

THE EFFECTS OF INDUCED ANXIETY AND
LEVELS OF IPAT ANXIETY ON
A GESTALT CLOSURE TASK

APPROVED:

Harold D. Hallaway
Major Professor

Sidney Hampton
Minor Professor

Swann Kingery
Dean of the School of Education

Robert B. Toulouse
Dean of the Graduate School

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F. R. Sterling, B. A.

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CHAPTER I

INTRODUCTION

Anxiety has long been a subject of interest to psychologists and within the last several years a subject of much investigation. Despite the vast amount of experimental research done in this area, Cattell and Scheier (3) think that our knowledge regarding anxiety has not increased in proportion to the amount of research effort expended. Instead, only the number of competing tests, concepts and theories have been increased. This lack of proportionate increase in understanding, according to Cattell and Scheier, is due chiefly to outdated methodology (2, p. 2). They feel that the answer to this difficulty will lie in the coordinated efforts to isolate and analyze anxiety through factor analysis, considering only the "hard facts" of research and avoiding theorizing apart from these empirical facts.

In a review of thirteen multivariate analyses of anxiety and its properties, Cattell and Scheier (3) sought to isolate the anxiety factor (or factors) which appeared in batteries containing large numbers of putative anxiety tests. Utilizing factor analysis, they attempted to isolate anxiety as a unitary response pattern, distinguishable from neighboring concepts and not dependent upon specific stimuli. Considered in these studies were 814 (325 different) variables. Ten research

hypotheses were subjected to statistical analysis, and from this vast number of variables, five primary variables were factored out to comprise the second-order factor of anxiety. The five factors were weighted according to the ". . . empirically-determined importance of each component in anxiety . . ." (1, p. 6) and utilized in a forty-item paper and pencil self-analysis scale called the IPAT Anxiety Scale Questionnaire. Hereafter, this scale will be referred to simply as the IPAT Scale. The primary factors and number of each are as follows: Q₃(-), defective integration, lack of self-sentiment, eight items; C(-), ego weakness, lack of ego strength, six items; L, suspiciousness or paranoid insecurity, four items; O, guilt proneness, twelve items; and Q₄, frustrative tension or id pressure, ten items. The scale was further sub-divided into covert and overt subscales with each being composed of twenty items.

Cattell and Scheier's expressed purpose in devising the IPAT Scale was to fill the need for an empirically demonstrable, unified concept of anxiety, one which could be agreed upon by theorists, researchers and clinicians alike (2). Others agree that a re-evaluation of anxiety as it is currently clinically defined is in order. In a study involving thirty-seven male psychiatric patients, Jackson and Bloomberg (8) sought to determine the relationships between purported measures of anxiety. Four measures were used which included the Wechsler-Bellevue Digit Span, the Taylor Manifest Anxiety Scale, two one-minute observations of blink rate, and finger print stain test of palmar sweating.

Upon analyzing the results, it was found that none of the correlations obtained among the four measures differed significantly from zero. The experimenters concluded that the concept and experimental definitions of anxiety should be placed under careful scrutiny. They suggested that anxiety manifestations are multidimensional rather than unitary and that they may even represent uncorrelated dimensions. Jackson and Bloomberg further suggested that anxiety may be considered a second-order factor if there was some correlation between primary factors. Apparently these conclusions were reached independently of work being conducted by Cattell and Scheier at that time.

The IPAT Scale has been used in a variety of research problems. It was used by Edwards (4) in a study which correlated measures of anxiety with the WAIS anxiety-triad, by Fein (5) in relating anxiety to academic achievement, and by Fisher and Kramer (6) in correlating anxiety with measures of defensiveness. Other areas of investigation include perception of environmental threat by Hammes (7), a longitudinal investigation of anxiety in hospitalized juvenile patients, conducted by Moss and Waters (9), anxiety (overt and covert) as related to expressions of hostility by Rawn (10) and the use of volunteers in anxiety research by Scheier (11). These are but a few of the areas in which the IPAT Scale has been utilized. These studies and others will be dealt with later.

Although a limited number of research projects involving anxiety, as measured by the IPAT Scale, and perception have

been undertaken, a search of the literature revealed no major (published) work relating IPAT anxiety to measures of the phenomenon of perceptual closure, the second variable in this present study.

Cattell and Scheier state that with higher anxiety there are notable signs of increases of perceptual errors (2, p. 93). It would seem that anxiety would affect the process of perceptual closure, since what is missing in the perceptual field will be supplied from "material" available to the organism from past experience, mental set, expectancies, inner "needs", frame of reference and other related constructs. Of course this would involve all the sense modalities of the organism, but vision is perhaps the primary sense through which the organism receives external stimuli. But regardless of the modality, it is felt that differing levels of anxiety will have some bearing upon the perceptual process, for it, too, is in many ways related to past experiences, expectancies, inner "needs", et cetera.

Attempting to quantify visual closure, Street (12) devised a test of visual closure in 1931, called A Gestalt Completion Test. The original test itself was comprised of fifteen ambiguous figures selected from sixty on the basis of correct responses of 754 children ranging from the third through the ninth grades. Using the Gestalt Completion Test, Street sought to relate visual perceptual closure, as measured by his test, to other completion tests and tests of intelligence, but he

obtained rather poor correlations, with none attaining any degree of significance.

Street concluded that his Gestalt Completion Test ". . . measures a very specific capacity which is probably involved in the perceptual process." (12, p. 32) He did not feel that the results could be generalized much further than saying that Gestalt closure in his experiment was simply a function of the organism's reaction to pictorial stimuli (12, p. 31).

Street's conclusions notwithstanding, in the case of visual stimuli it is felt that the organism sees and responds in accordance with the organism's interpretation of what is seen. The presence of anxiety, depending on the situation, will affect how visual stimuli is received and in turn have bearing upon the response, the latter being the basis of inferred or diagnosed anxiety.

Statement of the Problem

It was proposed, therefore, that a study be done to investigate the problem of relating anxiety to the phenomenon of Gestalt closure. This study problem sought to demonstrate a systematic relationship between Gestalt closure, in terms of accuracy and speed, and possible interaction between levels of anxiety and induction of anxiety.

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CHAPTER II

RELATED LITERATURE

Cattell, in discussing the need for a unified concept regarding anxiety, states that it is generally agreed that anxiety is a ". . . phenomenon which manifests itself in immediate experience as an unpleasant emotional feeling with a characteristic anticipatory character -- the expectation of impending danger." (9, p. 352) Beyond this there is little agreement. Many theorists disagree on how intense the feeling must be to be termed anxiety, the tenure of the feeling, and whether it is associated with specific precipitating factors or is only a vague feeling.

Some theorists view anxiety as an upsetter of motivation, while others claim that anxiety is an organizer of action. Some theorists claim that all behavior is motivated by the desire to avoid anxiety, or to deal with it when avoidance is not possible. There are those who view anxiety as a signal for the organism to mobilize to meet an imminent danger, while others hold that the presence of anxiety signifies that the organism has failed to meet and deal with a threat.

The lists of contention regarding anxiety is too great to enumerate here; therefore, the reader is referred to Cattell and Scheier's major work (9) and their discussion. Addressing

themselves to issues of disagreement, Cattell and Scheier posed ten hypotheses in an attempt to provide a more unified concept of anxiety:

1. Anxiety is a functional unity, representing conscious anxiety (10, p. 361).
2. Anxiety has no simple, broad relation to "cognitive potential" including ability, achievement, desire to achieve and learning (10, p. 361).
3. Anxiety involves the tendency to agree but is not identical with total desire to conform, suggestibility, et cetera (10, p. 366).
4. Anxiety appears as a lack of self-confidence and self-assurance (10, p. 366).
5. Anxiety expresses itself in self-criticism and guilt (10, p. 367).
6. Anxiety appears in signs of frustration but not aggression (10, p. 368).
7. Anxiety associates with some forms of ergic tension and undischarged physiological excitation (10, p. 369).
8. Anxiety may be identical with a second-order dynamic factor of unchanneled drive tension (10, p. 369).
9. Anxiety shows dysfunction in reduced tempo and inactivity (10, p. 371).
10. Anxiety, while independent of introversion or self-centeredness, implies some withdrawal and unwillingness to venture (10, p. 372).

Cattell and Scheier felt that support was obtained for all ten hypotheses; however, their conclusions and the IPAT Scale which evolved out of their work did not receive the acceptance they had anticipated.

The IPAT Anxiety Scale and Related Research

Bendig (4) administered the IPAT Scale to 100 males and 100 females, who were allowed to remain anonymous. All the test

items were intercorrelated, and after Cattell's five factors were extracted by the complete centroid method, they were rotated to oblique simple structure. Correlations among the first-order factors were factored out and second-order factors were rotated to simple structure. The obtained item factor loading showed little relationship to the assumed factor content, and none of Cattell's five factors could be clearly identified. Of the forty items, sixteen had no loadings above .29 on any of the factors. From the obtained statistical results, Bendig concluded that unless attributed to a sampling and methodology error, the IPAT Scale did not measure the unitary second-order factor of anxiety, but instead confounded two independent second-order factors.

In response to Bendig's failure to obtain a clear confirmation of the five-factor structure utilized in the scale, Cattell and Scheier point out that with components comprised of from four to twelve items, the structure had virtually no chance to appear. To have obtained results compatible with the original research, Cattell and Scheier contended that the five-factor structure must be ". . . founded on an evenly sampled population of measurements, not on the forty-item sample itself, which, however, [they add tenaciously] best represents that structure." (8, p. 6)

In another investigation, Bendig (1) sought to determine the relationship between overt and covert anxiety and changes due to age. One-hundred and four males and one-hundred and fifteen females were administered the IPAT Scale, and four

scores were obtained for each subject (S): total anxiety (TA), overt anxiety (OA), covert anxiety (CA), and a difference score between OA and CA, (DA). Subjects (Ss) were dichotomized as to sex and quadri-chotomized into four age groups (17-22, 23-27, 28-32, and 33 years and older). An analysis of variance revealed no significant sex differences in levels of measurable anxiety. There was a linear decrease in anxiety with age ($p < .10$), but no significant difference between age groupings and CA. The TA scores did significantly increase with age, but the DS obtained a significant ($p < .05$) rectilinear decline with age.

Bendig suggested that the decrease in total anxiety for older Ss was probably due to a decrease in OA with CA remaining relatively constant. Here again, Bendig failed to obtain results consistent with those previously obtained by Cattell and Scheier (9, p. 259-263). Both TA and CA showed a U-shaped relationship with age, but failed to obtain significance. Bendig attributed this partly to the anonymity of his Ss as opposed to Cattell's using data identifiable to the particular Ss. He concluded this as the basis that open admission of anxiety has little or no social desirability.

This latter suggestion has some merit, for anxiety, especially of the chronic type, is often looked upon as a weakness, a flaw within the make-up of an individual. As a result, admission of anxiety may be viewed as an admission of weakness, an admission carrying a great amount of negative valence in

terms of ego-involvement. Cattell and Scheier reported a cross-cultural study of anxiety involving six nationality groups (7; 9, pp. 273-274). All Ss were administered 16-PF items, which had been published in their respective languages. The Ss were matched reasonably well from nation to nation on the basis of sex, age and educational attainment. The estimate of anxiety level was based on a twelve-item total for combined factors of guilt proneness, O, ego weakness, C(-) and ergic tension, Q₄.

Because of the general tenor of life in the United States, it is often claimed that the American "rat-race" must produce more anxiety than any other country. However, of the nationalities tested, the United States Ss scored the lowest on the anxiety criteria. The order from highest to lowest anxiety scores were Poland, India, France, Italy, Great Britain, and the United States. The United States sample differed significantly from all the other nationality groups with the exception of Great Britain. Although the sampling of items was perhaps inadequate, the total sample size (N= 1,392) was significantly large to give some credence to the results and the conclusions drawn from those results. It was suggested that political and national unrest, as in Poland and India, may be the underlying factors for the higher measureable anxiety among the groups sampled. It may also be suggested that degree of candor and spontaneity or the absence of defensiveness might also follow the same order as was the case with anxiety.

In relating anxiety to social desirability (to follow up on his earlier suggestion), Bendig (2) administered the IPAT

Scale and Edwards Social Desirability Scale (SDS) to 238 Ss (110 males and 128 females) to test the hypothesis that there would be a higher correlation between overt anxiety (OA) and the SDS than covert anxiety (CA). Bendig's hypothesis was confirmed with significance, with the correlation between CS and SD ($r = -.56$) being significantly lower than that between OA and SD ($r = -.70$). Other statistical analyses were done, but they were subsidiary to the experimental hypothesis. Bendig concluded that CA was apparently not a useful measure of anxiety except insofar as it operates within the difference score (OA-CA) as a suppressor variable for social desirability.

Bendig's obtained results were supported by a study conducted by Fisher and Kramer (14), who also obtained a significant negative correlation between the Marlowe-Crowne Social Desirability Scale (SDS) and the IPAT Scale broken down into its many sub-scales. The obtained correlations between the SDS and the IPAT sub-scales were TA(-.607), CA(-.544), OA(-.558), Q₃(-.510), C(-)(-.399), L(-.348), O(-.506) and Q₄(-.463). These data demonstrate that the higher the anxiety, the lower the defensiveness. In essence, admission of anxiety may also be seen as willingness to admit fault or diminished need for social approval, which is in harmony with Cattell and Scheier's fifth hypothesis that anxiety expresses itself in self-criticism and guilt. Perhaps this willingness to admit fault or lowered defensiveness is simply another manifestation of anxiety, since defensiveness is considered a mechanism to hold anxiety in check. When anxiety becomes great enough, it breaks through the defense mechanism.

Or seen in the obverse relationship, when defenses are down, anxiety becomes more manifest. At any rate, it is evident that the fewer the defenses, the greater the anxiety. Without defenses the organism is vulnerable to pain.

The above findings were underscored by a study conducted by Wohl and Hyman (39) which compared scores of anxiety measures with scores on constriction scales. The Taylor Manifest Anxiety Scale (TMAS) and IPAT Scale, Canter's Emotional Constriction Scale (EC) and Wohl's Constriction Scale (CR) were administered to sixty-four college students (twenty-four male and forty female) with an age range of from nineteen through sixty-four years, with the mean age being thirty. In addition to the above measure, the K scale of the MMPI was used as a measure of test-taking defensiveness. The K scale was correlated with the other four measures and yielded the following results: EC($-.04$), CR($-.66$), TMAS($-.65$), IPAT($-.55$), the last three being significant at the .01 level.

Since three of the four measures correlated significantly with the K factor, it was concluded that caution should be taken against accepting at face value inventory scores or any self-report protocols alone without other measures. As a part of this same study, it was found that the TMAS and IPAT correlated significantly at the .01 level ($r=.52$); however, with the K factor held constant, the correlation was not significant ($r=.23$). The proposed reason for this result was that the IPAT Scale gives a purported measure of covert anxiety, while the TMAS measures overt anxiety only.

Rawn (29) tested the theory that ". . . covert hostility is related to diminished expression of physical-hostile expression . . . When ego control fails, anxiety becomes overt and direct expression of physical hostility is a likely accompaniment." (29, p. 279) The IPAT Scale and Grace's Hostility Inventory were administered to twenty-two female college students. Exactly one-half of the total group expressed no physical hostile responses, while the other one-half expressed one or more. A Chi Square of the matrix formed by the dichotomies of overt-covert anxiety and absent-present physically hostile responses yielded a value of 4.09, significant at the .05 level.

Rawn concluded that those least prone to verbal indications of physical hostility show the most covert anxiety. Similarly, those most given to physical expressions of hostility had more overt anxiety. A further conclusion was germane to the present discussion. "Noteworthy is the rarity of verbal reporting of a physical-hostile propensity, a factor perhaps related to social disapproval of aggression in the middle class. This makes the appearance of even one such physical-hostile response revealing." (29, p. 280) Thus when ego-control fails, i.e., when defenses are down, the anxiety the defenses were holding in check breaks through, becomes overt and is often accompanied by a physically hostile expression. This is in spite of social disapproval of physical expressions of hostility. This is in support of the results obtained by Fisher and Kramer (14).

In light of the above conclusions, the selection of Ss for experimentation on anxiety is of central importance. Scheier

(32) administered the IPAT Scale to 165 volunteers and 52 non-volunteers. All Ss were naive regarding the purpose of the scale. It was found that the non-volunteers were significantly higher on anxiety scores ($p=.02$) than were the volunteers. Scheier concluded that the psychology of volunteers, at least in some instances, will yield different norms, and presumably laws, than the psychology of the population. Caution should be taken in this respect lest test results are actually a measure of what motivated Ss to volunteer, rather than the domain the experimenter is seeking to investigate.

In another reliability study, Bendig (5) sought to (a) provide estimates of eighteen possible scores derived from the IPAT Scale items; (b) test the hypothesis that the original first-order factors could be derived from a factor analysis of the factor sub-scores rather than from the items; and (c) replicate previous findings as to the discrepancy between predicted and obtained item factor loadings.

Selecting Ss in the same manner as in a former study (3), Bendig subjected the protocols of 200 Ss (100 males and 100 females) to statistical analysis. The obtained results were almost identical with those of another study (2). Bendig suggested again that covert sub-scale items add little reliability to the total scale. However, he concedes a point to Cattell's argument cited above (7, p. 6):

The validity of the IPAT Scale in measuring the five first-order factor components of Cattell's second-order "anxiety" factor must be based on the Psychometric rationale used in selecting these forty

items* for inclusion in the scale and cannot be empirically demonstrated from an internal analysis of the scale alone (5, p. 33).

From that concession, Bendig went on to object to the inclusion of item number fourteen in the scale since in that study, that item "consistently correlated negatively with the other items in the scale." (5, p. 33)

In a follow up study citing the above study and other work (1, 5, 6) indicating that covert items of the IPAT Scale were less reliable in measuring general anxiety than overt items, Bendig (3) sought to obtain reliability estimates of the other seventeen combinations of scores. He administered the IPAT Scale to 425 undergraduate students of introductory psychology, alphabetized the test forms and selected the first 100 male and 100 female protocols for statistical analysis. As in previous studies, Bendig found that reliability of covert items was again low as a measure of general anxiety, concluding that these items add little to the total test. As in the above study, item fourteen was negatively correlated with most (thirty out of thirty-nine) of the other items.

As a result of his findings, Bendig suggested that when time for administration of the scale is short, the covert items may be dispensed with. He further suggested that Cattell's attempt to disguise factor content on the covert items may have been so successful that item validity was lost. However, it

*Italics added by this writer

should also be said in defense of the continued inclusion of the covert items that the covert sub-scale is not, and was not, intended to be an index for general anxiety but rather as the label implies, covert anxiety only, a part of the total second-order factor of anxiety.

As a consequence of the work done by Bendig and others in conjunction with their own, Cattell and Scheier do not make broad expansive claims for the strength of the IPAT Scale as a measure of a broad estimate of anxiety variables.

The IPAT Anxiety Scale is primarily designed to measure free-floating, manifest anxiety level, whether it be situationally-determined or relatively independent of the immediate situation. The scale does not purport to be, primarily, a measure of any of the other variables of anxiety discussed clinically; for example, "bound", "characterological", or "unconscious" anxiety. (8, p. 13)

The authors of the scale have been made quite aware that the covert sub-scale is not a completely reliable measure and consequently does not provide norms for covert and overt sub-scales. The reason for this is that ". . . they (the covert items) are experimental, not even fully crystalized yet as to manner of scoring (ratio, difference, et cetera).". (8, p. 13)

In seeking to determine the usefulness of the sub-divisions of the IPAT Scale, Levitt and Persky (18) speculated that the ratio of covert to overt scores might be considered an index of the degree to which individuals of equivalent anxiety levels are aware of their anxiety. They sought to determine if the IPAT Scale was sensitive to variations in "normal anxiety" as well as differences between normal Ss and psychiatric cases. A

control group of seven student nurses was compared with three experimental groups of six students each. The three experimental groups received 100 mg. of chlorpromazine, 100 mg. of secobarbital and an inert placebo. These groups were then exposed to hypnotically induced anxiety, and a number of measures were recorded which had also been obtained from the control group [Taylor MAS, IPAT Scale, Affect Adjective Check List (AACL) and clinical ratings by two psychiatrists]. The AACL, IPAT Scale and clinical ratings all successfully differentiated the total experimental group from the control group, while the MAS did not.

As another part of the investigation, the IPAT Scale was administered to seventeen females ranging in age from nineteen to thirty-seven years on two occasions, the second administration being two to three weeks after the first; and the correlation between the two administrations was a respectable .94.

Odom and Attwell (28) sought to demonstrate that levels of emotional states progress from "tension", a mild emotional reaction, to "emotional stress", to anxiety, a state precipitous to fear. Section A (covert) of the IPAT Scale was administered to thirty-six upper division students, after which the first half of the final exam for the course was taken by all Ss. During a pause, Section A of the IPAT Scale was scored, and assignment was made of Ss into experimental and control groups. Experimental Ss were excused from the room, and the control Ss performed a variety of tasks unrelated to the test. After ninety minutes, the control Ss were allowed to mingle with the experimental Ss

before completion of the second half of the test. The experimental Ss, after conversing with the control Ss, concluded that the latter had been given the benefit of additional instruction which would assist them on the second half of the final exam.

After all Ss were reassembled in the classroom, Section B of the IPAT Scale was administered, followed by the second half of the final exam. The final exam was a standard form with two forms ranging from .85 to .93 correlation; students received the course grade only on the first half. The performance of the experimental Ss on the second half was significantly worse ($p=.01$) than on the first half. The performance of the control Ss on the second half did not differ even at the .05 level. The results of the IPAT administrations indicated that control Ss experienced a small decrease in anxiety, while experimental Ss "experienced a sizable increase in anxiety." It was concluded that the heightened degree of anxiety for the experimental Ss produced inhibition of test performance.

Working in this same area, Fein (13) sought to determine if an inverse rectilinear relationship between IPAT anxiety and academic performance could be obtained as had been reported by Odom and Attwell (28) and Sarason (31). The IPAT scores were correlated with midterm marks earned by fifty-three freshmen nursing students. A curvilinear relationship was found to exist, with high and low anxiety Ss having poorer achievement than middle anxiety Ss. This finding is contradictory to results obtained by Cattell and Scheier, which was

reflected in their second hypothesis and demands further investigation.

The IPAT Anxiety Scale Compared with Other
Anxiety Measures and Concepts

Perhaps the most commonly used measure of anxiety for purposes of experimentation and research is the Taylor Manifest Anxiety Scale (MAS). This is due in part to the established validity and reliability of the scale. This scale sprang from work on theories of drive (Hull) with Taylor's expressed assumption being that there is a relatively consistent ". . . level of natural anxiety or emotionality . . ." which may be determined by the use of a paper and pencil test (37, p. 285).

While Taylor appears to favor the view held by Cattell, that anxiety as a response pattern is governed chiefly from within, not necessarily dependent upon external stimuli (9), she would also state that situational anxiety acts as a drive for low anxiety Ss, while it acts as an impediment of performance for an initially high anxiety S (36, 38). Cattell, in accordance with his hypothesis number eight, holds that anxiety is neither generalized drive nor specific drive (10).

As the test title suggests, the Taylor Scale is an index of manifest or overt anxiety. Taylor claims for the MAS that it is an index of differences in the chronic emotional state of individuals, but at the same time an index of ". . . differing potentialities for anxiety arousal, high scoring Ss being those who tend to react more emotionally and adapt less readily to

novel and threatening situations than do low scorers." (36, p. 306) In sight of the underlying concepts of the MAS and the validity studies mentioned above, it would seem that the IPAT Anxiety Scale and the Taylor MAS should be highly positive correlative measures.

Moss and Waters (24) in a longitudinal (two year) study of twelve juvenile delinquents utilized the MAS with the MMPI Lie Scale included, the IPAT, the Pain Apperception Test and Semantic Differential ratings of "actual" and "ideal" self to determine changing levels of anxiety over time. The first and second test administrations were three months apart, the third administered after nine months and a follow-up twenty-two months later. All four tests were given on each occasion. The attrition rate, due to discharge, reduced the group to eight at the third testing and six at the time of the last testing. Despite the small N, the rho correlates between MAS and IPAT were .35, .69, .68 and .72, the last three being significant at the .05 level. It was also found that Ss with elevated L scores almost invariably obtained low anxiety scores. Finally, it was concluded that when the MMPI validity score is within normal limits, the MAS and IPAT Scales were sensitive indicators of so-called clinical anxiety. This is in keeping with the results obtained by Wohl and Hyman (39) cited above in which the correlation between the MAS and IPAT Scales was .52, significant at the .01 level when the MMPI K Scale was held constant. The Moss and Waters study's implication that a "lie factor" needs to be considered when evaluating test results is also supported by Wohl

and Hyman's caution against accepting inventory scores at face value.

The point of the Moss and Waters study most germane to the present point of discussion is that the MAS and IPAT did correlate positively and significantly. But such results are not always obtained as in the study by Levitt and Persky cited earlier (18). While the IPAT Scale in that case appeared to be a more sensitive measure of differential anxiety states than was the MAS, perhaps the very reason is one mentioned earlier: the presence of the IPAT covert anxiety sub-scale. The hypnotic states of the experimental Ss in and of themselves reduced inhibitions not present in the control-normal Ss. The IPAT Scale purports to tap covert and overt anxiety, while the MAS claims, to be an index only of overt anxiety. The covert sub-scale, though of questionable validity, gave the IPAT Scale the edge over the MAS in that instance since hypnosis diminished the propensity for defensiveness and inhibition. In addition it should be noted that no lie or defensiveness variable was tested, which when viewed in the light of the aforementioned caution, the results of the Levitt and Persky study lend support to the two previous studies. Finally, it should be kept in mind that the MAS is loaded with chronic somatic manifestations of anxiety, while the IPAT has a wider range of anxiety manifestation items (27). This basic difference in the scales alone might bear the weight of low correlation under the experimental conditions of the Levitt and Persky study.

In an effort to provide empirical evidence regarding Wechsler's view that low scores on the WAIS anxiety triad (Digit Span, Digit Symbol and Arithmetic sub-scales) were accurate measures of the presence of anxiety, Edwards (11) sought to correlate this triad with the IPAT and Taylor MAS. All scales were administered to seventeen college students (ten males and seven females), six adults not in college (four males and two females) and two high school students (one male and one female). The median age of the total group was twenty-two years, and IQ range was 104-133 on the Wechsler Bellevue Scales. The results showed that " . . . in every instance when the IPAT was correlated alone with either the triad or all timed WAIS sub-tests, it did so better than the MAS or the IPAT and MAS combined." (11, p. 146) Using the Spearman rank difference formula, the MAS and IPAT raw scores correlation was .756, significant beyond the .001 level.

Seeking to determine the effects of manifest and induced anxiety upon reaction time, Nash, Phelan, Demas and Bittner (25) experimentally induced anxiety in an experimental group composed of high, medium and low anxiety Ss, as measured by the MAS, by the use of electrical shock. In a 3 X 2 X 2 factorial design, all Ss were to press a telegraph-type key as quickly as possible after the onset of a stimulus light. The experimental Ss were shocked just prior to trials 1, 3, 5, 6 and 9 to produce anxiety. Ten trials were allowed for all Ss.

The results were that simple reaction times of Ss subjected to stress were significantly slower than those of the

non-stress Ss. As a concomitant aspect of the experiment, it was found that alternating experimenters significantly influenced reaction time. It was concluded that anxiety as measured by the MAS does not affect simple reaction time, since no interaction appeared between the levels of manifest anxiety and the inducement of stress or no stress on reaction time, although there was a trend in that direction.

Reynolds, Blau and Hurlbut (30) conducted two experiments to test the drive theory predicting higher performance for high MAS scorers than low MAS scorers in simple, non-competitive performance situations. In the first experiment, thirty-six male and thirty-six female subjects performed simplified addition problem tasks with one-half of each sex group scoring twenty-two or above on the MAS and one-half of each sex group scoring nine or below. The main effect of anxiety level tended to indicate that high MAS scorers performed faster than low scorers, but this did not attain significance.

For the second experiment, thirty-four male Ss, divided into seventeen high and seventeen low MAS scorers, were required to draw a line above the symbol X and below the symbol O which had been typed on a single page in random order (eighty of each). A t ratio was computed for between-groups performance which attained significance, but analysis of errors revealed non-significant trends. With the first experiment approaching significance and the second attaining significance, the authors concluded, ". . . in general, the predictions of drive theory for

such (non-competitive, simple speed in task) situations were confirmed." (30, p. 343)

Cattell's ninth hypothesis contradicts the conclusion of the above study. In reporting findings which sought to relate his second-order factor of anxiety to tempo and initiative, it was found that high anxiety was related to such things as slow tempo of leg-circling, slow irregularly-warned reaction time, slow speed in judgment in letter comparison, number comparison and deliberateness. Also it was reported that faster reading speed was a low loading marker and seventeen other speed, fluency and tempo variables were non-markers. Here the concepts underlying the IPAT Scale is again found to be unharmonious with that of the MAS, although the reported correlations between the two scales have been consistently high.

Much current research is being done in which induction of anxiety is utilized. One such area is the estimation of time intervals by Ss who have been placed in an anxiety provoking situation. Falk and Brinda (12) had twenty experimental Ss judge the passage of fifteen-second time intervals. They were given five practice trials and then twenty trials, with ten trials involving shock given at random order. After this, five "extra trials" without shock were given. Twenty control Ss were treated in the same manner, but without electrical shock. Non-shock intervals were begun with the onset of a bell and shocked intervals with a red light.

It was found that the experimental Ss significantly overestimated the time intervals, but no difference was found

between shocked and non-shocked trials. The experimenters suggested that Ss did not discriminate motivationally between the shock and non-shock signals (red light and bell), but they were nevertheless affected by the shock situation. They concluded that knowledge of forthcoming shock affected not only shock trials, but affected equally all the judgments made in the shock situation.

Seigman (13) sought to determine the relationship between anxiety and estimation of temporal intervals, but broadened the Falk and Brinda experiment and included intelligence and impulse control. Seigman further sought to demonstrate that stress increases the perceived duration of chronological time.

Thirty-six undergraduate students were administered the MAS and some eleven intelligence tests. Each S was presented time intervals of twenty and five seconds with five second inter-trial intervals. At the end of the treatment all Ss were asked if they were anxious for the experiment to end. All replied negatively.

The results indicated a positive correlation between anxiety level and perceived duration of time intervals. Intelligence was not a source of variation in time interval estimation, but impulse control which was measured by the Ss' performance on a task in which they were told to trace a circle as slowly as possible was positively related although it failed to attain significance. The correlation between anxiety and impulse control ($\tau = .341$, $p < .01$) suggested that anxiety is a significant source of variation in impulsivity. Seigman concluded, "If anxiety is viewed

as a drive, it is not at all surprising that the more anxious S is also more impulsive in the sense of having a lower response threshold." (33, p. 104)

Following the design of Falk and Brinda (12) and Seigman (33), Hare removed electrodes from the fingers of experimental Ss on neutral (non-shock) trials to determine if both conditions, shock and neutral, were "motivationally equivalent."

(16) The results indicated that time intervals followed by shock were overestimated to a greater degree than when no shock was given. The results also supported the hypothesis that when electrodes were removed, the shock and neutral conditions were more motivationally distinct. The reason for the different results and conclusions between this and Falk and Brinda's study may also be explained by the fact that the electrodes on the fingers of the Ss were a more convincing cue of imminent shock than were the shock and neutral signals. As long as the electrodes remained on the fingers, as in the former study, the Ss may have been made more anxious even on neutral trials than the Ss used by Hare.

It has been generally found that females are basically more anxious than males. Viewed from Taylor's standpoint (37) and Cattell's (7, p. 20), females should demonstrate a greater reaction to anxiety provocation than males. As the result of comments made to one of the investigators, Wells, Hilton and Liebman (40) sought to determine if men or women were more anxious on visits on the dentist. A poll was taken from fifty dentists in the city of Newark, New Jersey, the results of

which were that men were more anxious than women, 50 per cent; women more anxious than men, 12 per cent; and no difference 38 per cent. To further implement the study, observation ratings were made of sixty-three dental patients at five dentists' offices by two raters and a self-rating anxiety questionnaire of thirteen items, largely paraphrases from the Sarason Test Anxiety Scale.

The results of the observations were that there was no significant difference between six groups on anxiety reaction. The trend was in the opposite direction of what was hypothesized, that men are more anxious than women, but was not significant. The principle result of the questionnaire was also in the same direction, although it, too, failed to attain significance ($t = 1.93$ with 16 df $p = .07$). The correlation between the observed ratings and self-ratings was approximately zero. This suggests again that behavior and self-rated feelings cannot be safely inferred from one another.

The suggested reason for the above results was that sex-role expectancies of our culture are that men behave like men and women like women. When men do not come up to expectations, they are considered more anxious than they actually are; and when women exceed expectations, they are viewed as less anxious than they are. It should be noted that the comment which precipitated this study was made by a woman. When behaviors of individuals are evaluated across sexual groups, these expectancies and resultant evaluations are compounded and heightened.

In another study of induced anxiety which was not conducted in the laboratory, McDonnell and Carpenter (21) sought to relate manifest anxiety as measured by the Mandler-Sarason General Anxiety Scale to pre-stimulus skin conductance. Recordings of skin conductance levels were taken while thirty-two male and eight female graduate students were actively playing cards. All Ss had been previously tested on the Mandler-Sarason Scale. A definite curvilinear relationship was found between the two measures which the experimenters concluded was an indication that anxiety level cannot be predicted on the basis of skin conductance alone, a conclusion born out in much research as reviewed by Martin (20). In the McDonnell and Carpenter study no significant sex differences in either of the measures or the curvilinear relationships were found.

Cattell, in discussing characterological and situational anxiety, states that characterological anxiety has at least two sources.

Contributions to the level of characterological anxiety arises not externally . . . , but internally from (a) temperamental differences . . . giving greater reaction to exactly the same situation and (b) differences in aspiration levels and goals causing the same situation to threaten more loss Since these traits determine individual differences in the magnitude of response to the same stimuli, and since they tend to magnify anxiety responses out of all proportion to the danger in the given threat, they are best considered sources of characterological anxiety (9, p. 15).

Although Cattell states that an individual's reaction to present threat may arise in part from "signals of danger as he has known it" and that characterological anxiety will be greater in individuals whose signal system gives an astigmatic perception of

reality (9, pp. 15-16), he also states that ". . . other things being equal, a person with more irons in the fire is more vulnerable to a wider range of threats." (9, p. 20) This not only refers to material involvement, but must surely include the emotional investments associated with those material involvements as well as emotions arising from the internal processes of each individual.

Nicolay, Walker and Riedel (26) conducted an investigation of the relationship between anxiety and a wide variety of personal problems. They sought to (a) test the clinical belief that persons having a large number of personal problems would have greater anxiety and (b) explore the relationship among sub-types of anxiety and major problem areas. Seventy-two Caucasian females of ages eighteen through twenty-three years involved in an introductory psychology class were used as Ss. All Ss completed the Mooney Problem Check List (MPCL) and the Nicolay-Walker Personal Reaction Schedule (PRS).

The MPCL includes 330 items in eleven problem areas which are health and physical development; finances, living conditions and employment; social and recreational; social psychological relations; personal-psychological relations; courtship, sex and marriage; home and family; morals and religion; adjustment to college work; future, vocational and educational; and curriculum and teaching procedure, all of which yielded an aggregate score. The PRS involved three measures: motor tension (M) -- characterized by concern with external achievement and physical tension which acts as a defense against

feelings of inadequacy; Object (O) --characterized by concern that external demands and perceived expectancies may be overwhelming and one may suffer harm; Personal inadequacy (P) --characterized by concern that one may not be capable of meeting the difficulties of life. A total score was also obtained for the PRS.

Of the forty-eight combinations of sub-scores and total scores of both measures, five were statistically significant at or beyond the .05 level and twenty-six beyond the .01 level. The results supported the first hypothesis, but no clear pattern of relationships was obtained between sub-types of anxiety and the specific problem areas. Notable problem areas were health and physical development, social-psychological relationships, personal-psychological relations, adjustment to college work, and total problems checked, all correlating highly with the three sub-types of anxiety and aggregate scores on the PRS ($p < .01$). These findings were clearly in keeping with the view held by Cattell and Scheier.

Anxiety and Perceptual Closure

While it is true that the IPAT Scale is relatively new as an anxiety measure, it is one of quality of development and of demonstrable validity and reliability. In light of this, there is an incongruous sparsity of its use as an anxiety measure in current anxiety research. A careful search of the literature revealed that there are no reported major investigations which

related anxiety, as measured by the IPAT Scale, to perceptual closure and few to other aspects of perception. Many other instruments purporting to measure anxiety have been employed in studies of this relationship, but due to differences of a conceptual nature between many of those measures and the IPAT Scale, results of those studies are not always amenable to generalizations over to the IPAT Scale. Some of the measures used in relating anxiety and perceptual closure are the Taylor Manifest Anxiety Scale (MAS), the Levitt Decision Location Test (anxiety inferred), Children's Manifest Anxiety Scale (CMAS), the Sarason Scale of Test Anxiety, and the Heinman Forced-Choice Anxiety Scale. Included in the measures of perceptual closure were the Mooney Closure Test, tachistoscopic manipulations of figures, numbers, words and pictures, the Street Gestalt Completion Test, Holtzman Figure-Recognition Test achromatic and chromatic forms, Witkins' Embedded Figures Test, and the Hidden Digits Test.

In the judgement of the experimenter, it seems logical to assume that if an individual is highly anxious, he will view and respond to environmental stimuli, both threatening and neutral, in a different manner than a person of a lower level of anxiety. It is reasonable to assume that the degree of anxiety determines to a large extent how one perceives the stimuli of one's life and that perception in turn determines, in part, the response of the individual to the incoming stimuli. This is the case with the reaction of the individual in seeking to

alter the external environment to alleviate the provocation of anxiety, as well as the heightened "feelings" of anxiety in the internal environment. The anxiety level which initially sets this cycle of events in motion might best be considered characterological in nature. As Cattell has pointed out, the level of characterological anxiety is not necessarily related to any particular immediate objectively observable danger. Here it seems important to consider the internal environment -- past experiences and constitutional characteristics -- which in part determine individual differences in responding to similar or the same stimuli. In light of what is known about conditioning, memory, per se, need not enter in to influence one's response, while under certain conditions it might. As Cattell put it, anxiety reaction to immediate environmental stimuli may arise from an experience

. . . historically remote, and long embedded in the sentiments and complexes of the individual, so that he is reacting to signals of danger as he has known it, rather than to a fresh and realistic appraisal of possible danger in the present situation in relation to his personality resources (9, p. 15).

The greater the similarity between present and past experiences in which some form of pain is involved, the greater the probability and degree of an anxious response to the present set of circumstances.

Intolerance of ambiguity has long been considered to be an integral aspect of the anxious individual's dynamic characteristics. Ambiguous stimuli will perhaps impel the highly anxious person to close prematurely in an effort to derive meaning, but

in so doing he derives an astigmatic meaning from the stimuli. Horn (17) divided forty Ss into high and low anxiety groups on the basis of the Taylor MAS. Both groups were administered the same perceptual task of correctly identifying twelve stimulus words shown at increasing degrees of clarity until correctly identified. Her results were for the most part insignificant, but there was a significant difference of between-subject variability when the performance of the low and high anxiety male and female Ss were compared. Horn concluded that MAS anxiety does not operate as an interfering drive in a perceptual task which involves no threatening factors.

It was earlier suggested that perhaps highly anxious individuals close prematurely in an attempt to extract meaning from an ambiguous, thus uncomfortable experience. If Horn's conclusion is correct, then premature closure coupled with lowered perceptual accuracy would be expected of highly anxious Ss in threatening circumstances. Moffitt (22), utilizing a closure test consisting of a cross within a square made up of dots and circles, tested the relationship between anxiety and closure. Each S was shown the entire figure, and later, tachistoscopic exposures with one or more lines missing were presented under threat and non-threat conditions. Th S tested under threatening conditions indicated that they "saw" more of the missing lines than did Ss under non-threat. The fact that threatened Ss saw more often what was not there is an indication that the highly anxious individual will tend to make more perceptual errors

than will individuals of lower levels of anxiety when perceiving a situation as threatening. One might also expect that highly anxious Ss in a perceived threatening situation will be more cautious than will Ss of lower levels of anxiety in the same situation. However, under non-threatening conditions, this same relationship probably will not exist. It seems feasible to expect that the higher the anxiety, the better the quality of perception as well as the faster the speed of closure.

In another study, Moffitt was joined by Stagner to investigate perceptual rigidity and closure as functions of anxiety (23). Utilizing a 2 X 2 X 2 factorial design (manifest anxiety X threat X sex), forty Ss scoring above twenty-six and forty scoring below seven on the Grice revision of the Taylor MAS performed under threatening and non-threatening conditions on a variety of perceptual tasks. Threat involved instructions to Ss which suggested that the Ss might have neurotic personalities. Non-threat conditions emphasized test standardization and lack of interest in individual scores.

From the results, Moffitt and Stagner concluded that manifest anxiety and induced anxiety are not functionally identical since manifest anxiety lead to differences far smaller than those derived from threat-induced anxiety. Moffitt and Stagner felt that the homogeneity of differences in the manifest anxiety variable may have been due to anxious Ss viewing the experimental threatening, while the non-anxious Ss did not. These investigators further concluded that the threat-induced anxiety will modify the perceptual process through increased constancy

(rigidity), despite contrary subsequent cues. Threat-sex interaction, with females giving higher anxious responses, was significant at the .05 level, but there was not significant interaction between sex and manifest anxiety.

Although anxiety responses in adults closely approximate those in children, generalizations may not be made from one to the other. Cattell states that timidity (H-) is much higher in children and, as a result, excitability (D) appears. According to Cattell, ". . . this suggests that external fears and frustrations may be relatively more important in the etiology of anxiety in the child." (9, p. 96) Apart from the constitutional factor of timidity, it would seem the children would differ in anxiety response levels since adults have a greater range of experiences to draw upon, thus broadening sentiments and interests and enlarging goal aspirations. As a consequence, adults have more to be anxious about than do children due to greater involvement.

Smock utilized fifty-eight junior high students, twenty-seven females and thirty-one males, ranging from twelve to fourteen years of age to investigate the relationship between intolerance of ambiguity, generalization and speed of perceptual closure (35). Anxiety arousal was inferred from responses to the Levitt Decision Location Test with early and late responders being considered anxious Ss. Early responders were considered anxious because they were seeking prematurely to structure ambiguous stimuli, and the late responders anxious

because of their extreme caution in responding to the ambiguous stimuli.

The results of Smock's study led him to conclude that early and late responders on the Decision Location task behave similarly with respect to the measures of generalization and speed of closure. This was consistent with his hypothesis that anxiety is one determinant of the behavioral correlates of intolerance of ambiguity. The latency of responses to a modified form of the Street Completion Test was used as measures of speed of closure. Although there was no significant difference between early and late responders on the closure test, there was a difference between those groups and Ss whose responses clustered around the mean response time. It appears that the obtained results of Smock's study arise in part from a dubious criterion. In looking back on that criterion, it seems that he had not one group of anxious children, but one of high and one of low anxiety levels with early responders being higher in anxiety level than late responders. His criterion led to bland, or possibly faulty conclusions.

In a later investigation, Smock corrected aspects of his previous design (34). One-hundred and eighteen fifth grade students, fifty-four females and sixty-four males, were divided into high and low anxiety Ss on the basis of the CMAS. All Ss performed at a closure task using a modified form of the Street Completion Test with stimulus cards divided into classes of

high, medium and low difficulty. In addition to this task, all Ss responded to the Levitt Decision Location Test. There was no significant difference between anxiety groups on DLT performance. However, the main effect of degree of difficulty on the closure task and level of anxiety was significant ($F=5.48$, $.02 > p > .01$). The main effect of difficulty level and interaction between anxiety and difficulty were both highly significant ($p < .001$). It was also found that high anxiety Ss had a shorter latency period than low anxiety Ss only on the easy closure tasks. This hints strongly at the supported hypothesis (number ten) of Cattell that anxiety implies some withdrawal and unwillingness to venture. If this may be generalized, it would seem feasible to predict that as ambiguity increases, so does latency of response for highly anxious persons, especially for children and perhaps for older Ss as well.

How do individuals of differing levels of anxiety respond to a perceived threat? Do high anxiety individuals chronically perceive more situations as threatening than do those of lower levels of anxiety, and, if so, is there a differential concomitant effect upon resultant behavior of those individuals? Hammes (15) administered the Heineman Forced-Choice Anxiety Scale to 169 college students, and randomly selected 27 high and 27 low anxiety Ss for further testing. After several weeks a word list comprised of dangerous, aggressive, or threatening and non-dangerous, aggressive or threatening words were administered to the Ss. The Ss were told that the word list was an

attitude test and they were to rate the words on the basis of whether the words were dangerous, aggressive and threatening, or if they were the opposite of these. A seven-point rating scale was used. The results indicated that high anxious Ss tended to evaluate environmental stimuli much higher on dangerous, aggressive and threatening than did low anxious Ss. Hammes concluded:

It is possible that the dimension measured . . . aroused anxiety in the testing situation, in which case "situational" anxiety would account for higher ratings by HA Ss. However, insofar as the objects rated were ones commonly found in the environment outside the laboratory, it appears more conceivable the anxiety as a personality characteristic influenced the Ss' perception and consequent evaluation of these objects. The chronic hypothesis, in the author's opinion, seems to be favored (15, p. 26).

Hammes' conclusion is quite harmonious with Cattell's assertion that anxiety is an individual response pattern governed chiefly from within and not necessarily dependent upon specific external stimuli.

Longnecker (19) sought to relate anxiety and perceptual recognition. Seventy-two male sophomore college students were divided into high and low anxiety on the basis of the Sarason Scale of Test Anxiety, high and low motivation on the basis of under- and over-achievement in college grades and high and low need achievement on the basis of the Edwards Personal Performance Scale. All Ss were given these recognition tests: Holtzman Figure-Recognition Tests, chromatic and achromatic forms, Witkin's Embedded Figure Test, Hidden Digits Tests and Mooney Closure Test. The experimental Ss performed the recognition

tasks under ego-threat conditions, being told that the tests were new kinds of IQ tests highly related to grades and academic standing. Control Ss performed in a relaxed atmosphere and were told that it was not known what the tests measured.

In the stressful situation, high anxiety and high motivation groups performed significantly less well than did low anxiety and low motivation groups respectively. In the non-stress situation, the obverse relationship was obtained.

Statement of the Hypotheses

From the above research findings and conclusions it was hypothesized that in relating levels of anxiety to a simple perceptual closure task, the following would obtain:

1. An interaction effect between levels of anxiety and anxiety induction is expected to be demonstrated by the criterion measure of closure quality with low anxiety (LA) and middle anxiety (MA) Ss responding with higher quality than control Ss of comparable anxiety levels, with MA sub-groups of both experimental and control groups responding with higher quality than their respective LA sub-groups. With respect to the two high anxiety (HA) sub-groups, it is expected that the control HA sub-group will perform with better quality than the MA and LA control sub-groups, and the experimental HA sub-group less well than MA and LA experimental sub-groups. It is also expected that the experimental HA sub-group will perform less well on this criterion than will the HA control sub-group.

2. A similar interaction as that described above is also expected to obtain with the criterion of closure speed. In the case of the control sub-groups, it is expected that as the levels of anxiety become greater, speed of closure will become more rapid. For the experimental sub-groups, it is expected that MA Ss will respond more rapidly than LA Ss and that HA Ss will respond more slowly (greater latency of response) than both LA and MA Ss.

Summary

A review of the literature was made which related the IPAT Scale to concepts which underlie the scale. It was found that the covert sub-scale is lacking in solid reliability and adds only little to the total scale. It was also found that anxiety as measured by the IPAT Scale is inversely related to measures of defensiveness, constriction and social desirability. A caution was given against accepting subjective inventories and self-reports at face value.

Reliability over time for the IPAT Scale was demonstrated, and differential diagnostic capabilities of the scale were shown to be highly reliable. An inverted U relationship between IPAT anxiety and academic performance was found to exist, and it was demonstrated that working under stressful conditions impeded academic performance.

The IPAT Scale and its concepts were compared to other anxiety measures and concepts. In some instances, the IPAT Scale was shown to be a more sensitive measure of anxiety, but on the

whole the IPAT Scale, its basic concept and research findings were generally in harmony with other measures of anxiety and results obtained when using those measures in research.

It appears that the IPAT Scale because of its conceptual basis and its meticulous development through research is not only a valid instrument, but a valuable one for clinical use as well as research. In addition, the IPAT Scale has significant value due to its heuristic contributions to the study of human behavior.

A search of the literature revealed a paucity of research studies relating aspects of perception to anxiety as measured by the IPAT Scale and no major research relating IPAT anxiety to the phenomena of perceptual closure. A review of perception in general and perceptual closure in particular was made which was related to anxiety as measured by various other anxiety measures.

From the studies cited, conclusions were drawn which led to the postulation of the experimental hypotheses. The experimental hypotheses were related to levels of anxiety, induced anxiety, speed of perceptual closure and accuracy of perceptual closure.

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CHAPTER III

METHOD

Design and Subjects

A basic 3 X 2 factorial design was utilized in this experiment, with anxiety levels and induction of anxiety composing the two dimensions. The dimensional treatments and their conditions were as follows:

Anxiety level -- high, medium and low;

Anxiety induction -- threat of shock, non-threat or neutral conditions.

In an attempt to demonstrate possible interaction effects of the treatments, two criterion measures were employed. These criteria were speed of closure and quality of closure.

Ninety-six (fifty-two males and forty-four females) undergraduate psychology students enrolled in four classes were administered the IPAT Anxiety Scale as a pre-test measure. This group ranged in age from eighteen through thirty-one years, with a mean age of 20.5 years. All Ss were allowed to remain anonymous if desired, but in order to identify test protocols, for later experimentation, S's initials were used. After the protocols were scored, they were placed in groupings of high, medium and low anxiety, for male and female respectively. Anxiety levels were determined on the basis of raw scores. High

anxiety groups were to consist of Ss scoring at or above the eighty-ninth centile; medium groups scoring from the twenty-third through the seventy-seventh centile; and low anxiety groups scoring at or below the eleventh centile. From these groupings of high, medium and low males, and high, medium and low females, eight Ss (four males and four females) were drawn for each treatment combination of the 3 X 2 factorial design schema. This was accomplished by drawing the first and second protocols of each respective raw score grouping and placing the first in one stack and the second in another. Where raw scores did not match exactly, sten scores were employed as the matching criterion. This procedure yielded two groups of twenty-four Ss each, equally balanced for sex. A simple coin toss determined which group was to be used as the experimental group and which as the control group. The Ss comprising the selected sample ranged in age from eighteen through twenty-five years, with a mean age of 20.4 years.

As a consequence of Ss not keeping appointments, eight Ss were lost during the experiment. When non-tested Ss were dropped, the matched S was also dropped. Subjects were dropped only after several unsuccessful attempts had been made to re-schedule appointments for absentees. Due to the attrition rate, the resultant experimental and control groups were comprised of the following: HA, three males and three females; MA, four males and three females; IA, three males and four females. The resultant sample (N=40) actually participating in the total experiment (perceptual task) ranged in age from eighteen to

TABLE I
PRETEST IPAT ANXIETY MEANS AND STANDARD DIVIATIONS
FOR HA, MA AND LA EXPERIMENTAL
AND CONTROL GROUPS

Treatment Conditions	HA		MA		LA	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
Experimental (Threat)	49	1.389	31	3.464	17.1	3.528
Control (Non-threat)	46	1.389	30.9	4.098	16.4	4.375

twenty-five years with a mean age of 20.3 years, with experimental and control groups composed of twenty Ss each. Mean scores and standard deviations for each sub-group are presented in Table I.

Material and Apparatus

IPAT Scale. --The IPAT Scale employed as the pre-test measure is described earlier (Chapter II). A copy of the IPAT Scale may be seen in Appendix A.

Street Gestalt Completion Test. --The Gestalt closure task consisted of Ss' identifying the content of the stimulus cards comprising a modified form of the Street Completion Test (2). This test was not used in its original form, but was modified by adding five new stimulus cards to increase the number of stimulus

cards to twenty. Additional changes were made in presentation of the stimulus cards and scoring criteria. Originally, the Street scale was standardized on children ($N=745$) ranging from the third through the ninth grades. Since the level of difficulty was determined by that sample and also with the addition of the new stimulus cards, a pilot study was conducted to determine the order of difficulty for a college population. Cards 6, 8, 9 and 13 were placed in the deck upside down in order to increase ambiguity. The pilot study consisted of one freshman, two sophomores, two juniors, one senior and four graduate students. The pilot group was evenly divided as to sex and had an age range from eighteen through twenty-eight, with a mean age of 23.6. Where there were an equal number of correct responses to particular cards, the original sequence was preserved between those cards. The resultant order and placement of the stimulus cards may be seen in Appendix B. Each card whose number is preceded by the letter S is a new stimulus card added by the experimenter (E).

Where original standardization of the stimulus cards had no time limits (2, p. 10) and credit of one point was given for a correct response, the E in this investigation modified this administration process to provide a more discrete measure. Each S was given twenty seconds to identify the content of each stimulus card, and a scoring criterion was devised allowing each S to score from one to three points on each card. If the Ss identified the content of the card as something in the general class having equivalent properties, a score of one point was given.

If the S identified the content correctly but made no attempt to qualify the response further, a score of two was given. If further qualification was given, three points were given. For example, in card six: "a person" = 1; "a man" = 2; "a soldier", "a man with a gun", "someone with a spear or lance" and similar responses = 3. Another example would be card seven: "a piano" (if the legs are seen and determine the percept, thus in the general class of furniture) = 1; "a stove" or "range" = 2; "an old-fashioned stove", a stove or range "with the oven upright" = 3. The scoring criterion was simple, but provided a measure of degree of accuracy for each percept. If the S's response did not meet the stated criterion or if the twenty-second time limit was violated, a score of zero was given.

Pseudo-shock apparatus. --This apparatus consisted of a standard galvanometer, with electrodes which could be attached to the S's fingers and an electrical timer. The timer was calibrated in hundredths of seconds and was controlled by the E by means of a two-way switch, not visible to the S. The clock was placed beside the galvanometer to the left of the E, and both were turned at an angle so that they faced the E. Experimental Ss were led to believe that the galvanometer could produce a mild electrical shock by means of a switch controlled by the E.

Procedure

Each S was seated across from the E at a table on which the pseudo-shock apparatus and timer rested. After electrodes had been placed on the middle and small fingers of the S's

non-dominant hand, the experimental Ss were asked if they were familiar with the galvanometer. Regardless of the response, the S was told that the galvanometer had been modified for the experiment to allow the E to "suddenly increase the flow of electrical current to a degree sufficient to deliver a mild electrical shock." Experimental Ss were asked to remove rings or watches worn on the non-dominant hand and arm "to insure that any ensuing shock would not result in a burn on the skin where the metal touched or cause any damage to the watch."

Instructions to Ss. --After affixing the electrodes to the non-dominant hand of the experimental S, the E said:

I am going to show you some cards on which there are some pictures of objects familiar to everyone. However, these pictures are not complete and you will be required to do some mental work to determine the content of the pictures. You have studied about Gestalt closure in your psychology classes? A brief demonstration on the chalk-board is given on the principle of closure, utilizing a Gestalt-type figure. Then it is explained that the closure principle will be used with the incomplete pictures of the cards, but geometric figures are not in the cards.)

I will hand each card to you face up and you have twenty seconds to identify the content of the picture. You may turn the card in any direction or hold it at any angle to assist you in determining its content.

Time (pointing to the electric timer) is a factor in this task, so as soon as you feel that you have recognized the content of the card, say 'stop' and turn your card face down on the table. Do not respond before turning the card down. Once the clock has been stopped and the card has been turned down, the card may not be turned over for a second viewing, so be sure of your responses. If you have not responded within the twenty-second time period, I will say 'time' as a signal for you to turn the present card face down and get ready to respond to the next one. After the twenty-second time limit has passed, no response will be accepted.

The pictures on these cards are of tangible things and as such do not require fanciful, imaginative or abstract responses. Do not give equivocal responses such as, 'That's either a balloon or a clown,' but be as specific as you would like to be in describing what you see.

Earlier we talked about this apparatus (placing hand on galvanometer). Now I would like to tell you how we will use it in this experiment. If during the course of the closure task your responses go beyond the critical margin ratio of 50 per cent error, you will be given a mild electrical shock through those electrodes attached to your fingers. After being shocked on that occasion, every wrong response thereafter will be followed by another mild shock. I will be recording your responses, but will not give any suggestion as to the accuracy of your responses; therefore, you will have no real intimation when you are to be shocked until you receive the first shock. Of course, your being shocked the first time will indicate that any subsequent totally wrong response will result in another shock. (It is explained that the quality of responses range from one to three and that after an initial shock, a zero only will result in subsequent shocks.)

Control Ss were given the same instructions with the exception of the final paragraph. Unlike the experimental Ss, control Ss were not connected to the pseudo-shock apparatus. After instructions were given to each S, questions were permitted and answered. Then the S was cautioned, "Remember, this task is concerned not only with speed, but accuracy of response. If there are no more questions, we will begin."

At the end of the closure task all Ss were asked, "Did you feel anxious, uneasy or nervous during the experiment?" The S's answer was recorded, and if the answer was in the affirmative, the S was queried further to determine what had made the S anxious, uneasy or nervous. For experimental Ss, after the S's responses regarding feelings of anxiety were recorded, each was told that he could remove the electrodes. Then he was told that the galvanometer was simply used as a pseudo-apparatus and could not deliver shock. This was done in order to remove the S from any possible emotional stress resulting from the threatening conditions of the experimental procedure in keeping with principle

number 4.31-1 (1, p. 122) advocated by the American Psychological Association. Then a brief explanation of the nature of the experiment was given to each S, and a pledge of confidence was requested of the S in order that other Ss to be tested would not come into the testing situation with a fore-knowledge of the nature of the experiment and thus a bias. There was no evidence to suggest that the pledge of confidentiality was violated.

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CHAPTER IV

RESULTS

Upon completion of data collection, the criterion scores of closure quality and closure speed were separately subjected to two-way analyses of variance at the computer center of North Texas State University. Following is a presentation of the results of these analyses plus a supplementary section considering both criterion measures jointly.

Quality of Closure

Hypothesis 1 predicted an interaction of treatment effects (differential anxiety levels and induction of anxiety) to be

	Experimental	Control	
HA	$\bar{X}=1.150$ SD= .1685 n=6	$\bar{X}=1.275$ SD= .352 n=6	$\bar{X}=1.2125$ SD= .2821
MA	$\bar{X}=1.4142$ SD= .3897 n=7	$\bar{X}=1.10$ SD= .2104 n=7	$\bar{X}=1.2571$ SD= .3540
LA	$\bar{X}=1.2142$ SD= .1726 n=7	$\bar{X}=1.0785$ SD= .2684 n=7	$\bar{X}=1.1464$ SD= .2356
	$\bar{X}=1.2650$ SD= .2907	$\bar{X}=1.1450$ SD= .2919	Cumulative Main Effects

Fig. 1--Means and standard deviations for the criterion measure of closure quality imposed on the experimental design model.

reflected by the criterion of closure quality. The mean scores and standard deviations for the respective sub-groups and the marginal means and standard deviations for the main effects are presented in Figure 1.

An inspection of Figure 2 reveals that the mean criterion scores yielded trends which were in the predicted direction. However, this interaction failed to attain significance as one may see by noting the obtained F value for interaction to be found in Table II. The F value for interaction between levels of anxiety and anxiety induction (1.92455) fell short of significance even at the .05 level.

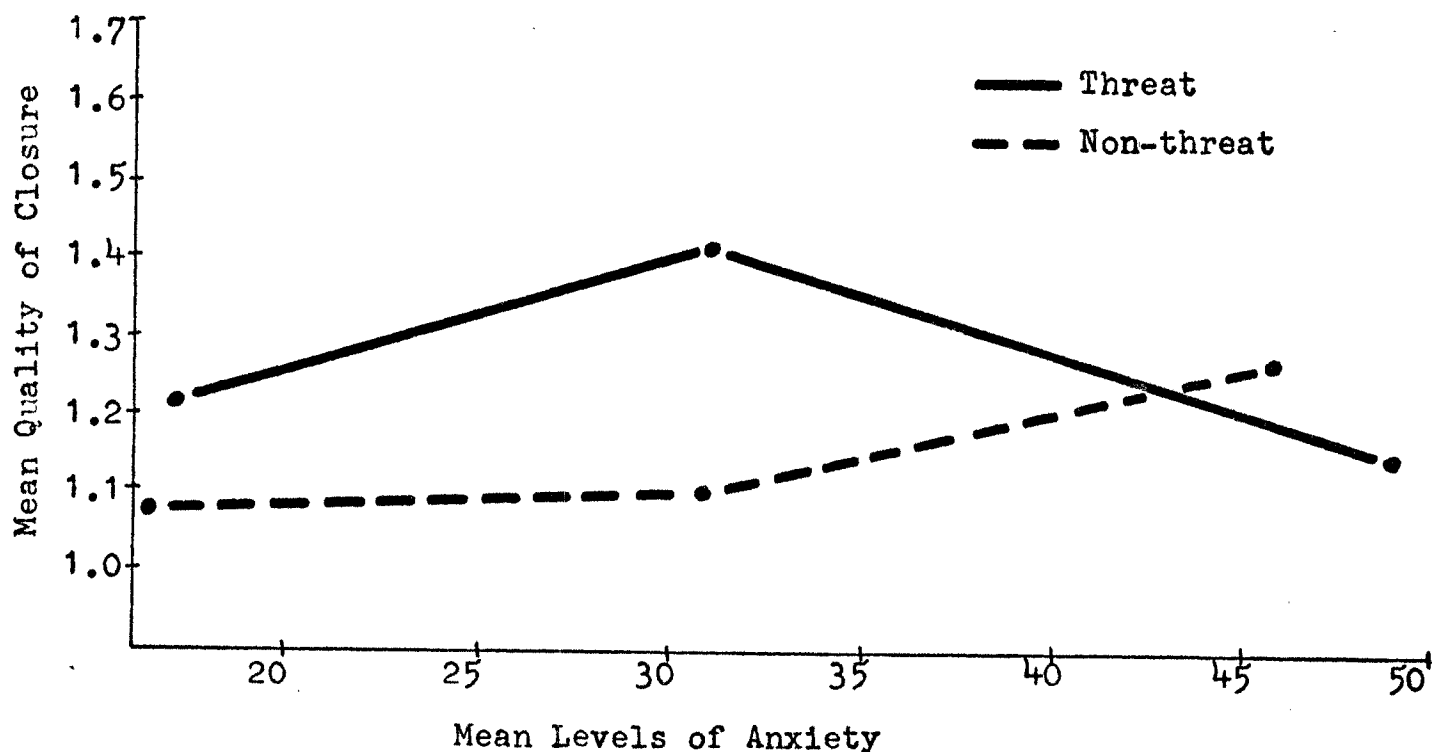


Fig. 2--Mean levels of anxiety for high, medium, and low anxiety groups as related to mean scores of closure quality.

In addition to not attaining significance for the predicted interaction, it was found that the effects of anxiety induction ($F = .608419$) and differential levels of anxiety ($F = 1.154701$) did not attain statistical significance. The results of the F tests may be seen in Table II.

TABLE II
SUMMARY OF ANALYSIS OF VARIANCE OF THE EFFECTS OF
LEVELS OF ANXIETY AND CONDITIONS OF THREAT
VS. NON-THREAT ON CLOSURE QUALITY

Source of Variance	SS	df	Variance Estimate	F
Induction of Anxiety	2.5972	1	2.5972	.608419
Anxiety Levels	9.8583	2	4.92915	1.154701
Interaction	16.4309	2	8.21545	1.924550
Within	145.1830	34	4.268764	
Total	174.0244	39		

Note -- None of the F tests were significant.

In conclusion, Hypothesis I predicting an interaction between the treatment effects of anxiety levels and anxiety induction failed to gain confirmation. Neither was there a significant main effect for either of the main treatment variables. As the graphic representation of the obtained means of the various sub-groups illustrates, the experimental results were in the predicted direction, thus suggesting that further study in this area should be conducted.

Speed of Closure

Hypothesis 2 predicted an interacting effect for the levels of anxiety and induction of anxiety to obtain for the criterion measures of closure speed. Figure 3 presents the closure speed criterion means and standard deviations for their respective treatment conditions.

	Experimental	Control	
HA	$\bar{X}=9.9955$ SD=1.8305 n=6	$\bar{X}=8.5808$ SD=3.1366 n=6	$\bar{X}=9.2882$ SD=2.6636
MA	$\bar{X}=7.7019$ SD=1.1350 n=7	$\bar{X}=9.3191$ SD=1.8009 n=7	$\bar{X}=8.5105$ SD=1.0787
LA	$\bar{X}=9.1523$ SD= .5867 n=7	$\bar{X}=10.2038$ SD= 2.1340 n= 7	$\bar{X}=9.6781$ SD=1.6507
	$\bar{X}=8.8976$ SD=1.5687	$\bar{X}= 9.4073$ SD= 2.4719	Cumulative Main Effects

Fig. 3--Means and standard deviations for the criterion measure of closure speed imposed on the experimental design model.

An inspection of Figure 4 reveals that the predicted interaction was in the predicted direction with the control (non-threat) groups' mean closure speeds becoming more rapid as the groups' mean anxiety levels became greater. As was also predicted, the MA experimental (threat) group responded with a more rapid closure speed than did experimental LA or HA groups with the HA group having the slowest speed (greater

latency of response time) of the three. Despite the trends being in the predicted direction, the predicted interaction failed to attain significance as is made evident by the F values presented in Table III.

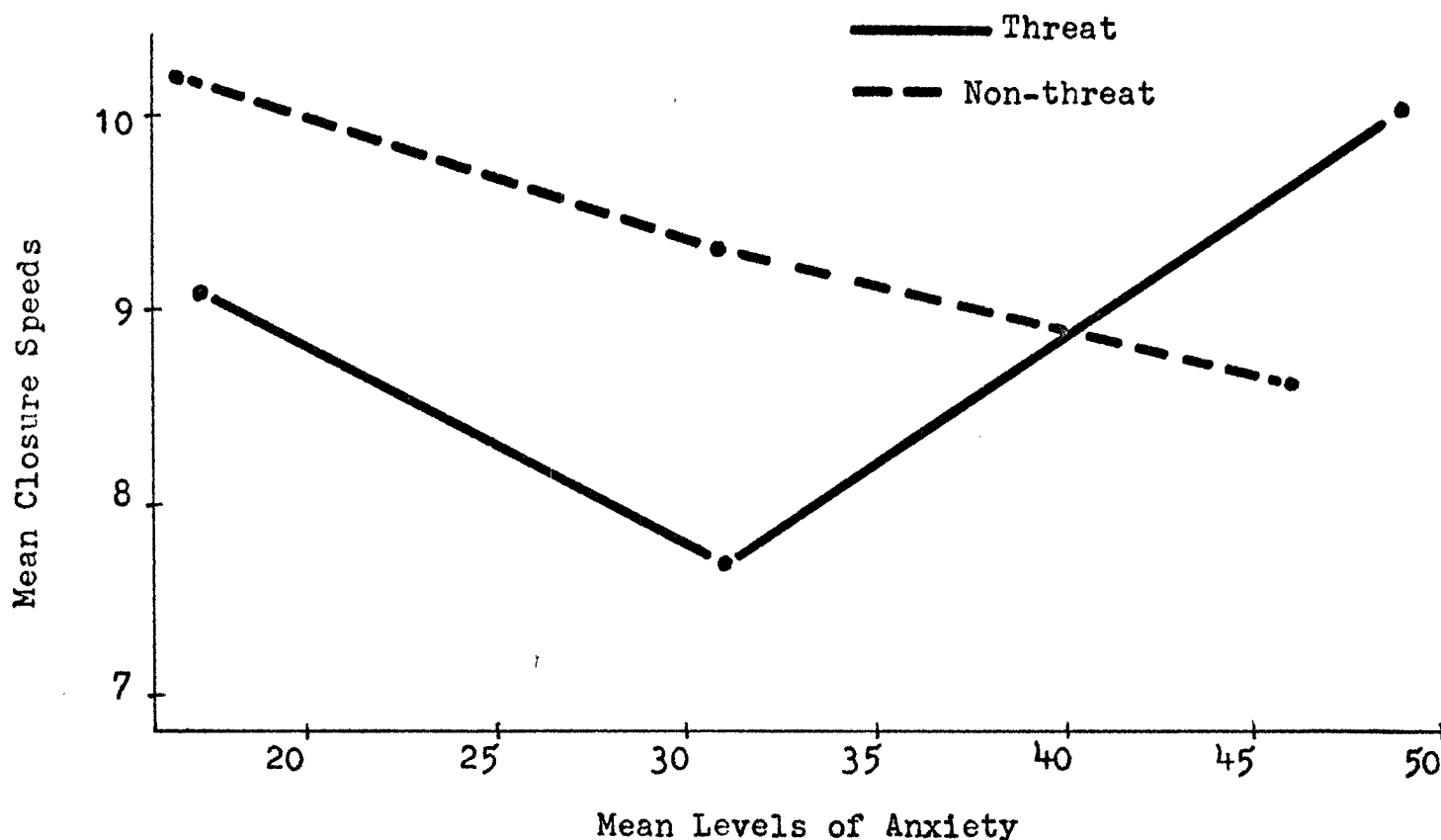


Fig. 4--Mean levels of anxiety for experimental (threat) and control (non-threat) HA, MA, and LA sub-groups as related to mean scores of closure speed.

The F tests calculated for the criterion scores of speed of closure indicate that the obtained experimental results were not sufficient to have attained significance. The F value for the interaction of anxiety induction and levels of anxiety was 1.776826, and the F values for the main effects of the two

experimental variables were 1.634636 for anxiety induction and .492468 for anxiety levels. None of these attained the .05 level of significance.

TABLE III

SUMMARY OF ANALYSIS OF VARIANCE OF THE EFFECTS OF
LEVELS OF ANXIETY AND CONDITIONS OF THREAT
VS. NON-THREAT ON SPEED OF CLOSURE

Source of Variance	SS	df	Variance Estimate	F
Induction of Anxiety	.1440	1	.1440	1.634636
Anxiety Levels	.086767	2	.043383	.492468
Interaction	.313053	2	.156526	1.776826
Within	2.99518	34	.088083	
Total	3.53900	39		

Note -- None of the F tests were significant

In summary, Hypothesis 1 predicting an interaction to be demonstrated in the results obtained from the criterion of closure quality, and Hypothesis 2 predicting a similar interaction to be reflected by the criterion of closure speed did not attain a sufficient level of significance to have been confirmed. Although not statistically significant, the trends, as portrayed graphically, supported the hypotheses to a sufficient degree to warrant further investigation.

Speed and Quality of Closure

In addition to considering each criterion and their results separately, a consideration of these two criteria as a bi-variate criterion appeared to have some value in attempting to analyze possible treatment effects. Figure 5 illustrates the mean scores of the various sub-groups of both the experimental and control groups showing how the two criterion measures covaried.

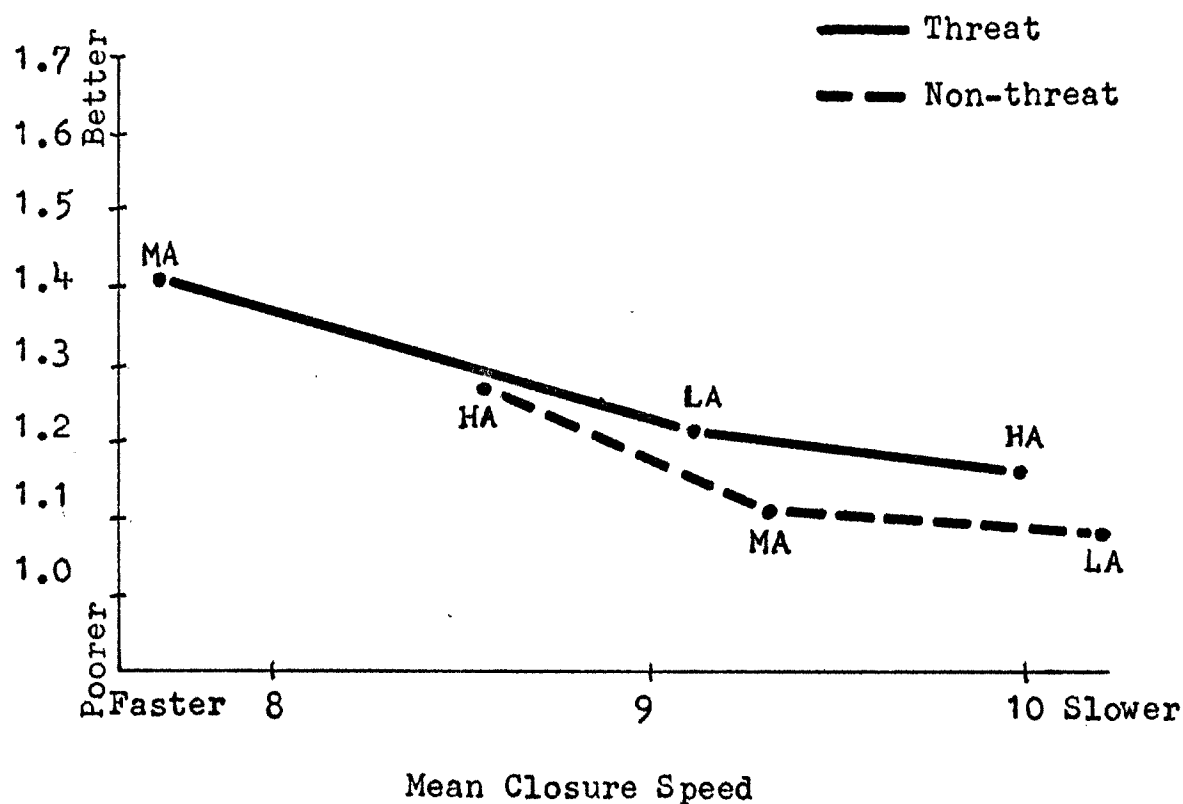


Fig. 5--Mean closure speeds of high, medium, and low anxiety groups as related to mean quality of closure scores.

Correlations of coefficient were calculated between the two criterion measure results for both the experimental and control groups separately using the mean scores of all Ss

within their respective major groups. The resultant r_s were $-.527$ for the experimental Ss and $-.611$ for the control Ss. Both r_s , since they were negative, indicated that the higher quality responses were associated with faster closure speeds (less time required to close) and, conversely, those who responded with less quality tended to respond with slower closure speeds (more time required to close).

The same kind of relationships (negative) was obtained for both groups, but these results indicate that speed and quality of closure were more positively related for the control group than for the experimental group. However, in this same connection, whereas the progression of quality ranging from low to high and the progression of speed ranging from slow to fast moved from LA to MA to HA in the control (non-threat) group; it progressed from HA to LA to MA in the experimental group. This places the experimental and control HA groups at the opposite ends of the continuums.

CHAPTER V

DISCUSSION OF RESULTS

The obtained results of this experiment appear to indicate that on a task of simple closure Ss of similar levels of anxiety, as measured by the IPAT Anxiety Scale, do differ in quality of closure as well as speed of closure, but not to a significant degree. Also, Ss of differing levels of anxiety perform in differing manners under similar conditions, albeit no significant differences were statistically demonstrated in this regard. Perhaps the chief reason for these results was that the closure task was too simple to have had any real discriminatory value of any significance. In addition to this, the findings of Cattell which indicated that decline of perceptual efficiency is a poor trait and state marker of the second order factor of anxiety (1, p. 220) may explain why Ss of similar levels of anxiety did not respond with significant differences under a mildly threatening state condition.

Some Ss expressed anxiety over not knowing the purpose of the experiment. This variable along with others may have tended to increase anxiety among the control Ss as well as the experimental Ss thereby closing the differential "state" anxiety gap between the two groups. Of the control Ss, seventeen said that some anxiety was experienced during the experiment, with three

claiming no anxiety. Of those experiencing anxiety, some attributed the feeling to multiple reasons: ten to having to work under rigid time limits; five to concern for the purpose of the "test"; twelve to ego involvement in the S's own performance; and one to a physiological reason (fatigue or consumption of too much coffee).

Of the experimental group, only one, a moderate anxiety S, denied feelings of anxiety. Of the remaining Ss, sixteen attributed feelings of anxiety to the threat of shock; six to the time factor; only two to concern over the purpose of the "test"; and seven expressed anxiety resulting from ego-involvement with the S's own performance at the task. Of these experiencing feelings of anxiety due to the threat of shock, four Ss disclaimed threat of shock as the primary source of their anxiety.

An interesting aspect of the experiment which had not been anticipated was in the responses of some of the experimental Ss. Four (two male high anxiety Ss, one male medium anxiety S, and one female medium anxiety S) claimed to have actually experienced electrical shock during the experimental task. Of this group, only one disclaimed anxiety regarding the threat of shock, saying, "After you shocked me two or three times, I knew that it wouldn't hurt, so I just forgot about it after that." Another S, a female middle anxiety S of slight build and small stature, kept the hand to which the electrodes had been attached in one place on the table in a fixed position throughout the experiment. When the experimental task was completed and the S was

told to remove the electrodes and lifted her hand from the table, puddles of perspiration, not just moist spots, remained where the fingers and heel of the S's hand had been in contact with the table.

Another possible source of an uncontrollable intervening variable may have been the timing procedure. Although the E sought to give strict attention to each S to determine when the S was ready to respond, there were occasions when the E could not be certain of the readiness of the S to respond; and all too frequently, Ss forgot to give the verbal signal to stop the clock to indicate their readiness to respond, the closure having been achieved. To remedy this, an exlectric timer equipped with two two-way switches should be utilized in the event of future experimentation of this nature. With this improved apparatus, the E could control one switch to start and stop the timer, and the S could control the other, thereby stopping the clock himself when the S felt closure was completed.

It is also suggested that instead of using a pseudo-apparatus, an apparatus actually capable of delivering a shock as described by Nash, Phelan, Demas and Bittner (5) should be used. By having the "actual" shock present, the threat would be more "real" and the motivational aspect of its threat could be more accurately measured as did Hare in his investigation on estimation of time intervals (3). This addition to the experimental procedure would allow a broadening of the scope of the experiment to include the driving effect of physical

threat, thus encompassing the attempt of Reynolds, Blan and Hurlbut (7) in assessing anxiety as a drive factor, but in this case under threat and neutral conditions. Fein has already demonstrated a curvilinear relationship between IPAT anxiety and academic performance with no induced threat involved (2).

Perhaps threat of mild physical pain may not have as great effect upon closure performance in terms of both speed and quality as "ego-pain", the latter being demonstrated in the study conducted by Moffitt and Stagner (4). In light of the fact that 50 per cent of the total N expressed anxiety rising from the S's own ego-involvement in the task performance, this possibility seems feasible. It is suggested that future experimentation be conducted along this line, comparing the two different types of threat and their effects upon closure performance in a 3 X 3 factorial design: physical threat X ego-threat X non-threat X high, medium and low anxiety levels. The effects of ego-involvement with performance giving rise to anxiety, thus in turn affecting performance, was demonstrated by Odom and Attwell in their study of the effects of induced anxiety upon test performance among college students (6).

Finally, in considering the complexity of the perceptual process, the criterion measures employed may not have been sensitive enough to detect significant differences among the different levels of anxiety, even on so simple a task utilized in the experiment. In light of the fact that the correlations of coefficient calculated between quality and speed of closure for both

the experimental and control groups yielded the kind of results they did, with HA Ss responding the slowest of the experimental and control HA Ss responding the fastest of the control subgroups, perhaps if the two criteria were expressed in the form of a ratio the resulting bivariant criterion might yield a more sensitive measure of individual and group differences.

In conclusion, it is felt that since the results of this experiment were in the predicted direction, although not attaining significance, the above suggested innovations might be employed to achieve significance, thereby demonstrating the basic tenet of this thesis, that differing levels of anxiety in conjunction with perceived threatening conditions will affect perceptual efficiency in differential manners. In addition to designing a more sophisticated experiment, it is felt that a more complex closure task should be devised to add greater discriminatory value.

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CHAPTER VI

SUMMARY

An experiment was designed in an attempt to demonstrate that under threatening conditions, Ss of differing levels of anxiety, measured by the IPAT Anxiety Scale, would perform differently at a Gestalt closure task. A basic two-dimensional factorial design was employed with the treatment variables being anxiety induction and differential levels of anxiety. A stratified random sample of forty-eight undergraduates was drawn to be utilized as Ss in the experiment. Due to Ss not keeping appointments to perform at the experimental task, eight Ss were lost during the experiment, leaving only forty Ss, with twenty control and twenty experimental Ss comprising a high, medium and low anxiety sub-group for both the control and the experimental groups. Criterion measures employed were quality of closure and speed of closure.

It was predicted that under conditions of threat, the experimental high anxiety Ss would respond with slower speed of closure (greater latency of response) and poorer quality of closure than medium and low anxiety experimental Ss. It was also predicted that there would be a systematic increment of speed and quality of closure as levels of anxiety became greater for control Ss working under non-threatening conditions. Finally

it was predicted that the above described relationships of the respective groups and their sub-groups would result in an interaction between the treatment variables of induction of anxiety and differential levels of anxiety.

The results of the experimental procedure were all in the predicted directions. However, none of the hypothesized relationships attained significance. Since the obtained trends were in the predicted directions, suggestions were made for a more sophisticated experiment for future experimentation and study in attempts to demonstrate to a significant degree the hypothesized relationships.

APPENDIX A

THE IPAT ANXIETY SCALE

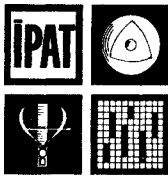
APPENDIX B

A MODIFIED FORM

OF THE

STREET GESTALT COMPLETION TEST*

* The following are facsimiles of the stimulus cards used in the experiment. The originals were flat black and white figures and grounds. The number preceding the hyphen below each card denotes Street's original sequential placement of that card. The number following the hyphen denotes the position of that card in the present study. Cards having an "S" preceding the hyphen are new cards designed and inserted by this experimenter for use in this study only.



SELF ANALYSIS FORM

NAME _____ TODAY'S DATE _____
First Middle Last

SEX _____ AGE _____ OTHER FACTS _____
(Write M or F) (Nearest Year) (Address, Occupation, etc., as instructed)

CONFIDENTIAL

Inside this booklet you will find forty questions, dealing with difficulties that most people experience at one time or another. It will help a lot in self-understanding if you check Yes, No, etc., to each, frankly and truthfully, to describe any problems you may have.

Start with the two simple examples just below, for practice. As you see, each inquiry is actually put in the form of a sentence. By putting a cross, X, in *one* of the three boxes on the right you show how it applies to you. Make your marks now.

1. I enjoy walking..... ☐ Yes ☐ Occasionally ☐ No

A middle box is provided for when you cannot definitely say Yes or No. But use it as little as possible.

2. I would rather spend an evening:

(A) talking to people, (B) at a movie..... ☐ A ☐ In between ☐ B

About half the items inside end in A and B choices like this. B is always on the right. Remember, use the "In between" or "Uncertain" box only if you cannot possibly decide on A or B.

Now:

1. Make sure you have put your name, and whatever else the examiner asks, in the place at the top of this page.
2. Never pass over an item but give some answer to every single one. Your answers will be entirely confidential.
3. Do not spend time pondering. Answer each immediately, the way you want to at this moment (not last week, or usually). You may have answered questions like this before; but answer them as you feel *now*.

Most people finish in five minutes; some, in ten. Hand in this form as soon as you are through with it, unless told to do otherwise. As soon as the examiner signals or tells you to, turn the page and begin.

STOP HERE—WAIT FOR SIGNAL

B

- | | | | |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------|---------------------------------------|
| 1. Through getting tense I use up more energy than most people in getting things done..... | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |
| 2. I make a point of not being absent-minded or forgetful of details..... | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |
| 3. However difficult and unpleasant the obstacles, I always stick to my original intentions..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 4. I tend to get over-excited and "rattled" in upsetting situations..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 5. I occasionally have vivid dreams that disturb my sleep..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 6. I always have enough energy when faced with difficulties..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 7. I sometimes feel compelled to count things for no particular purpose..... | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |
| 8. Most people are a little queer mentally, though they do not like to admit it | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |
| 9. If I make an awkward social mistake I can soon forget it..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 10. I feel grouchy and just do not want to see people:
(A) occasionally, (B) rather often..... | A
<input type="checkbox"/> | In between
<input type="checkbox"/> | B
<input type="checkbox"/> |
| 11. I am brought almost to tears by having things go wrong..... | Never
<input type="checkbox"/> | Very rarely
<input type="checkbox"/> | Sometimes
<input type="checkbox"/> |
| 12. In the midst of social groups I am nevertheless sometimes overcome by feelings of loneliness and worthlessness | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 13. I wake in the night and, through worry, have some difficulty in sleeping again | Often
<input type="checkbox"/> | Sometimes
<input type="checkbox"/> | Never
<input type="checkbox"/> |
| 14. My spirits generally stay high no matter how many troubles I meet..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 15. I sometimes get feelings of guilt or remorse over quite small matters.. | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 16. My nerves get on edge so that certain sounds, e.g., a screechy hinge, are unbearable and give me the shivers..... | Often
<input type="checkbox"/> | Sometimes
<input type="checkbox"/> | Never
<input type="checkbox"/> |
| 17. If something badly upsets me I generally calm down again quite quickly..... | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |
| 18. I tend to tremble or perspire when I think of a difficult task ahead..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 19. I usually fall asleep quickly, in a few minutes, when I go to bed..... | Yes
<input type="checkbox"/> | In between
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 20. I sometimes get in a state of tension or turmoil as I think over my recent concerns and interests..... | True
<input type="checkbox"/> | Uncertain
<input type="checkbox"/> | False
<input type="checkbox"/> |

Q₂(-)

C(-)

L

0

Q₄

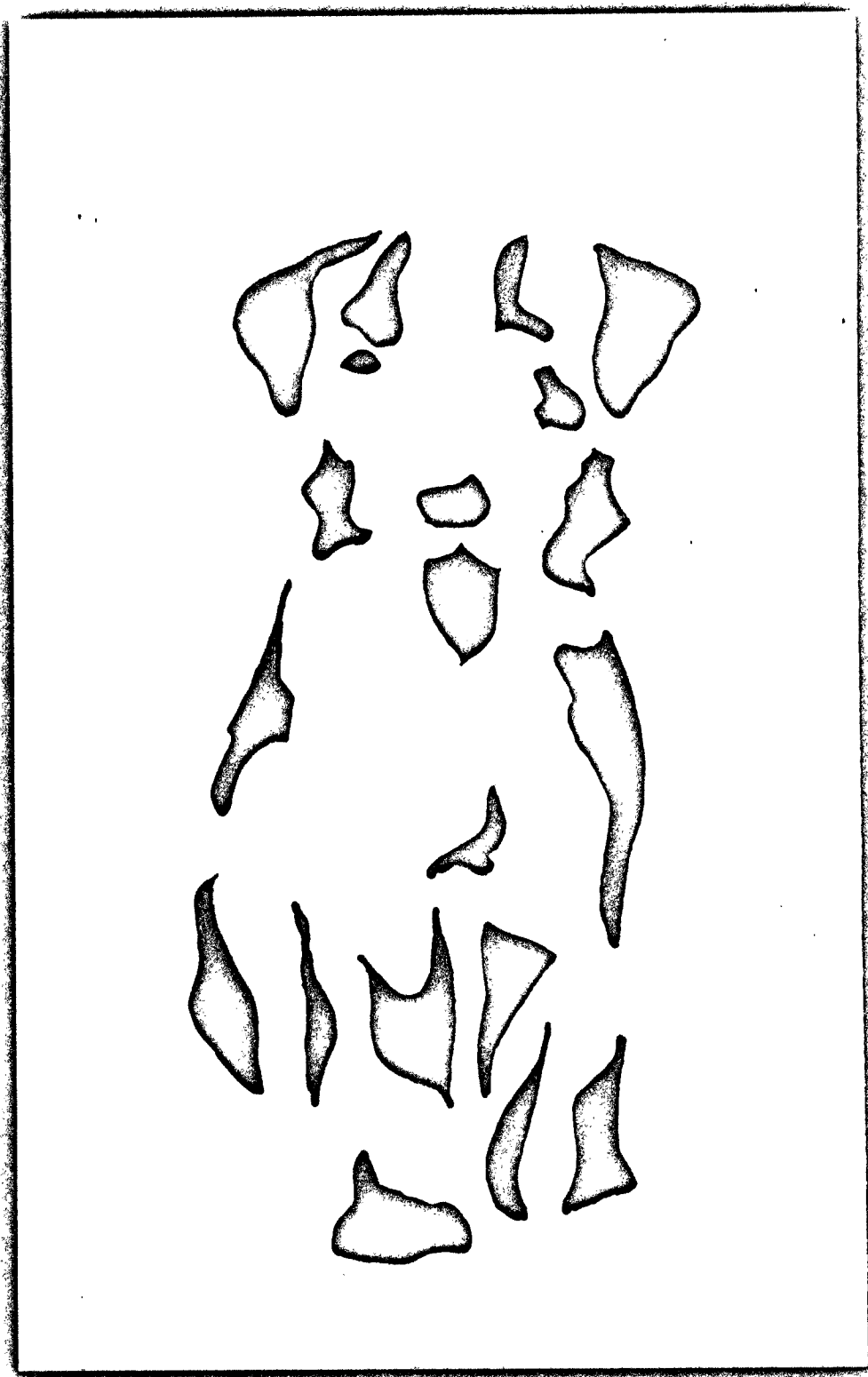
STOP HERE.

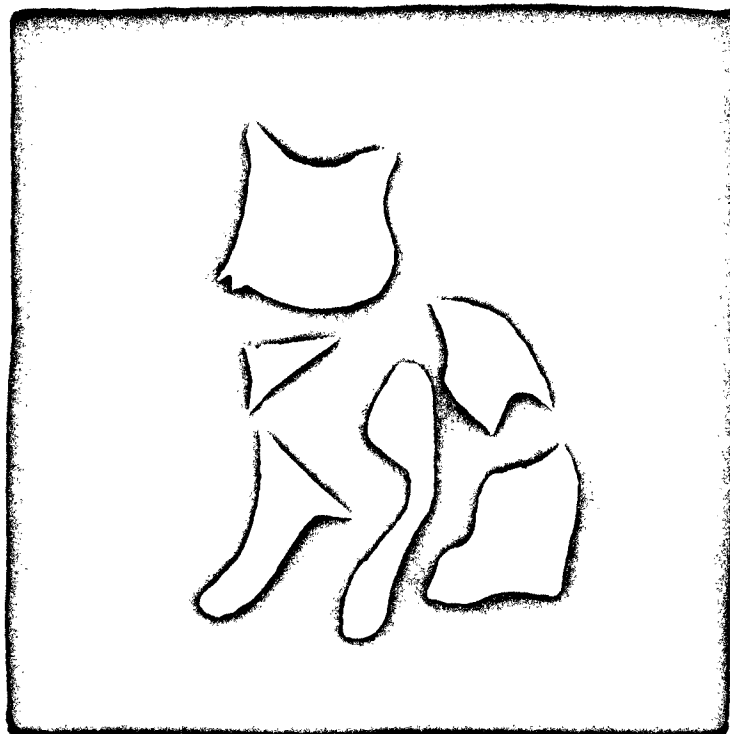
BE SURE YOU HAVE ANSWERED EVERY QUESTION.

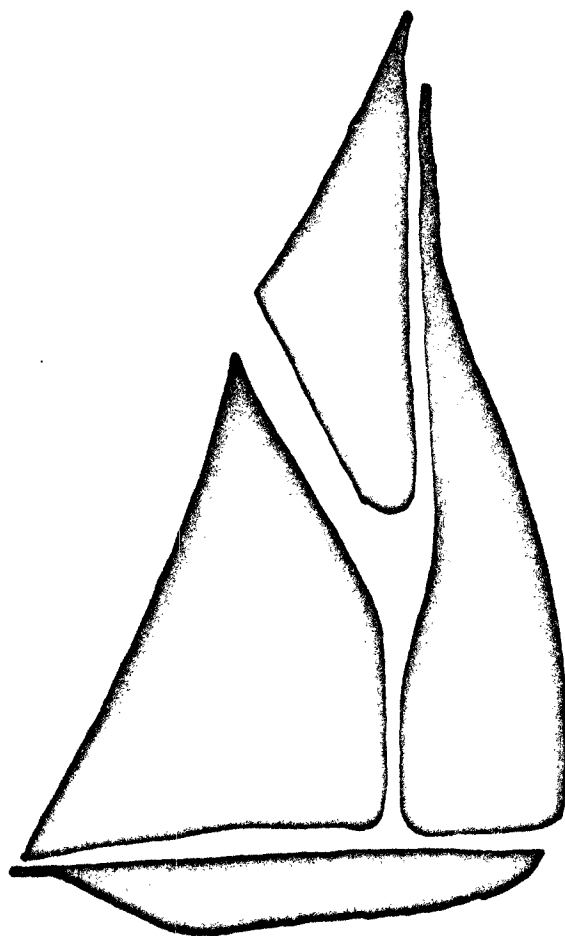
B Score

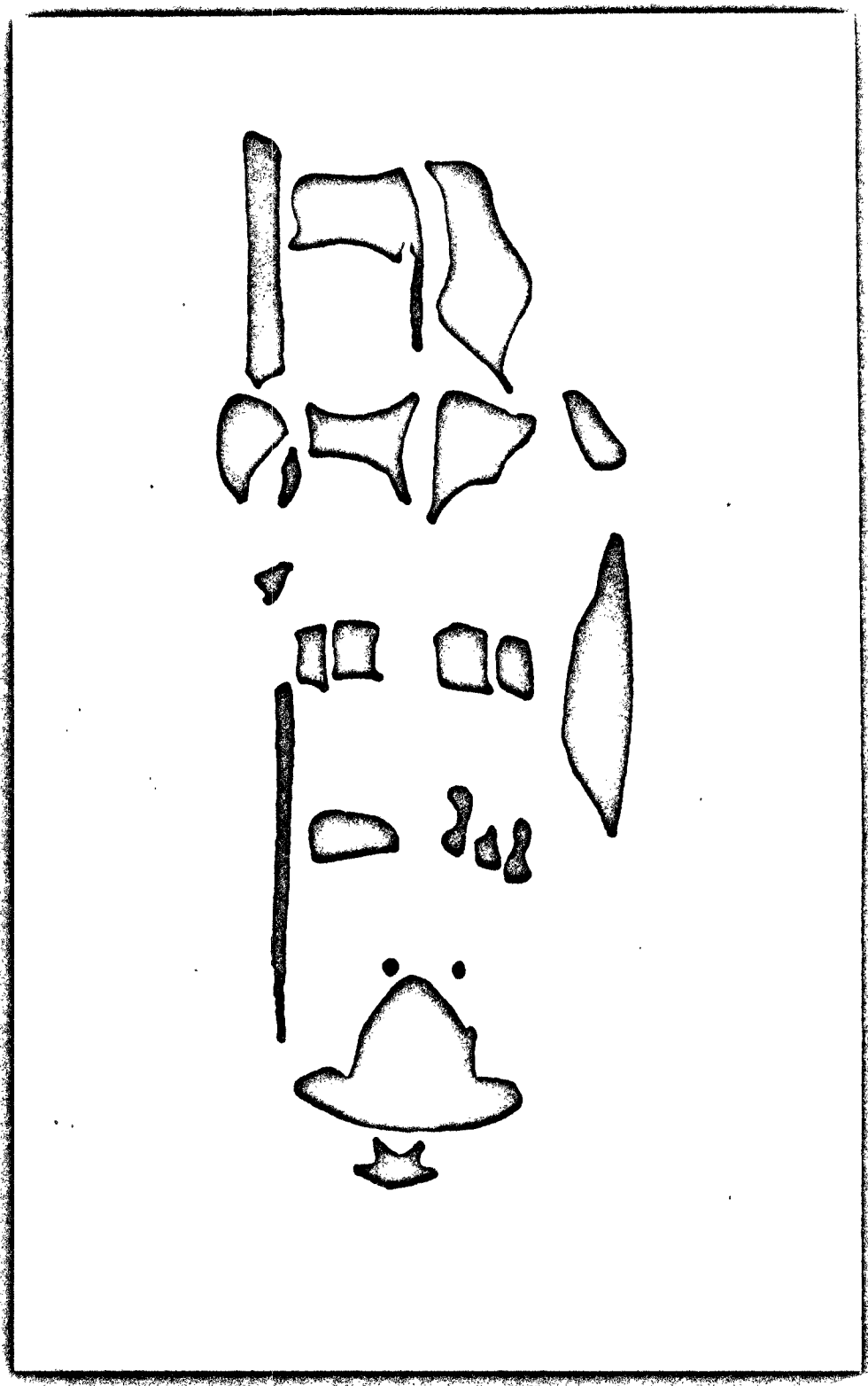




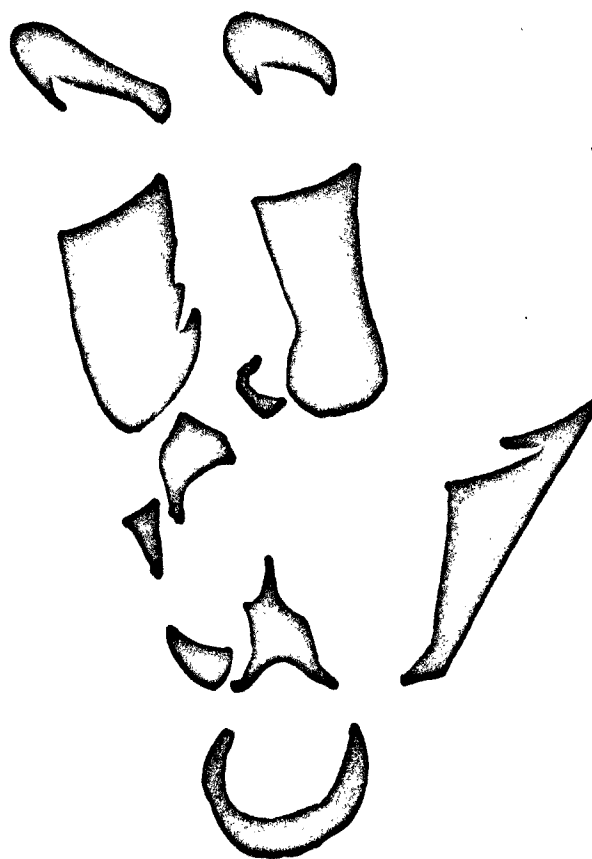


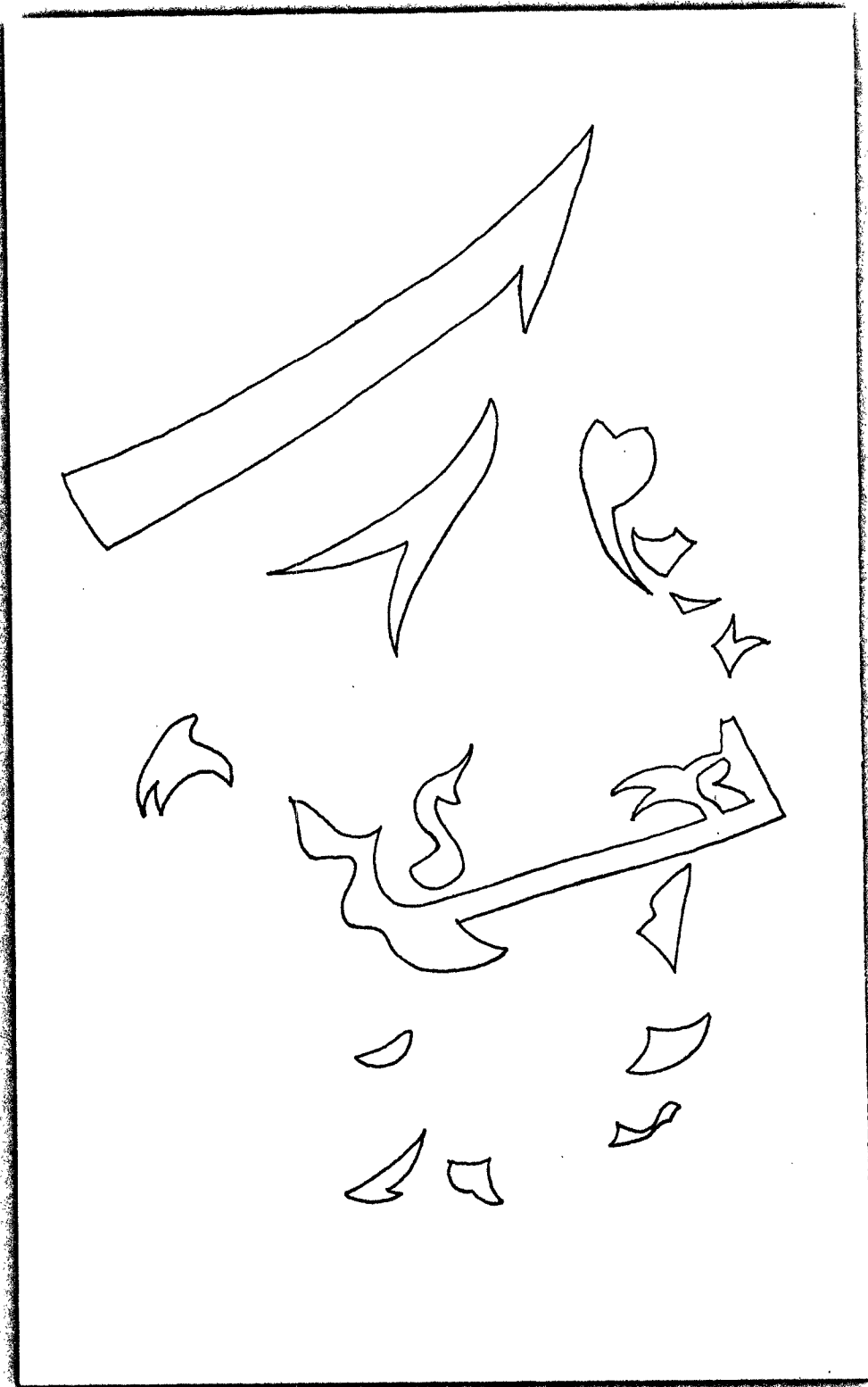


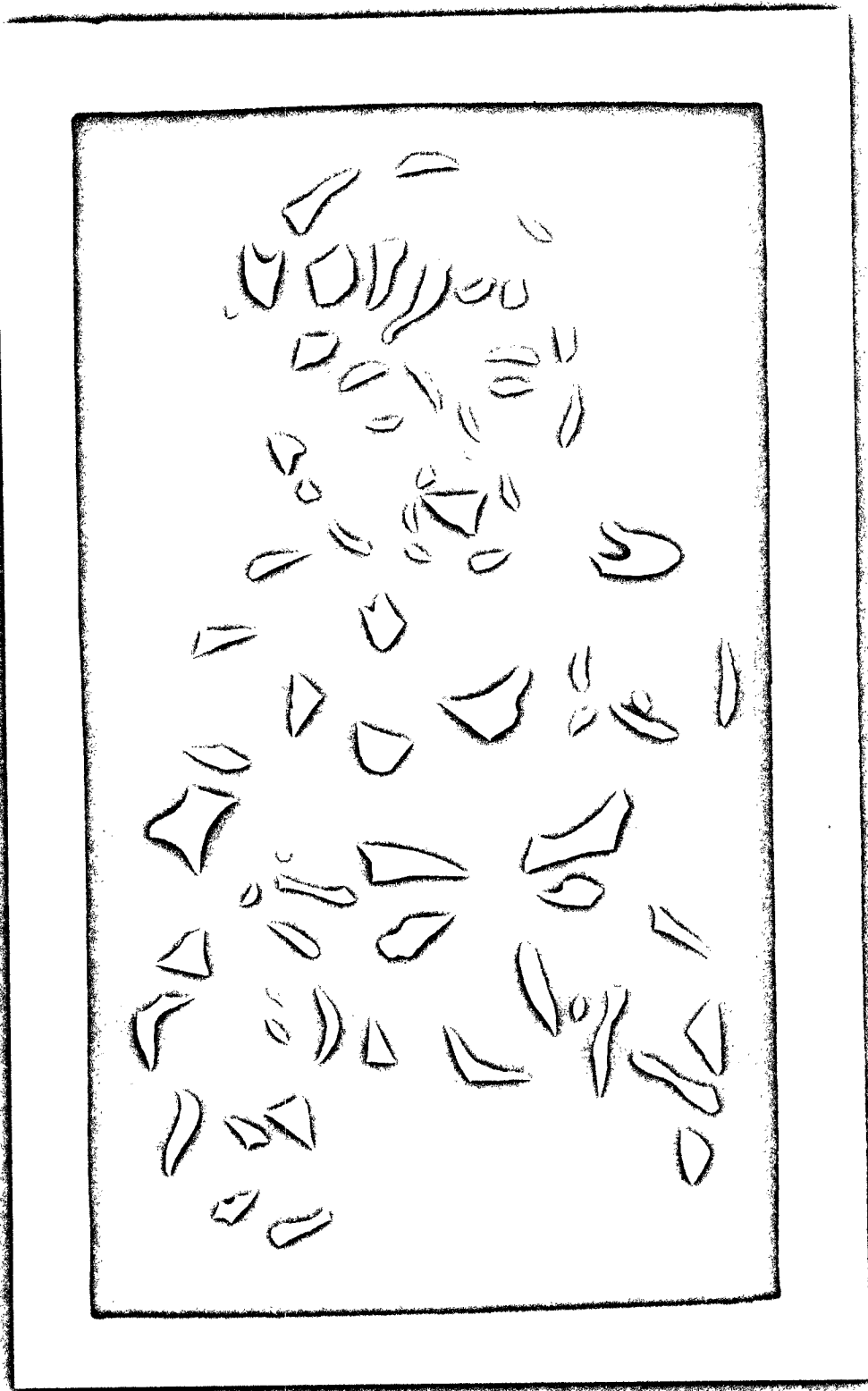


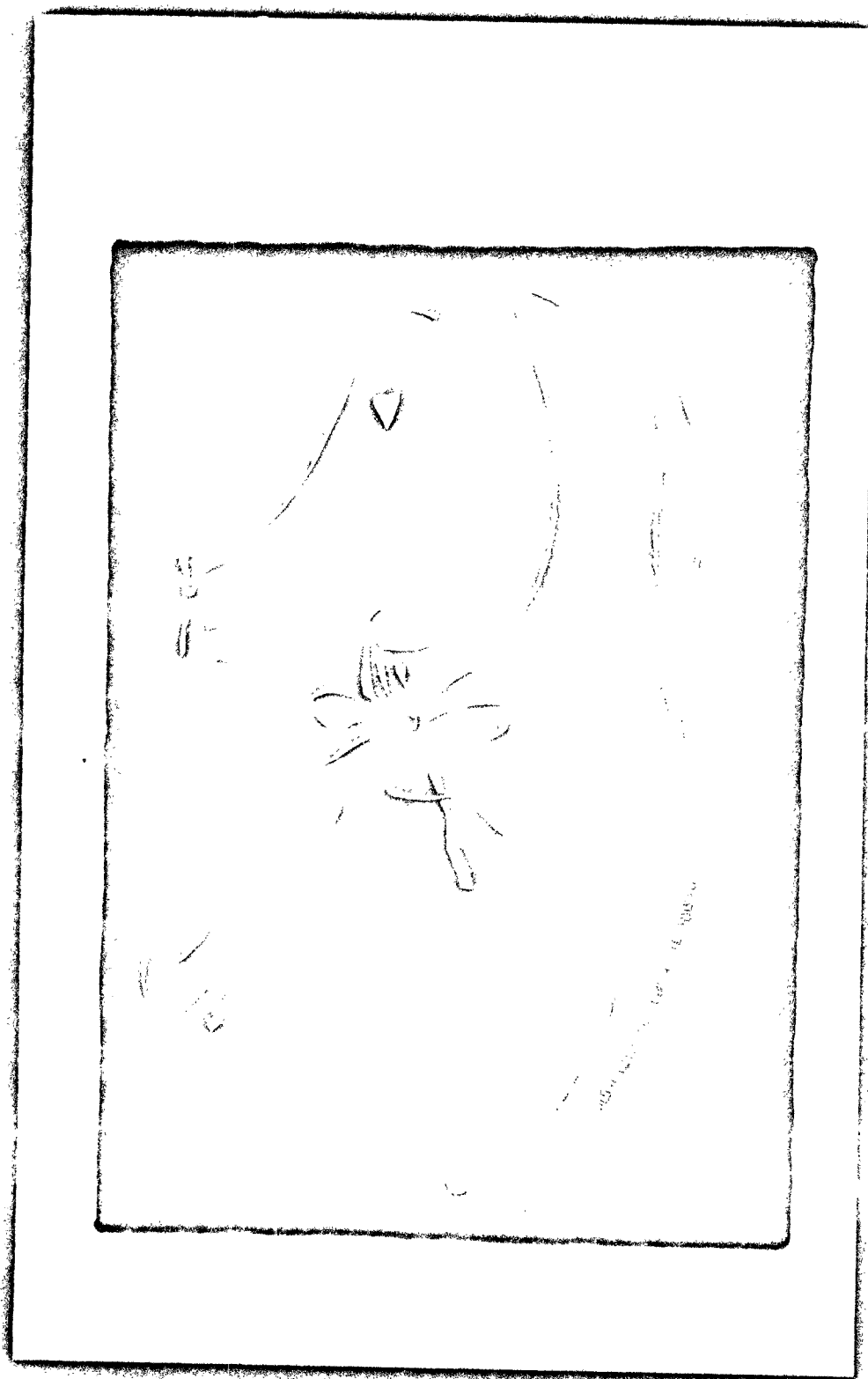




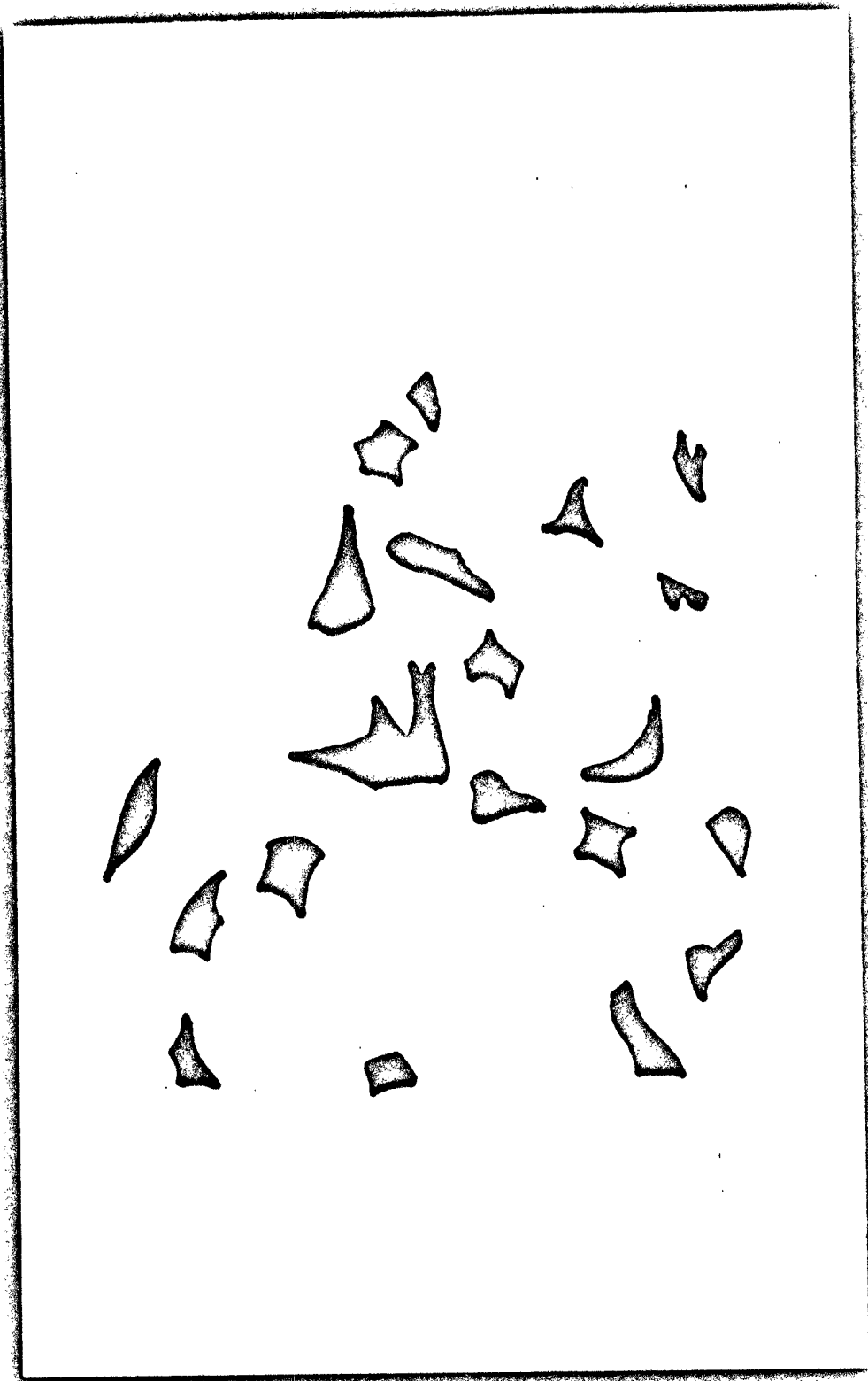


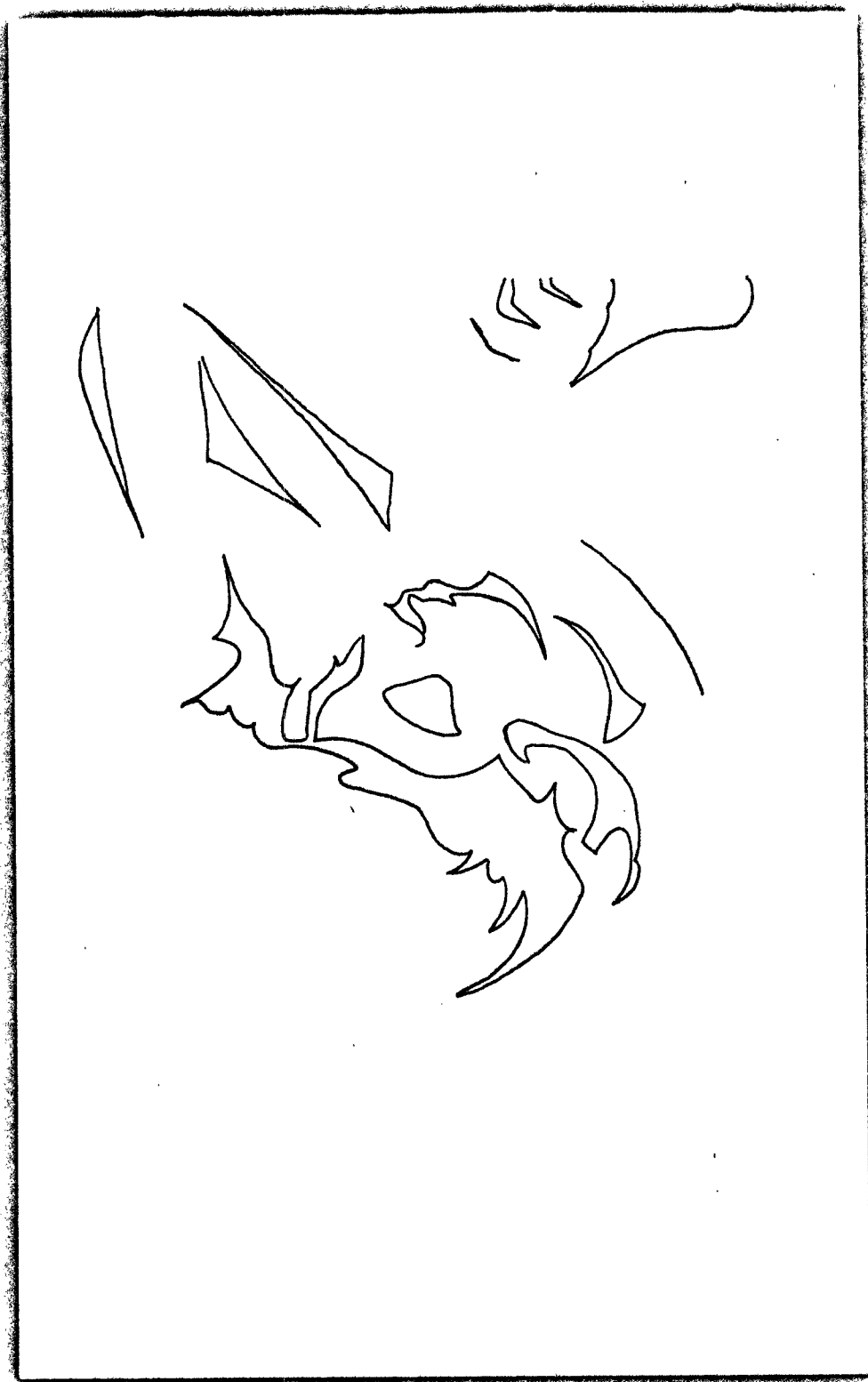


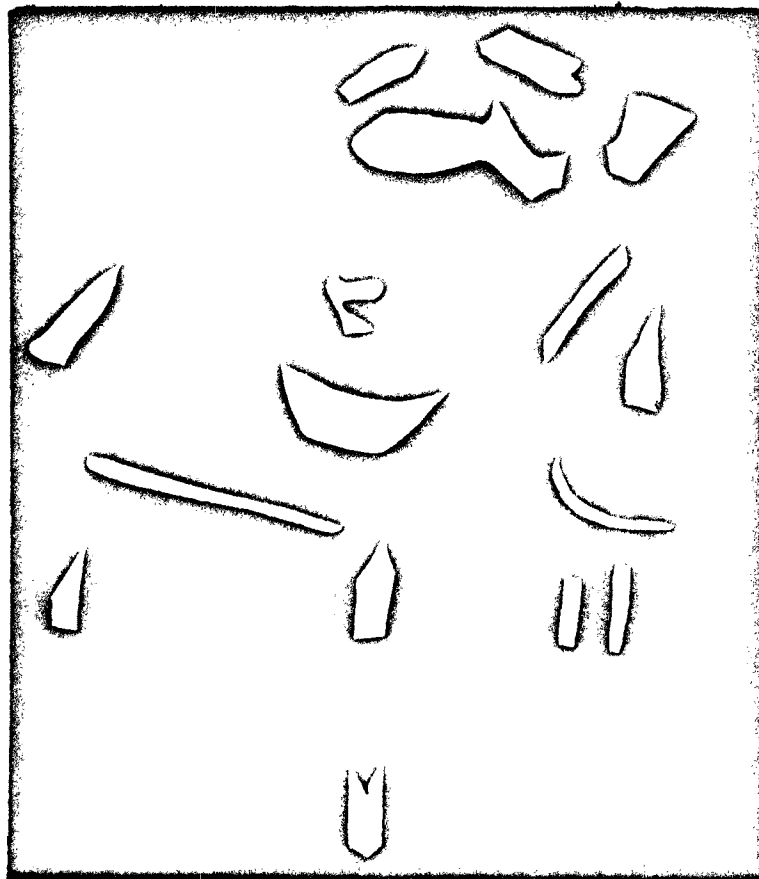


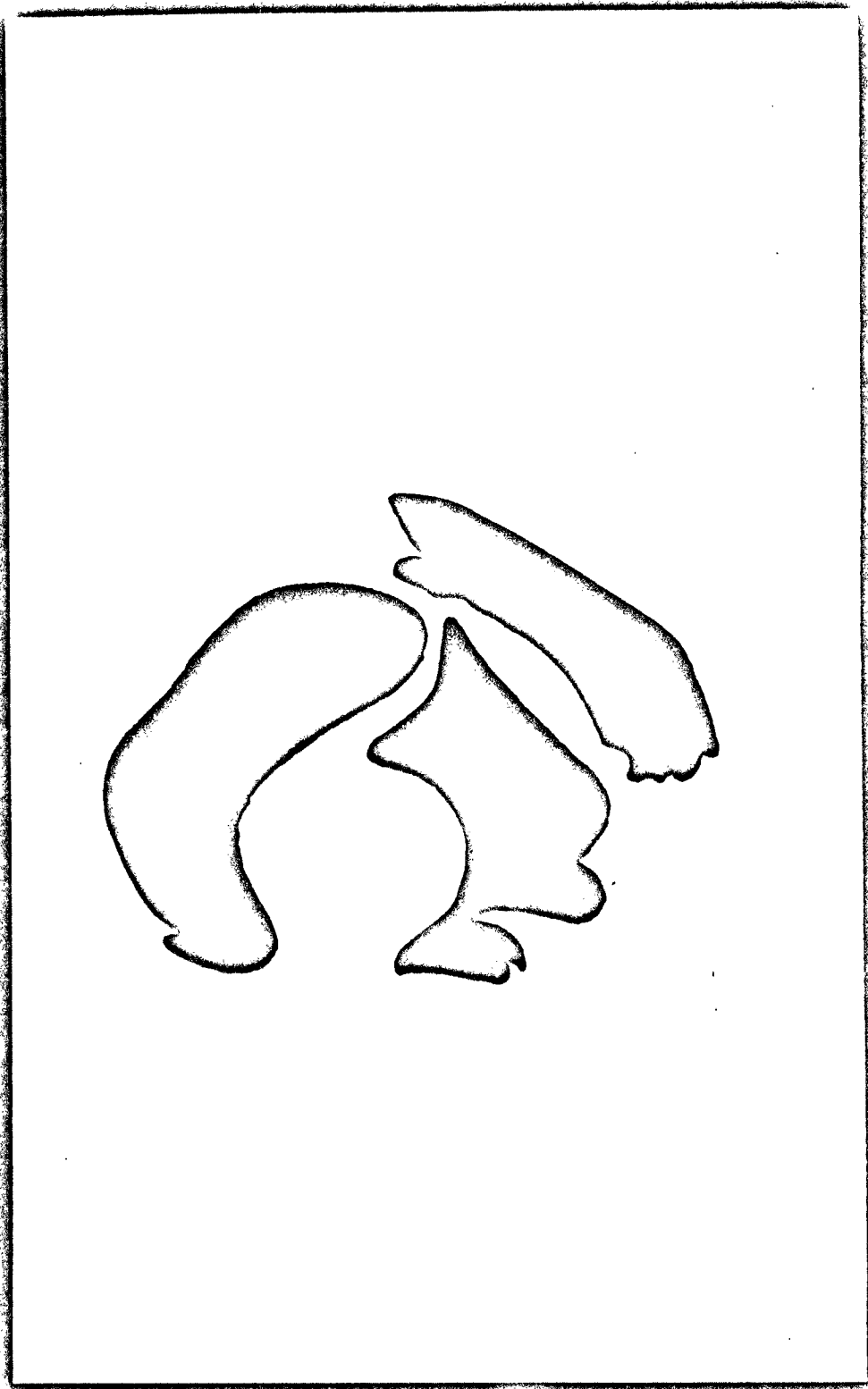


S-11

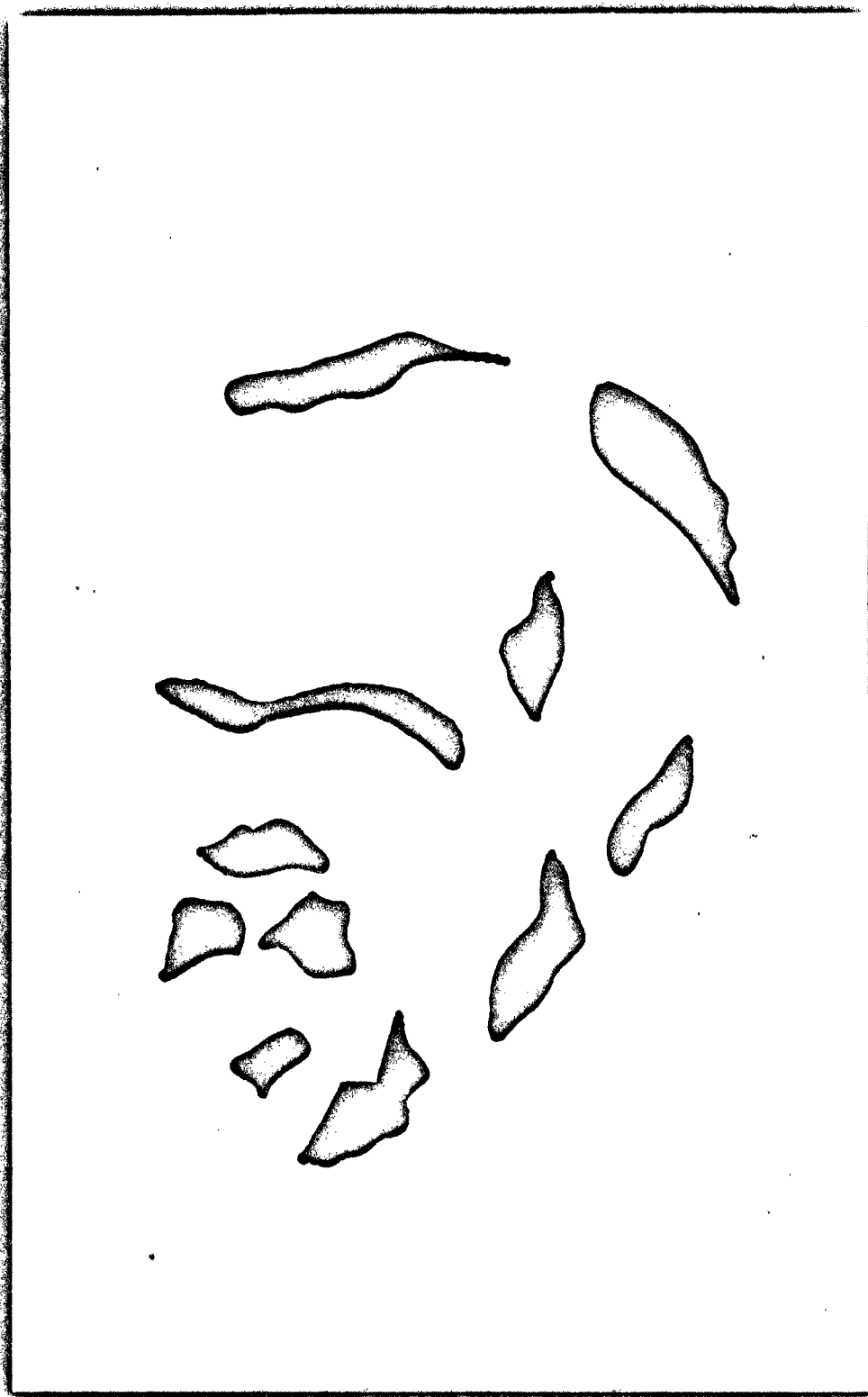


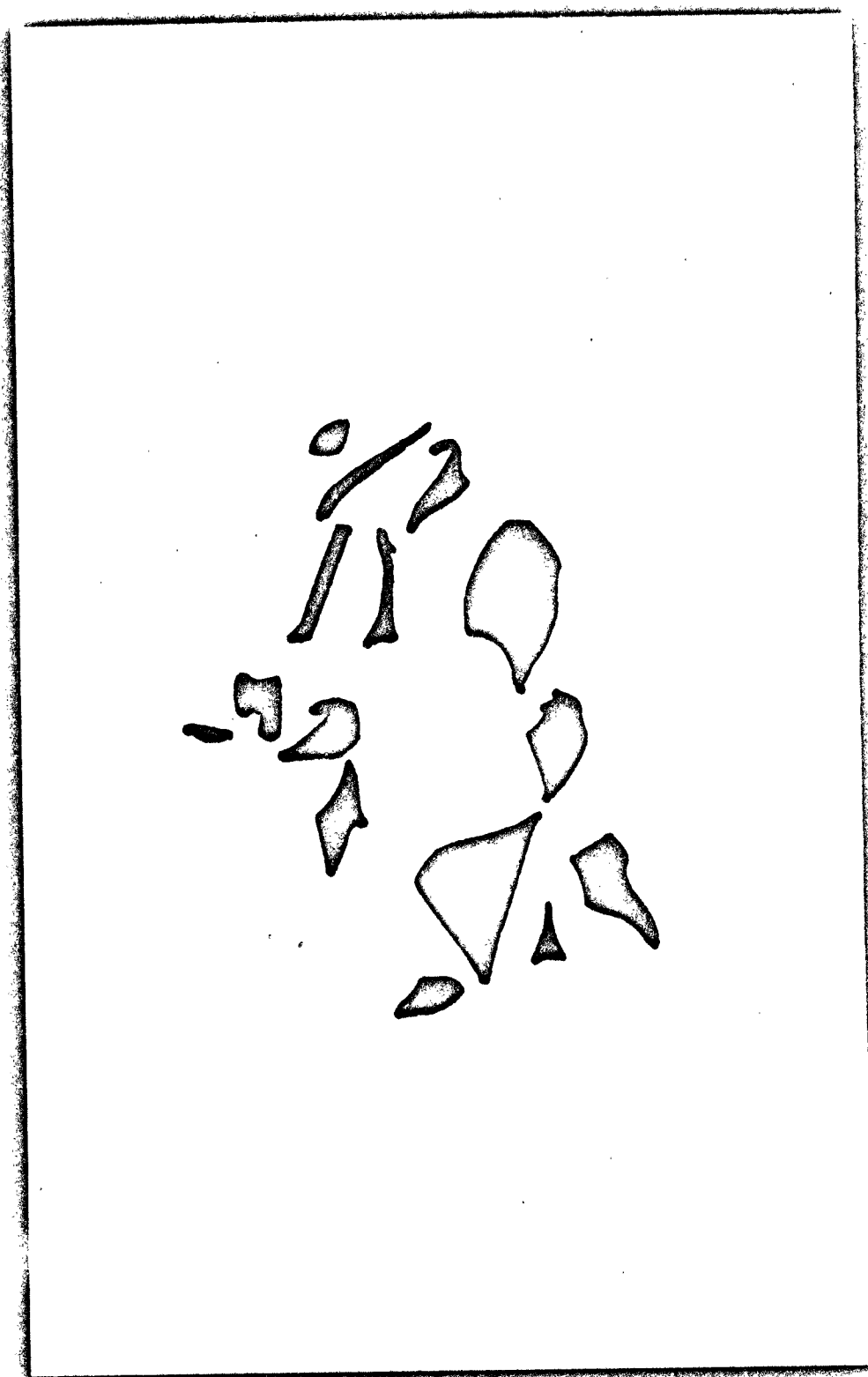




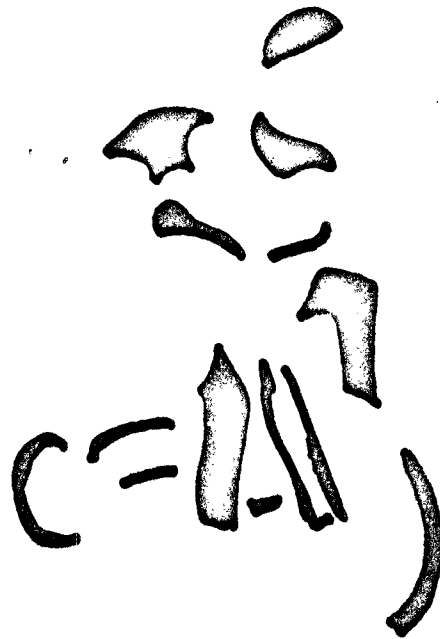












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