role for these subjects and their interaction with the outer world is to a high degree a vehicle for release of inner fantasies and attitudes. However, this introverted mode of relation does not disturb smooth interpersonal interaction due to the maturity and integration of the inner life involved.

A considerable ego activity is apparent in the controlled continuity and coherence of the apperceptions. An underlying systematic and combinative activity crystallizes in fine interrelations between the different experienced patterns. It seems, therefore, as if the ego, after having allowed potentials from the depth of the unconscious to arise to the conscious sphere, tends to order and interrelate them in a global and meaningful way. These Ss can embrace the inclinations, fresh from their source, and are as such individualists and non-conformists, in sharp contrast to the 2-4-8 c subjects, who must slaughter their individuality on the altar of the group.

The main prediction for the multi c groupers became 7, and the additional prediction five.

Ego strength.

The 2-4-8 s groupers report patterns of a circumscribed and parsimonious type. Larger Gestalten would indicate more intense psychic attention and show considerable effort. Such an effort cannot be mustered by these subjects, who show a complete lack of constructive activity, probably because the necessary energy potentials are not at hand. The organization and distribution of psychic energy is thus again called to our attention.

A crippled ego is still in control, although its organization is fragile and regressed. It only maintains the most basic and necessary relations to the immediate surroundings, and less imperative ego responsibilities are shirked. Only vital object relations survive the economically necessary reduction of ego functioning.

This tenuous position of the ego may again be seen on the background of violent conflicts between the other two psychic forces. It is important to notice, however, that the heavy inner conflicts do not any longer distort apperceptions of the outer world for these subjects. The 2-4-8 s subjects seem to personify the consequences of the mutilated disintegration of the multi s group. The 2-4-8 s subjects simply do not permit themselves the opportunity to distort, or project into, the outer world, and their perception is sharp and precise, even if only on the basis of restrictions and compartmentalizations. The ego's regained (or retained) control rests on activation of repressions and denials, and its survival is at the mercy of the effectiveness of these repressions.

Momentary desires are completely denied and occasional,

tentative unfolding of original impulses ~~was~~ made undone. Only reaction formations (counter cathexis) are observable in their consciousness and overt behavior.

There is a considerable curtailment of both their interaction with others and their utilization of own emotional and fantasy material. It is too dangerous to risk emotional material to "break through" because the ego is too weak to cope with even a partial unfolding of such personality aspects. The strenuous and rigid ego control is in social situations reinforced by acceptance of current group norms and standards, which serve as auxiliary structures.

The discussed vicissitudes of ego functioning and control resulted in a main prediction of 3, and an additional prediction of one for the 2-4-8 s group on the Ego-Strength scale.

The 2-4-8 c groupers reveal a compromise between parsimonious and prodigal apperceptions; they send different combinations blossoming around a fixed core. They express, as the multi c groupers, much creativity in their approach, but their tight systematization of apperceptions singles them out immediately. The anxiety-determined constrictive tendencies bridle the creative flow, and many subtle and finely integrated apperceptions are rejected by the ego in order to protect a clearly defined field.

It is as if every experienced temporal sequence is measured with a very sturdy "yardstick"; the slow tempi are grouped in two's and the fast ones in eight's. The experienced phenomena are ordered according to a fixed and not too flexible system. These individuals deduce on the basis of fixed axioms, and do not induce and differentiate. They may be termed the deductors in contrast to the multi c subjects, who may be termed the inductors. A desired reality control may be represented by their perceptual efforts to retain the same mold for all structures.

The urge to ascribe to the apperceptions shifting formations is believed to be a crude derivative of drive-determined fantasies, and the ego must, therefore, be relatively strong in these subjects in order to allow the creation of a variety of apperceptions. Coherent systems are established, and strict interrelations between intertemporal structures are retained on the basis of deferral and integration of impulses, so that a steady course is secured. These subjects operate on the basis of prefixed long-range goals. However, some rigidity and immaturity is shown by their inability to flexibly modify their approach, as they go along. The ego is not sovereign enough to allow all fantasies to obtain free access to cognitive functional areas, and the many inhibitions of spontaneous desires which cannot find proper representation in the situations, occur seemingly in the service of the super-ego, rather than the ego. The effective long-range operations are thus maintained at the cost of flexibility and adaptability, and partial repressions and denials are employed in order to secure the steady course.

These Ss are predictable and controlled in interpersonal relationships, but they rarely show maturity and warmth where true personal involvement is demanded. However, they are conforming enough to fit in with the "group" and they retain



at the same time some creative potentials. They are not self-willed, because they are too frightened to start out independently and not frightened enough to be forced into defensive rigidity. They thus form the core of our modern egalistic culture.

The main prediction for the 2-4-8 c group was 5, and the additional prediction three.

The apperceptive structuring of the multi s groupers may be likened to waves on an ever-moving ocean where shifting winds blow from all sides. Loose "spread-eagles" are scattered throughout the individual's highly productive, but pell-mell apperceptions. They express a gushing fantasy life which is separated from conscious, cognitive control and which operates autonomously like the "sorcerer's apprentice". Unpredictable and shifting, transient, emotional reactions which can be neither deferred nor integrated, bring these subjects very close to true confabulation.

Such confabulation may stem from an unguided interaction between unconscious drive potentials and "outer" phenomena. Where the other apperceptive groups, successfully or unsuccessfully, integrate different personality areas into one unit, these subjects are characterized by a lack of "gearing" between the ego on the one side, and the super-ego and id on the other side. The ego is a non-monitoring bystander.

Whereas creative energy is available and a high degree of emotional involvement is apparent, the investment in organizing, intellectual ego functions is only very slight. Integrative, combinative and constructive faculties are extremely poor. The individuals lose track of what is going on, and it seems to be the task which imposes itself on the subject, rather than the subject who actively attacks the task.

Repressions are only used in emergency situations and the preponderant defenses are archaic projections and displacement. The "unedited" cathectic functions project the problems, which prevail around the inner integration of id and ego, out to object relationships. Just as the id-derived fantasies are unacceptable to the super-ego, so are also the externalized affective relations adverse to conscious preferences. The discussed cleavage between the different personality functions solves in many cases the problem, but when the contradictions become too obvious, then the moralizing quarters order the uncertain ego to utilize manifest repression. This mechanism may be observed in the sudden and full blockings which occasionally take place.

The close relationship between the multi s and the 2-4-8 s groups must again be stressed. The multi s subjects show occasional efforts to exert control by means of sporadic, but violent, constrictions and through the more permanent perseverations; the 2-4-8 s subjects on the other hand show occasional efforts to be relieved from the permanent control through explosive, sporadic dilations. The two defense systems which at first sight appear to be so different may thus, in the last analysis, only present different positions on one single continuum.

Only a shallow degree of self-confidence and self-willedness persists. The multi s subjects, who utilize repressions



in a similar fashion as the 2-4-8 s subjects, apparently do not nurse this defense pattern to the same degree. Thus they seem to be simultaneously led astray in opposite directions due to lack of either stratifying function: that be constructive and integrative potentials or the poorer archaic rigidity.

The main prediction for the multi s groupers on this variable was 1, and the additional prediction four.

The multi c groupers show in the test performances the highest possible level of apperceptive productivity. Their characteristic combination of different substructures within the span of one comprehensive pattern forms a well modulated Gestalt of firm structure. These subjects do not reject structures which do not fit the prefixed mold, but the many diverse structural inclinations are all accepted, represented, and built together in a comprehensive Gestalt. Many different variations are allowed to be imprinted on the apperceptions without these being scattered or incoherent. Open minded alertness to spontaneously arising and ever-changing, symbolically meaningful patterns is exhibited on the basis of confidence and strength.

Abstract-theoretical efforts, smooth reality testing activities, and emotional and imaginative functions go hand in hand in an interdependent, constructive fashion.

These subjects begin with an embracing apperception of a rather undifferentiated whole and proceed then to refine the structures in an original differentiation process, in contradistinction to the 2-4-8 c groupers who conglomerate diverse, single elements until the summative structures match their prefixed image.

The multi c groupers constitute, as it has been repeatedly emphasized, an artistically tinted group of people for whom imaginations and sentiments play an important role. However, they are not victims of their own shifting emotional states, and are able to exert cognitive control and to organize the symbolically cathected structures into coherent complex units. Emotional incentives are accepted and integrated into long termed and differentiated behavioral patterns. The multi c people are able to curb their fantasies without curtailing them.

These subjects are self-willed on the basis of self-respect and self-confidence. They follow their own way because a relative conflict-free function allows for surplus energy, under the guidance of the ego, to be applied to new tasks, and because the low anxiety level makes it feasible to tread a new path.

On the basis of these considerations, the predictions for the multi c group on this variable became: main prediction 7, and additional prediction two. The additional prediction was given not on the basis of the above considerations, but because there was some overlap between the multi s and multi c groups in the subject population.

Abstract-theoretical efforts, smooth reality testing activities, and emotional and imaginative functions go hand in hand in an interdependent, constructive fashion.

These subjects begin with an embracing apperception of a rather undifferentiated whole and proceed then to refine the structures in an original differentiation process, in contradistinction to the 2-4-8 c groupers who conglomerate diverse, single elements until the summative structures match their prefixed image. The multi c groupers constitute, as it has been repeatedly emphasized, an artistically tinted group of people for whom imaginations and sentiments play an important role. However, they are not victims of their own shifting emotional states, and are able to exert cognitive control and to organize the symbolically cathected structures into coherent complex units. Emotional incentives are accepted and integrated into long termed and differentiated behavioral patterns. The multi c people are able to curb their fantasies without curtailing them. These subjects are self-willed on the basis of self-respect and self-confidence. They follow their own way because a relative conflict-free function allows for surplus energy, under the guidance of the ego, to be applied to new tasks, and because the low anxiety level makes it feasible to tread a new path. On the basis of these considerations, the predictions for the multi c group on this variable became: main prediction 7, and additional prediction two. The additional prediction was given not on the basis of the above considerations, but because there was some overlap between the multi s and multi c groups in the subject population.

The summary of the predictions for the final two variables will be conducted in a somewhat different fashion than of the first three, because many of the relevant arguments have been presented once or twice before. Repetition of arguments is rather wearing and consequently, only summarizing statements will be made.

The inner conflicts which have been ascribed the 2-4-8 s groupers keep their anxiety level at a maximum. However, the anxiety level is by no means static. During periods where the repressive forces are in complete control, manifest anxiety recedes somewhat from the surface. However, when the repressive forces become inattentive and the repressed potentials obtain partial release through regressed cathartic episodes, a violent raise in the anxiety level usually follows. High anxiety could thus be predicted on the basis alone of the hypothesized ego dynamics employed in order to predict on the preceding variables. However, apperceptive characteristics interpreted solely in reference to the present variable, anxiety, necessarily lead us back to constructs similar to the ones employed before.

The frequent rejections and the small circumscribed Gestalten suggest both strong intrapunty activities with marked frustration of basic drives, and also withdrawal of cathexis from the apperceptive functions. This withdrawal of cathexis from the surroundings results, other factors held constant, in preoccupation with the own body (or in displaced narcissistic interests). It also leads to absence of long-range planning which would demand more outer bound energy than the helpless and weak ego can muster, and further to lack of reactivity to overt and covert emotional situations.

The permanent cautiousness shown in restrictive selectivity to only a few parts of the surrounding field, and which is due to tense, unpleasant expectations, makes us believe it a rare phenomenon for these subjects to enter into truly dangerous situations. The constriction aims just at avoiding this. A permanent, tense expectancy of possible traumatic experiences prevails as the keynote in their mode of reaction.

The observed stereotypy and perseveration suggests that the common choice of symptom for these subjects may be compulsive, and even obsessive, tendencies.

The main prediction became 7, and the additional prediction 3, for this group.

Many unmodified desires, which are believed to play an exceptionally great role for the 2-4-8 s subjects can clearly enough not be accepted by them, but must be forcibly propped into the "square box". Not permitted release like more lenient and less intense desires, they constitute a constant threat to the ego, which, however, is too strong to permit loss of control with resulting regressive release of these desires. A "dammed-up", covert reservoir of anxiety is thus present in these subjects.

Ego control is not lost under threat, but avoidance and rejection of parts of the surrounding field is apparent in the stratification of the chosen apperceptions. No free interaction is possible - only "cramped", guarded contacts can be made.

However, no breakdown of reality-control results from the partial repressions. The release of choice may take the form of conversion symptoms.

The apperceptions, which only include fully integrated patterns of a certain prefixed character, do not allow for primitive, unstructured formations. Reality control & clarity of structure is retained, but cannot be smoothly fused with unacceptable affective functions which are suppressed to retain order.

The apperceptive approach for this group, again, constitutes a transition stage between the 2-4-8 s and multi c groupers, but the trend toward tense, tight control is dominant. Only strictly deductive processes, with emphasis on the "petite", exact relations, are tolerated. Inductive inferences of a broader scope might upset the tense, unstable equilibrium.

These subjects may be called the "half-way repressors". The relatively limited conflicts leave remaining sufficient funds for the ego to apperceive with some differentiation. They are not forced to modify incessantly the content appearing in consciousness. The ego is stable enough to escape the continuous criticism stemming from introjected restrictive instances.

The main prediction for the 2-4-8 c groupers became 5, and no additional prediction was given.

The multi s groupers constitute a reversal of the 2-4-8 s group on this trait. Cathartic episodes of regressed release states are the rule for these subjects and only under high threat do they reach an anxiety level comparable to the one characterizing the 2-4-8 s group. Affectional needs, even if unacceptable to the super ego, gain continuously active release through unmodified, apperceptive symbolic changes.

The ego is incapable of fulfilling its proper role in the inner play and even excessive danger signals, overwhelming the ego, may be inconsequential due to lack of communication between the different personality areas. If an alarm state, appearing in an unconscious sector of the weak ego and having no consequences in behavior or apperception, should be called anxiety, is a matter of dialectics. The present writer prefers not to conceive of an isolated, inconsequential cue-function of the ego as anxiety proper. For all practical purposes, anxiety does not appear except in such traumatic situations where the ego's violent warnings can be heard from even a great distance.

Their autistic non-conformity is not based on secureness and self-confidence, but results from the high dispersion of cathexis, with no focusing on any particular type of behavioral pattern. That these Ss do not follow group norms is not due to disagreement with these, but due to lacking awareness of their existence. Their non-conformist, headless behavior can therefore not in a meaningful way be related to a low anxiety level.

The mixed, unorganized variability and perseverative stereotypy might suggest a low to medium degree of withdrawal of cathexis. However, the loose inner integration of the personality structure binds only minimal potentials of energy, in contrast to which is true for the 2-4-8 s groupers. Therefore, the externalized cathexis

should be much higher than is apparent from their apperceptive function. Consequently, it must be inferred that high potentials are withheld in autistic, narcissistic bindings.

The main prediction for the multi s group on this variable was 6, and the additional: none.

The multi c groupers show considerable maturity in their continuous and well differentiated percepts. Also, long range planning is apparent in their "long-span", coherent formations. Anxiety is thus contraindicated.

The question of a fantasy-sated apperception (multi c) being regarded as a regressive influence on perception has been posed and discussed previously. This writer thinks that it should not be regarded so, and that the notion is due to lacking differentiation in the description and classification of apperceptive modes. The inclusion of extensive fantasy material in apperception may in some cases not be caused by weaknesses in ego function, but rather be a resultant of a well-founded ego control, which can allow such material to take part in the apperceptual interaction with the outer world. The observable ego functions permit us to assume reasonable satisfaction of affectional needs because, apparently, no reprisals of a repressive nature are necessary to maintain this control.

The full emotional interaction with others is conducted on introverted grounds, with involvement of considerable fantasy potentials. Effects are empathy, maturity, and integration. Apperceptive features are high, sensitive, "projective" integration with emphasis on refined changes, consistency, and interrelatedness of patterns. A low anxiety level must be inferred because primitive, unstructured communications are allowed to take place. Only an inner balance governed by a sovereign ego can allow for such discharge. Conflict-free personality functioning results in only fragmentary absorbance, by the basic ego functions, of the available potentials. Hence, productivity, utilizing excess potentials, becomes a necessity. The most flexible and varied apperceptions comprise one of these materializations.

These subjects show behavioral variability relating complementary, stringent, and coherent patterns within a flexible system adapted to individual demands. Conformity is not the guide-post, and stereotypy is unnecessary. The available surplus energy, cathecting a particular chosen function, is high and leads to persistence and well-willedness.

The availability of surplus energy, leading to full and retained cathexis, is observed in the cognitively extended and emotionally involved constructs. Reality testing is of no major importance, and constriction is out of the question.

The final predictions for the multi c group thus became: main prediction 2, and additional prediction six.

It may be helpful, in an evaluation of the discussed rationales for the predicted low anxiety, to keep in mind that the definition of anxiety utilized in the present research was adapted to the well known Rorschach anxiety indicators. In projective techniques are always observed the results of anxiety rather than anxiety "itself", which here is conceived as an unpleasant signal experience in the ego rather than as the results elicited by this signal.

## Hedonic Level

The excessive pressure of an inflated super-ego, under which the 2-4-8 s subjects suffer, has been repeatedly emphasized. Such repression, not allowing for any unfolding and gratification of primary desires, suggests instantly a low level on the hedonic scale.

The anxious individual shows much preoccupation with anxiety-arousing or distressing aspects in the surrounding field. However, it is difficult to decide when this trait is related to depression, and when it is not. The individual characterized by introversion, high ego-strength and low anxiety have tolerance to approach unpleasant aspects of the field on the basis of a firm footing, which yields predominantly hedonically positive experiences. Whereas the individual characterized by extra-tension, low ego strength and high anxiety is under the pressure of an inflated super-ego and "seeks out" the distressing aspects of the environment in order to inflict on himself punishment for his own "bad" desires. Intrapunitive acts become goals in themselves. The 2-4-8 s subjects fit into the second category. However, it may be possible that intrapunitive activity under certain circumstances reveals itself in constriction rather than depression. Constriction might appease the repressive forces and their punishment then softens. However, this would demand complete constriction which cannot be permanently maintained, the constant painful reproach therefore making itself felt in a hedonically low mood.

One of the important characteristics of this group of apperceives is related to the just discussed problem. The conclusions were arrived at that these individuals have no inner life of import and that they project their conflicts out into the surrounding field. Consequently they would show little awareness of, and preoccupation with, internal unpleasant concepts, whereas they probably would be apt to apperceive outer phenomena as unpleasant. Depressive feelings created by strong intrapunitive activities might thus not be felt as related to the own person, but be anchored in the outer world.

One aspect of elation, as defined here, related to expansive cognitive and behavioral activities. The 2-4-8 s groupers apperceive precisely and acutely in a restricted field. The circumscribed area allows for clearly defined configurations, but lack of energy and anxiety for the uncertain periphery result in haunted and exaggerated interest in inconsequential details. These features are implicit in current concepts of depression.

The 2-4-8 s subjects, deprived of their energy potentials by the never-ending conflict, place much emphasis on reality testing. Where the multi s groupers show a cleavage between the ego and the two other personality functions, one may describe the 2-4-8 s subjects as suffering from a lack of communication with important id factors, which are isolated and denied. Such dissociation may result in cognitive oblivion from unacceptable drives, but the alarm signals which continuously register in the ego, stemming from the bombardment from the unconscious, create a painful mood which cannot be circumvented



by denial or repression.

It is interesting to note the large number of considerations common to the dimensions: constriction and depression. The depressed individual must also be constricted. However, the constricted may not always be depressed, because the constriction might be temporarily successful and oblivate the apperceiving ego from uncomfortable experiences from within due to the obtained encapsulation.

The flat, energy-deprived picture, presented by the apperceptions of these individuals, has developed because the intrapunitive tendencies have blocked the way for cathartic emotional interaction with the outer world. Presumably, therefore, the original large potential must be bound in narcissistic cathexis, and guilt and self-depreciation must be well sized. The depressive self-seclusion is thus congruent with the personality and configurations hypothesized for these subjects.

The predictions on the 7 point scale for the 2-4-8 s group on this variable were: main prediction 5, and additional prediction two.

It has been mentioned before that "high-powered" repressions are supposed to take place in the 2-4-8 c subjects and that only strong original drive levels secure a reasonable imaginative output in spite of the narrow limitations. The imaginative life is scrutinized and over-controlled, although not to the extent presented by the 2-4-8 s group. Introversive fantasy life is being released to some degree, in spite of the threatening character of some of its aspects, and during such release the ego is presumably inflated and active, without, however, being able to release itself in full creation. An average position must therefore be ascribed these subjects.

A continuous combinatory and integrative activity is apparent in the subjects. The constructs are not loose, and considerable interest in precise details and practical soundness prevails. Stringent deduction prevails and prevents the subjects from loosening up through more open and relaxed inductive attitudes. These subjects have "caught" the fluttering butterfly and stratify its exuberant colors and forms into neat and compulsive rectangles. The basic elative material is there, but has been embraced by the intrapunitive stuff, of which depression is made.

The apperceptive patterns are "lukewarm". They are made on the same basis as the structures produced by the multi c subjects, but some especially exciting aspects have been deleted, and only accepted, tempered emotions are released in the interaction within the field. The average position is again established.

The tensely controlled variations on the basis of a prefixed theme indicate a partial release of cathexis in ego-gratifying activity. However, the markedly high affective cravings are, by far, not adequately gratified, and large potentials are withdrawn due to the heavy intrapunitive pressure. This withdrawn cathexis, considerable in size, does not necessarily occupy regressed narcissistic positions. For reasons which will



not be discussed here, these subjects manage to be less influenced by, or to counteract, narcissistic urges. That not only reversed, but also displaced narcissistic trends, as hypothesized, play a part in the picture earlier drawn of these subjects, as hypocritical, idealistic and "nice" people, is throughout plausible.

The final main predictions for the 2-4-8 c group became: 4, and no additional prediction was given.

The apperceptions of the multi s group have been described as evershifting, loose, unintegrated, and quick-flowing; these apperceptive structures were related to the hypothesis that a distant ego was unable to enforce any control or organization on an ever-rambling dialogue between outerseducing incitations and emanating inclinations. The ego had no control over the expansive wave. Such unorganized expansion, or dilation, form a part of the concept of elation, or, in other words, some overlap exists between the variables: dilation and elation. However, elation refers not only to expansive creativity, but also to a quality of mood and a loosening of contour which are not at all implicit in dilation.

The predominant scattered and unelaborated apperceptions suggest that the pleasure principle overshadows the intrapunitive demands. In general, then, these subjects are highly elated. They are either "himmelhoch jauchzend oder zum Tode getruht". Occasionally, a periodic constrictive episode evolves with masochistic and depressive tendencies. Such episodes, however, are exceptions rather than the rule.

We return to the impotent, inefficient ego, which cannot organize psychic relations. A free flow of emanating conatus results in indefinite, dissociated, and mutilated apperceptions. Flux, and undefined patterns are the marks of these subjects, for whom no stringent constructs can be established in the lack of proper controls. Precise observations are washed away in a bubbling stream of conative projections.

The dynamic anarchy underlying the apperceptive confusion leads also to overt, but fluctuating and superficial interpersonal relations, with no clearcut relevance and with no stamina. There is high reactivity to overt emotional attractions, but lacking organization prevents the establishment of deeper-rooted emotional links, so that the result becomes a kaleidoscopic stream of emotions dragging the individual through intense affective, but inconsequential outbursts. This emotional disorganization is paralleled by an ever-dissipating cognitive structure, which at every moment only let the subjects apperceive scattered remnants or fragments of an exploded balloon of configurations.

The predictions, arrived at through integration of the considerations presented, were: main prediction 7, and additional prediction two.

The fantasylife of the multi c groupers is prominent and expanding, but not evershifting and uncontrolled. A strong ego-formation secures a coherent differentiation and integration of all amorphous material arising from the unconscious and unstructured layers of personality, such as symbolistic fantasies and dreams. The emphasis is on integrated, mature aspects of the fantasylife. Release is fully controlled, and the controls are comprised of both cognitive constructs and conative field vectors which serve as pilots. Elation implies unorganized and expanding emotional conduct as described for the multi s groupers. Therefore the full control and integration, which changes the fantasy-laden activities to orderly relations, which attain meaning and significance, will place the multi c groupers lower on the elation-depression continuum.

The apperceptions of these individuals are immaculate and precise without being compulsively prudent. A lax coherent pattern, involving both affective and cognitive elements, results from mature and balanced object-relations. In a personality organization of this type contaminations and incoherent sequences seldomly occur. The ego is much too active and strong to permit a raw, unelaborated break-through from archaic layers. The primitive material seems rather at once to be absorbed and utilized in the service of the ego.

Concerning emotional interaction with others it may be said that these Ss do neither suffer from heavy frustrations and strong intrapunitive activities, nor do "overt" relationships of an emotional nature, with spontaneous and uncontrolled impulsive behavior, prevail. A large cross-cut of personality aspects are involved in emotional interaction with others, but no diffuse emotional discharge takes place. However, the main trend is toward Elation.

The predictions were: main prediction 5, with no additional prediction given.

A partial account of the reasoning underlying the predictions has now been given. The relationship between the predictions and the obtained results will be presented in the following paragraphs.

## RESULTS

The problem under investigation in the present experiment may be expressed in two separate and specific questions, which may be tested in a quantitative form or evaluated in a qualitative fashion.

The first question pertains to the general distribution of ratings on the criterion scales for the four different apperceptive groups. It must be statistically determined with which probability the distributions of obtained criterion scores might have occurred by chance. The principal statistical procedure applied to this question was parametric analysis of variance. The results are summarized in Table I.

ANALYSIS OF VARIANCE OF THE RATINGS OF THE INDIVIDUALS  
ON THE FIVE RORSCHACH SCALES (N = 40)

<u>Variable</u>	<u>Source of Variation</u>	<u>F</u>	<u>P</u>
Introversion-Extraversion:			
	Mode of apperception	6.685	<.01
	Sex	—	—
	Interaction: Mode x Sex	—	—
Constriction-Dilation:			
	Mode of apperception	4.273	<.05
	Sex	—	—
	Interaction: Mode x Sex	2.697	<.10
Ego-Strength:			
	Mode of apperception	8.394	<.001
	Sex	—	—
	Interaction: Mode x Sex	—	—
Anxiety (Males):			
	Mode of apperception	19.881	<.001
Anxiety (Females):			
	Mode of apperception	6.350	<.005
Hedonic Level:			
	Mode of apperception	2.905	.05
	Sex	1.379	.20
	Interaction: Mode x Sex	1.440	.20

Summary of Chi-Square Analyses of 3 x 4 Contingency Tables  
of the Ratings of the Individuals on the Five Rorschach Scales\*

<u>Variable</u>	<u>split 1</u>	<u>split 2</u>	<u>split 3</u>
Introversion- Extraversion	12/34/567 $\chi^2 = 38.71$	12/345/67 $\chi^2 = 28.13$	---
Constriction- Dilation	1234/56/7 $\chi^2 = 27.15$	1234/5/67 $\chi^2 = 36.89$	---
Ego Strength	12/34/567 $\chi^2 = 24.36$	12/345/67 $\chi^2 = 44.38$	123/4/567 $\chi^2 = 26.14$
Anxiety	123/45/67 $\chi^2 = 44.68$	1234/5/67 $\chi^2 = 31.31$	123/4/567 $\chi^2 = 29.68$
Hedonic Level	1234/56/7 $\chi^2 = 23.66$	123/45/67 $\chi^2 = 26.53$	1234/5/67 $\chi^2 = 29.60$

\*A Chi-square of 22.46 is significant at the .001 level of probability.

TABLE III

Chi-Squares from 4 x 7 Contingency Tables  
of the Ratings of Individuals on the  
Five Rorschach Scales

Variable	$\chi^2$	<u>P</u>
Introversion-Extraversion	41.27	.01
Constriction-Dilation	49.39	.001
Anxiety	51.46	.001
Ego Strength	42.50	.001
Hedonic Level	41.69	.01

In addition to this basic statistical test, other test procedures, such as non-parametric analyses of variance and different applications of Chi-square tests, were made. These results are listed in Tables II and III. Stemming from additional tests, they were considered only complementary and clarifying evidence in support of the main statistical results.

The second question is concerned with the precision or correctness with which the predictions were made. This question did not lend itself to statistical treatment, partly because the predictions did not indicate the exact number of subjects expected to be included in the main and additional predictions, but mainly because specific statistical problems appeared inextricable. Consequently, this second important question could only be answered tentatively by inspection and comparison of the predicted and obtained results. Frequency distributions of the Ss on the criterion scales are reported in Figures one to six. Figures one to five include the raw data, each presenting the subject distribution on one variable, also listing the main and additional predictions so that immediate comparison can be made. Figure 6, which summarizes the findings, plot predictions against an approximate description of results in order that an overall view may be obtained.

In order to test the null hypothesis, parametric analyses of variance were applied to the data for each of the five variables. The sources of variation were (i) mode of apperception, (ii) sex, (iii) interaction between apperception and sex, and (iv) within groups. The important F's are those pertaining to the modes of apperception, or more precisely, to the differences between the arithmetic means of the criterion scale ratings for the four different apperceptive groups.

The uncorrected F for mode of apperception on variable: introversion-extraversion was significant beyond the .005 level. However, Hartley's and Bartlett's tests of homogeneity of variance showed that heterogeneity prevailed between the cells, in the present analysis. Accordingly, the significance of the mode of apperception source of variation was decreased by half and interpreted to be beyond the .01 level of probability. The F's for sex and interaction were insignificant.

The interaction between apperception and sex on variable: constriction-dilation was somewhat higher, although far from being statistically significant. The uncorrected F for mode of apperception was significant beyond the .025 level. However, heterogeneity of variance prevailed, and the significant level was accordingly interpreted to be beyond the .05 level.

The interaction F does not approach significance on variable ego strength and the obtained F for mode of apperception is high enough to ascertain significance beyond the .001 level on this variable, inasmuch as tests for homogeneity of variance show insignificant heterogeneity.



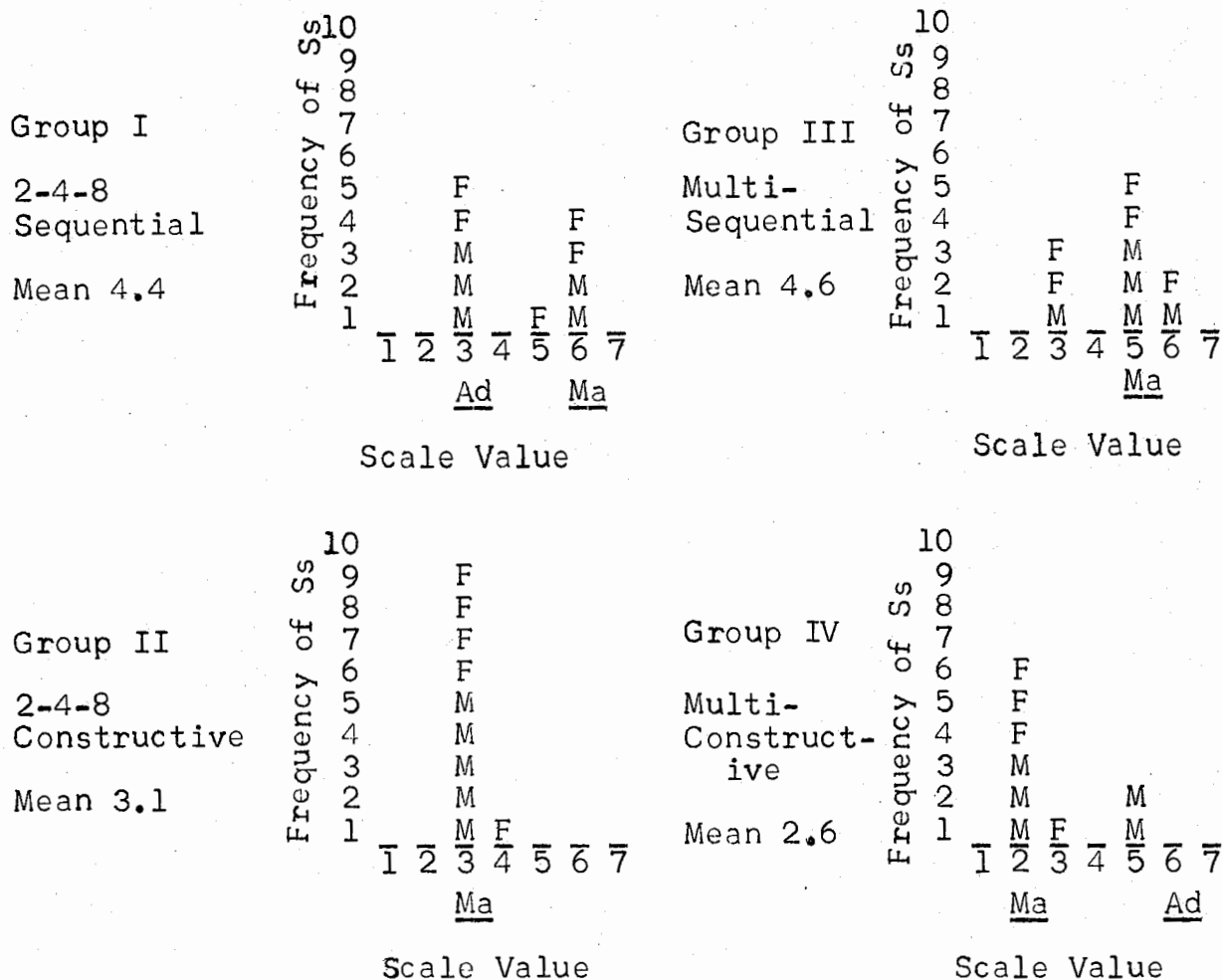


Figure 1

Ratings of the Individuals on the Rorschach Scale INTROVERSION-EXTRATENSION, Var. I.

Ma indicates the scale value for which the mean of the majority of the Ss in that group was predicted to fall. Ad indicates the point where the mean of the minority was predicted to fall. Low scale values refer to INTROVERSION, high scale values to EXTRATENSION. There were ten Ss in each group, five being male (M) and five being female (F).

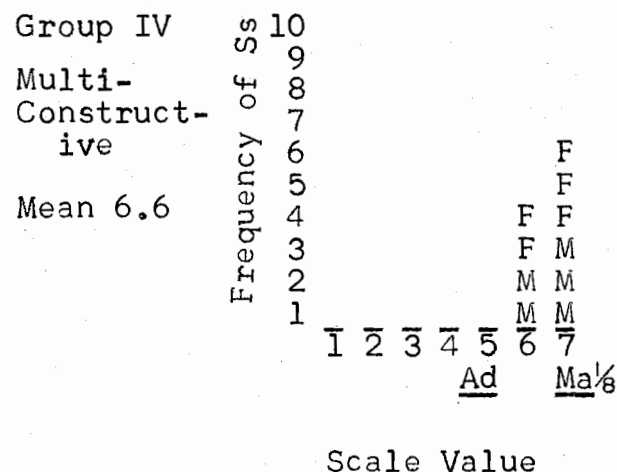
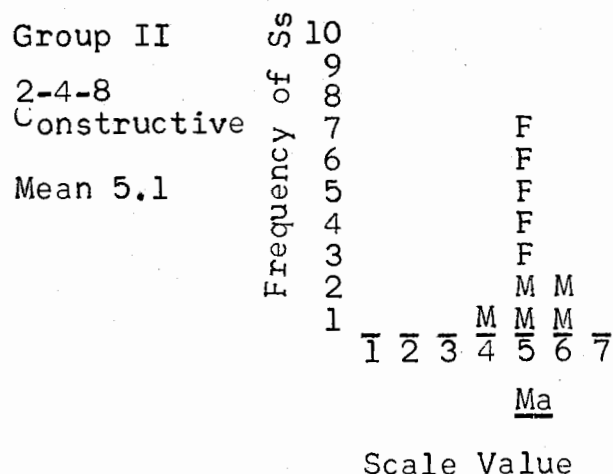
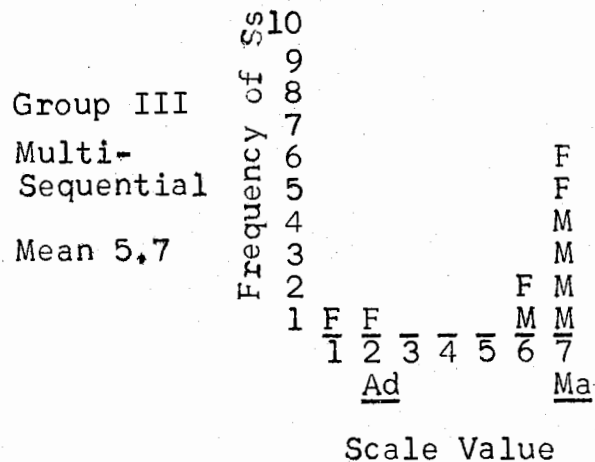
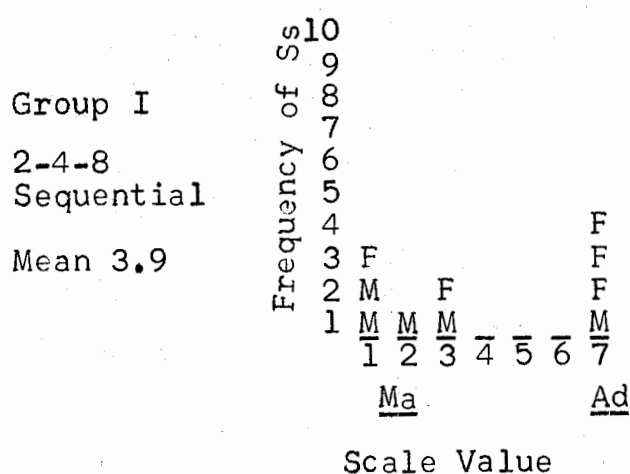


Figure 2

Ratings of the Individuals on the Rorschach Scale CONSTRICTION-DILATION, Var. 11.

Ma indicates the scale value for which the mean of the majority of the Ss in that group was predicted to fall. Ad indicates the point where the mean of the minority was predicted to fall. Low scale values refer to CONSTRICTION, high scale values to DILATION. There were ten Ss in each group, five being male (M) and five being female (F).

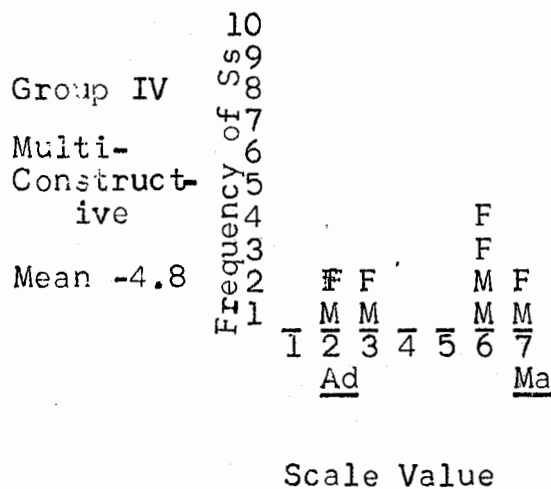
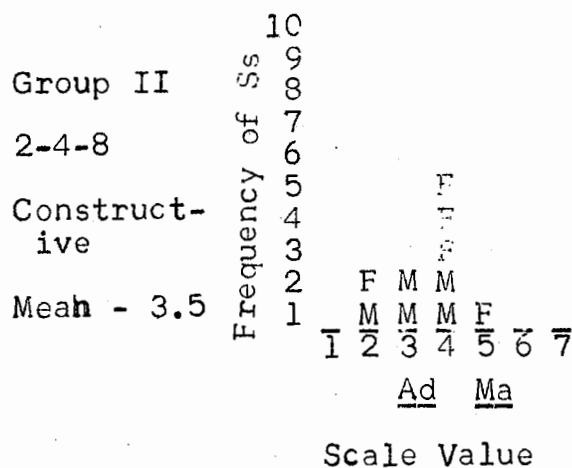
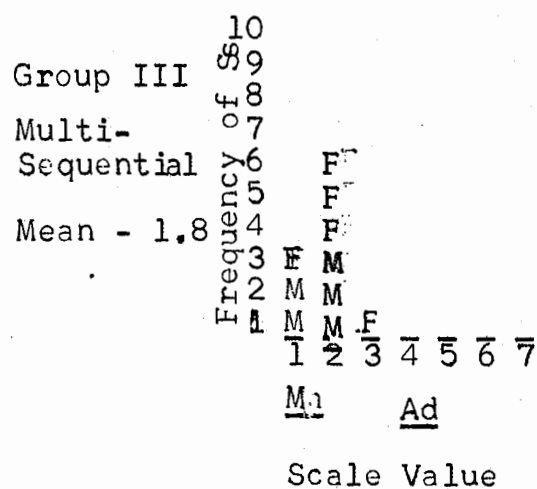
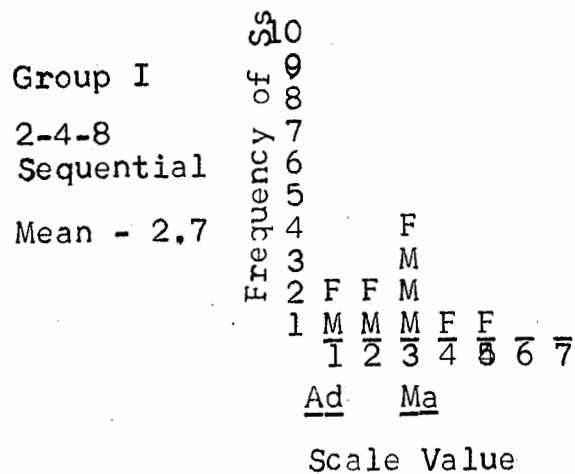


Figure 3

Ratings of the Individuals on the Rorschach Scale EGO STRENGTH, Var. III.

Ma indicates the scale value for which the mean of the majority of the Ss in that group was predicted to fall. Ad indicates the point where the mean of the minority was predicted to fall. Low scale values refer to LOW EGO STRENGTH, high scale values to HIGH EGO STRENGTH. There were ten Ss in each group, five being male, (M) and five being female (F).

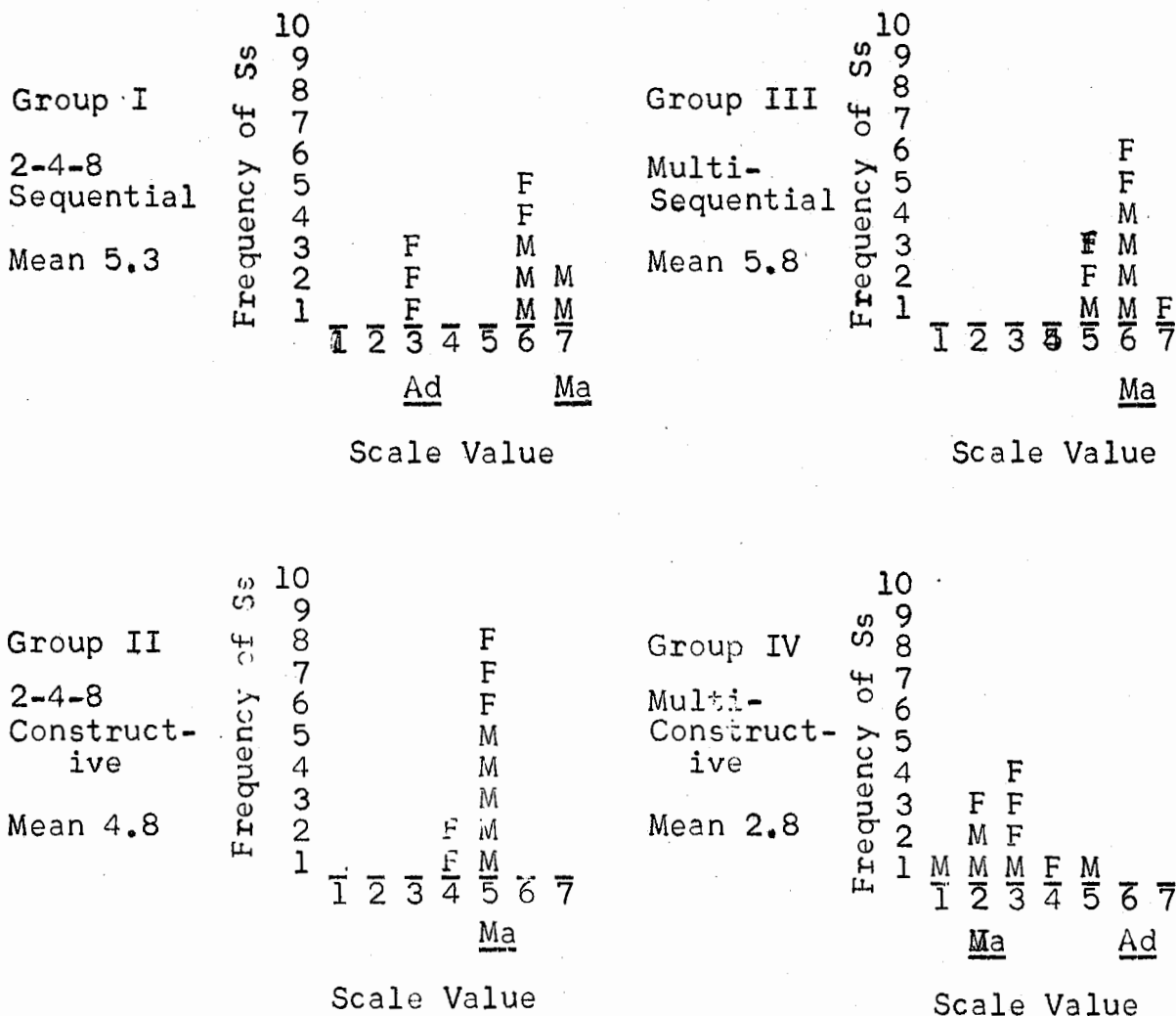


Figure 4

Ratings of the Individuals on the Rorschach Scale ANXIETY, Var. IV.

Ma indicates the scale value for which the mean of the majority of the Ss in that group was predicted to fall. Ad indicates the point where the mean of the minority was predicted to fall. Low scale values refer to a LOW LEVEL OF ANXIETY, high scale values to a HIGH LEVEL OF ANXIETY. There were ten Ss in each group, five being male (M) and five being female (F).

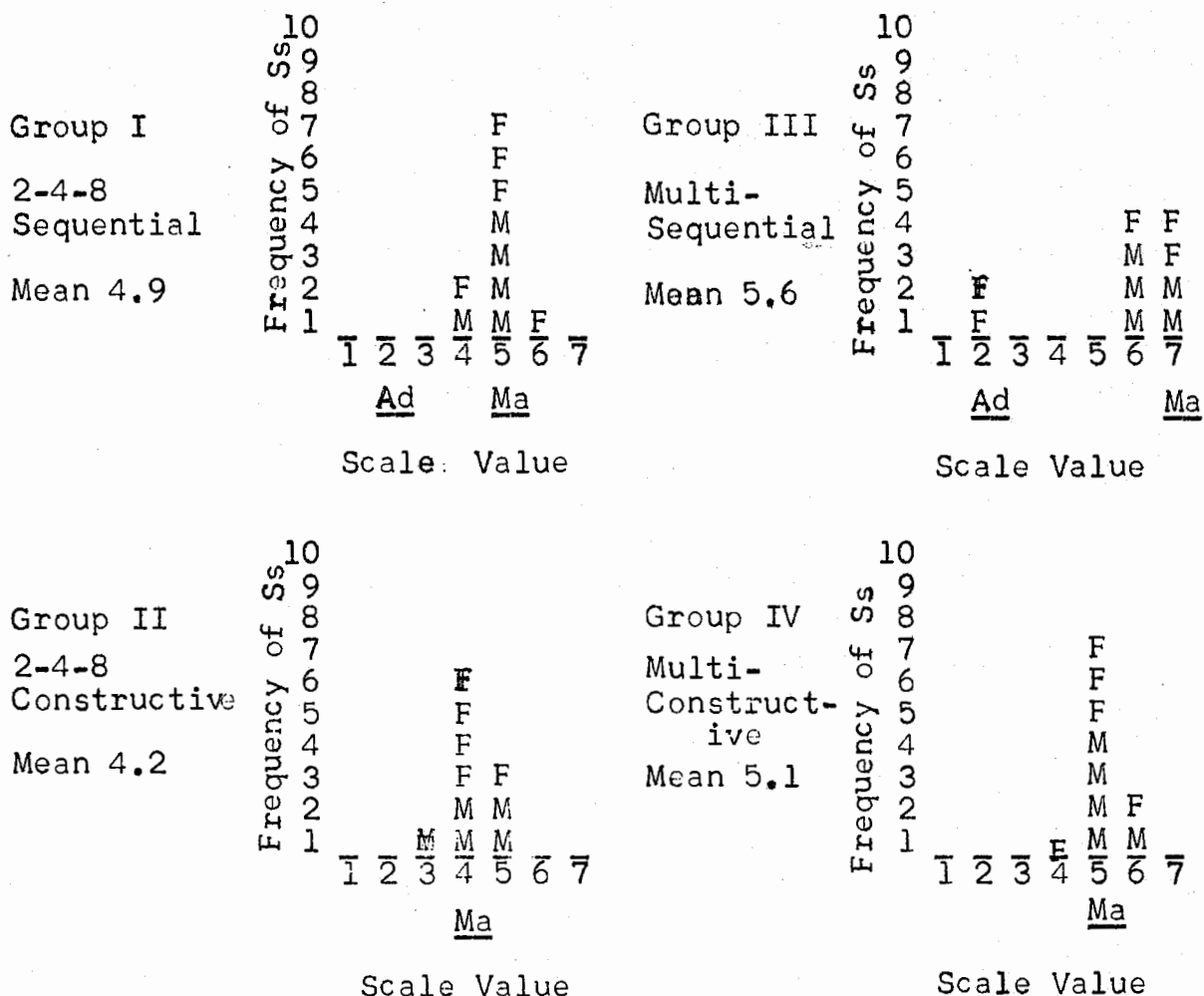


Figure 5

Ratings of the Individuals on the Rorschach Scale HEDONIC LEVEL, Var. V.

Ma indicates the scale value for which the mean of the majority of the Ss in that group was predicted to fall. Ad indicates the point where the mean of the minority was predicted to fall. Low scale values refer to LOW HEDONIC LEVEL, high scale values to HIGH HEDONIC LEVEL. There were ten Ss in each group, five being male (M) and five being female (F).

Mode of Apperception	Introversion- Extraversion		Constriction- Dilation		Ego Strength		Anxiety		Hedonic Level	
	Ma	Ad	Ma	Ad	Ma	Ad	Ma	Ad	Ma	Ad
2-4-8 Sequential	P 6	3	2	7	3	1	7	3	5	2
	O 3	6	1,3	7	3	1	6,7	3	5	-
2-4-8 Constructive	P 3	-	5	-	5	3	5	-	4	-
	O 3	-	5	-	4	2,3	5	-	4,5	-
Multi-Sequential	P 5	-	7	2	1	4	6	-	7	2
	O 5	3	7	1,2	2,1	-	6,5	-	6,7	2
Multi-Constructive	P 2	6	7	5	7	2	2	6	5	-
	O 2	5	7,6	-	6,7	2,3	3,2	-	5	-

Figure 6

Summary table of predictions and obtained results in terms of scale positions on 7 point Rorschach Scales for the four experimental groups.

-----  
Ma indicates the scale value(s) for which the mean of the majority of Ss in that group was predicted to, or did actually, fall. Ad indicates same for minority of group. P indicates prediction and O obtained results.



Interaction between apperception and sex is significant on variable: anxiety. The F must therefore be computed over the interaction mean square as an error term. The obtained F then falls short of the necessary level of significance. However, this finding is due to significant interaction and not to inflated within groups variance. Consequently, two separate analyses, one for each sex, were performed. The small within groups variance now permitted highly significant F's. This additional analysis reveals that apperceptive differences on this variable are as marked as on variable: ego strength.

On variable hedonic level none of the mean squares seem to be especially high. However, heterogeneity of variance is insignificant, and the obtained F for mode of apperception is significant at the .05 level of probability.

In summary, the parametric analyses of variance showed that the four auditory apperceptive groups differed significantly from each other on all the five Rorschach scales.

Used as additional results, non-parametric analyses of variance tended to support the parametric analyses, even if some of the levels of significance differed somewhat between the two sets of results.

A comparison showed that the statistical findings corroborated each other on variable: introversion-extraversion; on constriction-dilation the non-parametric results were more significant than the parametric; the ego strength results again corroborated each other; on variable anxiety the non-parametric analyses gave results highly significant for mode of apperception, just significant for sex, and insignificant for interaction; on variable hedonic level the results again coincided.

Tables 2 and 3 list the Chi-square results. Chi squares obtained from 3 by 4 and 7 by 4 analyses were significant beyond the .01 level of probability. The 3 by 4 analyses yielded significance beyond the .001 level for all variables. The 4 by 7 analyses gave results beyond the .01 level for all, and beyond .001 for 3 of the variables; constriction-dilation, ego strength and anxiety.

Inspectional comparison of the predicted and obtained results showed as a whole a close correspondence between these two sets of data. The reader is referred to Figures 1 to 6, and only the greatest discrepancies between predictions and results will be mentioned.

On variable 3, ego strength, it would seem that both MA and AD were estimated one point too high for the 2-4-8 c group. These subjects did actually not show a clearly and significantly higher ego strength, as predicted, than the 2-4-8 s subjects.

On variable: Anxiety the picture for the multi c group was somewhat clouded. MA was 2 and AD was 3. The results fell in a unimodal distribution around point 2 and three. The variance was greater than for the other single groups. The AD might have been omitted. However, the main trend toward lower scores was rightly foreseen.

## CONCLUSIONS

The statistical analyses made it sufficiently clear that the diverse criterion ratings obtained by the different apperceptive groups only with slight probability might have arisen by chance. The general hypothesis was thus supported, that characteristic and specific modes of apperceiving rhythm, or structures, on the basis of unstructured, equally spaced, auditory clicks are related to a number of other individual differences, as these could be assessed by means of the employed visual projective Rorschach technique, and its quantification in seven-point scales.

The more specific sub-hypotheses pertaining to the single relationships between operationally defined apperceptive types and positions on scales, measuring defined personality variables, were closely linked to the predictive process, as this has been summarized on the foregoing pages. In order to support a hypothesis, that there exist not only undeniable differences between the ways in which individuals apperceive simple temporal sequences, but that these differences seem to be meaningfully related to central personality processes, it became imperative to try to deduce where subjects with certain apperceptive characteristics would place themselves in respect to important personality aspects.

A theory was needed in order to bridge the gap between apperception and personality, and a theoretically slightly modified form of psychoanalytic dynamic concepts were tentatively employed. As the results suggest: it is apparently possible already today, with our limited insight into the most important and central personality processes, to understand some basic relationships between functions as different as: (arbitrarily classified) perception, emotion and behavior (in its original meaning).

A theory is a tool helping us to attain some orientation in the chaos of all areas of life and nature. To look for a "true" or "false" theory is futile, - tragi-comical at best.

With this in mind, an evaluation of the psychoanalytic theoretical constructs used must be very positive. It was evident, that this theory made correct inferences possible between widely different aspects of the human unit. Especially the economical concepts were repeatedly helpful, and appeared as effective cornerstones for comprehensive understanding. The present modest research thus not only supports the initial theories forwarded, but also draws attention to the fact, that psychoanalysis, like other contemporary theories, may be usefully employed in psychological research.