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UNIVERSITY OF CINCINNATI

May 9 1952

I hereby recommend that the thesis prepared under my supervision by Clinton C. Brown

entitled Differentiation of Affective Reactions to Personal and Impersonal Frustration Barriers.

be accepted as fulfilling this part of the requirements for the degree of Doctor of Philosophy.

Approved by:

Arthur J. Bills

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THE DIFFERENTIATION OF AFFECTIVE REACTIONS

TO PERSONAL AND IMPERSONAL FRUSTRATION BARRIERS

A Dissertation submitted to the

Graduate School of Arts and Sciences
of the University of Cincinnati

in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

1953

by

Clinton Carl Brown

B.A. University of Cincinnati 1948

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C. Brown

Cincinnati, Ohio

May 24, 1952

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INTRODUCTION AND HISTORICAL BACKGROUND

"...the problem of frustration is ancient and considered, and inevitably recurrent."[1]

While the main accomplishments of civilization have attested to the capacity of man to overcome the natural and artifical obstacles he encounters, there have always been pain, privation and suffering. Frustration, with its connotations of thwarting, denial and disturbance of the status quo is a major contributor to these negative conditions. If happiness may fairly be said to represent the goal of all human behavior, frustration is its antithesis.

The topic of suffering due to denial, thwart and deprivation has occupied a central place in the literature since earliest history. One needs only to mention a few examples; the Biblical story of Job, much of Shakespeare, Pilgrims Progress, Pamela, Tom Jones, Moll Flanders; to establish the prominence of this topic in the folklore.

But frustration has more than negative connotations. In different shapes and different degrees, it represents the process by which the child experiences socialization and is led to abandon earlier and more primitive modes of response. From earliest uninhibited expression of basic urges he is gradually forced into more and more closely circumscribed lines of behavior by his parents, his associates, and the representative

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agencies of a collective society. While this is a valuable and necessary process from the social point of view, it may not be assumed that there is anything desirable about it for the child. For this development towards limited and acceptable behavior goes forward under pressures constituted of innumerable deprivations, obstructions and penalties which may be gross or subtle, but without which education does not go forward.

"Frustration is a universal aspect of experience. Creation or growth and frustration and thwarting are merely two aspects of the same life process. Were there no needs to satisfy, no positive biological processes of defense, motivation, sexual activity and social relationship, there would obviously be nothing that could be frustrated."[16]

Freud repeatedly emphasized the importance of frustration in personality development for blocking old modes of response so that new ones could be superimposed; "It may be universally observed that man never willingly abandons a libido position, not even when a substitute is already beckoning to him".[5] "Spoiling young children has the undesirable result that . . . (it) encourages persistence in that childhood state of which both motor and psychic helplessness is characteristic,"[6] and in another place Freud remarks that "The power which has enforced this development upon mankind, and still today

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maintains its pressure in the same course, is . . . the frustration exacted by reality . . . Neurotics are those . . . children upon whom this severity has had evil effects, but that risk is inevitable in any education".[7]

The adoption of frustration as a key for experimental treatment of problems of normal and abnormal behavior and motivation was not seriously attempted until around 1938 when it was given impetus by the publication by the Yale group of their studies on frustration and aggression.[3] The significance of frustration studies had already been recognized as early as 1899, however, by the famous American psychologist, G. Stanley Hall, and was implicit in studies by Pavlov. An article[2] published in 1940 listed an 82 item bibliography of studies in frustration and a complete bibliography of published work up to the present time would include at least twice this number.

The remarkable amount of interest shown in this topic was due in part to the change in emphasis in the late '30's from the more purely cognitive aspects of behavior to an assessment of the conative and affective processes. There was renewed interest in the old topic of "personality", in motivational processes, in interpersonal relationships, discrete patterns of emotional response and experimental

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neuroses in animals. "Clinical" psychology was in its earliest infancy. The wide array of frustration phenomena presented opportunities for the simultaneous study of the above topics in one experimental manipulation.

The great amount of published work in the area of frustration also suggests that its causes have been well defined, the effects enumerated and described and the knowledge of the processes of human behavior enhanced thereby. Since adequate definitions of terms were lacking and there was insufficient theoretical overlap, the differences between the aims, methods and purposes of the studies were too great to permit a collation of findings. One cannot reasonably compare rat behavior to human behavior, and even less so when differing needs are involved.

DEFINITION OF TERM

The first problem is the definition of the term. In general, we must rely here, as elsewhere, upon operational example. A few examples will suffice:

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ZANDER: "Frustration exists when a response toward a goal believed important and attainable by a given person suffers interference, resulting in a change in behavior characteristic for that person and situation."[26]

SHAFFER: "Frustration is a situation in which accustomed reactions do not bring satisfactions."[22]

MAIER: "In frustration, learning has stopped and other forms of adjustment are adopted."[11]

SYMONDS: "Frustration may be defined as the blocking or interference with the satisfaction of an aroused need through some barrier or obstruction."[25]

ROSENZWEIG: "Frustration occurs whenever the organism meets a more or less insurmountable obstacle or obstruction in its route to the satisfaction of any vital need." [19]

If we examine a larger number of such definitions, we will find almost unanimous agreement on at least two factors: (1) the interruption of an act-in-progress by an external or internal agency, and (2) the inescapable affective arousal, with its characteristics of increased tension and/or maladaptive features. Now this infers that frustration may be related to failures in adjustment to environmental forces or to rises in internal tension, either of which may be said to eventuate in a certain kind of disequilibrium or disturbance of homeostatic balance. The term "disturbance of homeostatic balance", has been inserted here deliberately to stress the idea of the interdependance of both environmental and organismic factors in the production and manifestation of frustrated behavior.

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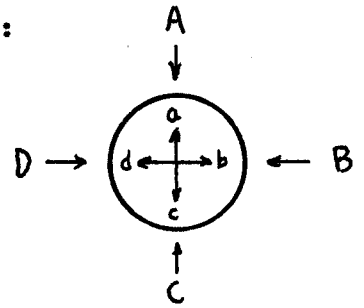
HOMEOSTATIC BALANCE AND " NEED "

The following schematic representation should serve to illustrate this point:



If A, B, C, and D, are representative of environmental forces converging on the individual, and a, b, c, and d, are the corresponding intraorganismic forces in a balanced state with each other, so that the whole system is in balance, then the reduction, for example, in external force B, will produce a disequilibrium resulting in the movement of the organism in the direction from which B was applied. An increase in the intensity of B will produce an imbalance of the ratio B:b:: d:D, but will leave the balance of forces represented by A:a::c:C unchanged and as a consequence, locomotion will be accomplished in direction B. Now if the balance of external forces remains unchanged, and the values of the internal force "b" are reduced, the result will be a movement of the organism in the direction of D, just as in the case in which the external force B was increased. This schematic representation has been used to underline the point that "motivation", "need", "drive", and the numerous terms used

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to describe the conditions which produce a "psychological locomotion" of the organism are superfluous if one were able to assess adequately the internal and internal-external homeostatic equilibratory balance. Perhaps the best that can be done at the present stage of the arts is to provide some reliable reflection of the changing flux of internal equilibratory balances -- that which has been attempted in the present study.

At the present time there is not even agreement as to whether frustration is description of a certain state of affairs (stimulus complex), the reactions of an individual to that state of affairs (reaction complex), or both.[26] Of course it is conceivable that frustration could be both cause and effect; it is justifiable to speak of a frustrated individual or a frustrating situation but one must be careful to keep his references clear. Despite the lack of theoretical accord, workers have proceeded along what was to them clearly defined branches of the phenomenon; studying the relation of various levels and types of motivation to subsequent frustrated behavior; classifying the subtypes of aggressive-punitive response that are hypothesized as the invariable consequents of frustration: inferring principles of therapeutic reeducation from the findings on the retraining of rats frustrated in a Lasheley jumping apparatus.

The major results, as pointed out above, have not been clarification and the emergence of a valid theoretical

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background, but incoherence. There is apparently a need for serious and concentrated effort to establish some degree of unity in this particular psychological theory.

There is considerably more accord, however, on the grosser aspects of the frustration phenomena. Briefly, there is agreement on the following essentials for frustration:

1. A reactive organism adequately motivated towards some goal, real or symbolic, present or visualized.

2. A frustrating situation involving conflict, inhibition, loss of goal striving potentiality.

3. A resulting structure of covert and overt reactions; the former characterized by a change in tension, disturbance of homeostasis and/or maladaptation, the latter usually having the characteristics of anger, aggression, withdrawal, regression or breakdown.

The majority of frustration studies have concentrated attention upon the description and measurement of the reactional structures incident upon frustration, either for purposes of analysis of specific affective processes or in an attempt to relate some particular type of reactional structure to the type of subject frustrated.

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This study proposes to investigate the effects of the frustration "barrier" as an intervening process upon subsequent reactional structures. As such, it should provide the opportunity to "fill in" the relatively unknown and unexplored areas in the frustration process.

The discussion of preceding experimental studies will be conducted around these three main topics.

STUDIES OF BEHAVIORAL FACTORS IN THE REACTIVE ORGANISM

Studies relating to the optimal set of conditions favoring maximum frustration reaction have been carried out largely as "level of aspiration" studies by Kurt Lewin and his group. They concern the part played by goals and goal-directed behavior in the determination of behavior. The importance of setting up goals for behavior is especially accentuated in a culture with as strong a competitive emphasis as ours. The factor of motivation of a certain type and level is an essential in the production of the sequalae of frustration induced behavior. Lewin, Dembo, et. al.,[10] state that ". . . theoretical considerations show that most of the quantitative and qualitative results related to the level of aspiration can be linked with three factors, namely, the seeking of success, the avoiding of failure, and the cognitive factor of a probability judgment. These forces operate in a setting which has to be characterized as a choice for a future

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objective. The strength of these forces and the values corresponding to the subjective probability depend upon many aspects of the life space of the individual at that time, particularly on the way he sees his past experience and on the scales of reference which are characteristic for his culture and his personality".

The important idea here is that not only "adient" and "abient" drives modify individual behavior, but that there are equally important factors such as the "cognitive factor of a probability judgment", the individual's estimate of his expected degree of success evaluated in the light of his past success and failure. The imposition of a frustration barrier produces the traditional disequilibrating effects only when the individual has full expectation of success. This has been pointed out also by Sherman[23], ". . a learning situation in which each subject was psychologically prepared to consider success imperative was the best method of creating frustration." Freeman reports,[4] that ". . in experimentally induced frustrations of problem solving in children, it has been found that failure following outstanding initial success is more fundamentally disequilibrating than is failure following little or no success. Furthermore, individuals showing the more intensive and extensive physiological disturbances tend to work harder to avert failure and achieve success in spite of frustration." What is involved here is the amount and type of goal-drive based partly upon the subject's estimate of the accessibility of the goal. The concept that the indivi-

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dual must be actively striving towards a goal which he believes to be important and attainable, that is in the field of aspirations of the individual, and within range of the individual's capabilities, provides qualifications for the definition and prediction of what will be frustrating to a specified individual and points out the importance of a certain level of intensity of motivation as a necessary but not sufficient condition for frustration.

This idea is in line with the concept originally advanced by Maslow and Mittelmann[12] that frustration involves a threat to the personality, a lowering of self-esteem and an injury to the subject's feelings of security. Mere blocking of a simple desire may stimulate imperceptible reactions, but if prestige or security or a highly-valued goal is threatened the effect is greatly enhanced.

Rosenzweig[19] includes in his definition of frustration the concept of "an obstruction in route to the satisfaction of an active need". The sheer existence of an active need is termed by him "primary frustration . . . characterized by tension and subjective dissatisfaction due to the absence of the end situation necessary for quiescence . . . secondary frustration . . . (emphasizes) the supervenient obstacles or obstructions in the path to the goal of an active need". Now this idea is a more generalized concept of the active organism

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impelled toward an anticipated goal by internal lack and directed by some foreknowledge of the accessibility of that goal and its appropriateness in reducing the need-induced tensions. For without resorting to teleological explanations, the concept of active goal-seeking implies prior knowledge of appropriate ends gained through insight or experience or situation such as that depicted in the schematic presentation given above.

One final qualification must be made to the definition of the status of the individual vulnerable to frustration and this is contained within the statement by Moore[15]. The thwarting or hindrance to the attainment of the gratifying object or act in frustration is not limited to the individual's activity in progress, or to what he needs or is accustomed to, but the hindrance may relate to that which he is expecting or looking forward to; "Some of life's keenest disappointments arise from failure of expectation or hopes." Some provision must be made in an adequate theory of frustration to include the behavior-directing-and-modifying effects of symbolic reward or visualized goal gratification.

It is thus apparent that there are certain qualifications for sensitivity to frustration, that it is not an inevitable consequence of the imposition of thwartings or hindrances to individual activity. It also follows that if the on-going activity lacks sufficient impetus because it is minus the additional energy supplied by physiological, social or ego

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needs; the imposition of barriers to the consummation of the act and the achievement of the intended goal would fail to produce frustration and its affective and cognitive concomitants but might result in the abrupt abandonment of the activity. This may mean that the term "frustration" should be reserved for those types of activity, regardless of their causative factors, which tend to continue in the face of the imposition of a barrier to their consummation. In addition, the situation of the motivated organism must be described in terms which allow for the differentiation of activity peculiar to it from that activity characterized by the term "conflict"; a highly similar situation but differing in that it presents alternatives of behavior to the organism, not a full blockage of attempted action.

If the full spectrum of reactions to specified situations of frustration were known, it is conceivable that the exposure of subjects to these situations might conceivably yield data from which a comparative evaluation of the type and intensity of the original need could be made. In the absence of such a technique, however, it becomes necessary for the experimenter to take care that the techniques he employs include those sufficient for the production of adequate motivation in the subjects. Otherwise the resultant data would reflect not only reactions to frustration per se but the relative levels at which the individuals retreated from the imposed barriers due to inadequate psychologic locomotion

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towards the goal. It may well be that the phenomena presently studied under the heading of "frustration threshold" yield findings contaminated by the differences in strength of the basic motivation of the subject and not distinctive tolerances to thwarting due to the personality configuration.

STUDIES RELATING TO THE TYPE OF FRUSTRATION BARRIER IMPOSED

The clearest delineation of the techniques for inducing frustration is to be found in an article by Zander[26]. These will be reviewed very briefly and references to the separate studies will not be given since they are found in the above article. The four types of techniques for inducing frustration and a very brief description of representative studies together with the name of the experimenter will be found beneath.

I. The Insoluble Problem Technique:

A. Marston, working with children, used a portable typewriter with a fastener difficult to open. The children attempted to secure toy ducks which they knew were inside.

B. Rosenzweig, working with college students, used paper and pencil geometric puzzles. Part of the problems were soluble, part were impossible to solve.

C. Philip, working with adults, used verbal puzzles, S's were asked to introspect and report their feelings to failure.

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D. Brown, working with patients in a mental hospital used the problem of the recovery of an object in which only two solutions were possible. S's were instructed that three solutions were possible.

E. Zander, working with children, used the problem of learning number series which were changed constantly without S'S knowledge.

F. Jost, working with children, required his S's to learn number series too difficult for them.

II. The Excess Demands Technique:

A. Adams demanded physiologic impossibilities in a typing and steadiness test.

B. Freeman, working with college males, required his subjects to refrain from micturition voluntarily.

C. Keister and Updegraff, working with children, used heavy boxes placed over toys, required packing toys into boxes where careful packing was required.

D. McKinney, working with college S's used card sorting problems and caused his S's to "fail" by giving false reports of scores.

E. Sears, Hovland and Miller, working with male college S's used sleeplessness and various "obstructions".

F. French, working with college S's produced frustration by giving a false report of examination grades.

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G. McKinney, working with college S's used maze problems, learning nonsense syllables, and a steadiness test in which an unreasonable time limit was enforced and suggestions of S's inferiority were given to him by E.

H. Stafford and Hsu, working with college S's used 13 digit series with insufficient time limits on memorization and incorrect reports of scores on oral examination questions.

III. The Physical Obstruction Technique:

A. Barker, Dembo and Lewin, working with pre-school children, removed wanted toys and enforced play with less desirable ones while the originals were visible behind a screen.

B. Sears and Sears, working with their own infant, removed the nipple from the infant's mouth after specific, short feeding times.

C. Maier and Glaser, working with rats, used auditory stimuli plus physical barriers.

D. Haslerud, working with chimpanzees, erected a continuous belt feeding mechanism with food containers on the belt. At times the belt was braked before the contents could be obtained, at other times, the containers were allowed to reach the animals but were found empty.

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E. Anderson and Liddell,working with pig and sheep, restrained the animals' movements in conditioned response experiments.

F. Lacey, working with college S's, strapped them in a chair, bared their backs and rubbed cowhage (a substance producing a severe burning itch) in the middle of the bare back.

IV. The "Conflict" Technique:

A. Maier, working with rats, produced a conflict between excitation (air blast in the rear) and inhibition (card in front of food entrance the rat had been previously trained to avoid.)

B. Sears, working with human S's, trained them to draw a pencil line away from a lighted red lamp and towards a lighted green lamp. In frustration, both red and green lamps were lighted.

C. Lewin, Lippit and White, working with groups of boys exposed to varied social climates. Aggression and conflict occurred while changing from one to another social climate.

D. Krasnagorski, working with animals, reduced the differences between negative and positive conditioning stimuli, (ticks of a metronome and food vs. no food).

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E. Pavlov, Anderson and Liddell and Curtis, working with animals, used techniques similar to (d) above.

It would seem that the choice of the technique whereby frustration was to be induced was determined more by convenience, the experimenter's ingenuity, or precedents in the literature than by some clearly defined theoretical framework about which the experimental problem was posed. This alone is evidence of a lack of cohesion in contemporary views concerning the nature of the frustration phenomena.

It is sufficient to note at this point that this study represents an attempt to delineate more carefully some of the factors in an important segment of the frustration phenomenon, the barrier.

STUDIES RELATING TO THE TYPE, EXTENT AND INTENSITY OF THE REACTION PATTERNS DISPLAYED TO FRUSTRATION

It is in this area that the majority of frustration studies have been centered. Stated very briefly, most investigators have sought for effects in the three major areas into which the activity of the organism may be divided; affective, intellectual, or overt psychomotor performance.

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There is general accord in one respect; "emotion is the central dynamic factor in reaction to frustration."[20]

Since it is not the object of this study to provide an extensive analysis of the patterned sequence of behavior eventuating upon frustration except for the purpose of evaluating the relative provocative value of the barrier, the findings of workers who have concentrated their interest in the reactions to frustration will be presented in a summary fashion as follows:[26]

The following workers feel that the type of behavior listed is an invariable or frequent form of reaction to frustration:

1. Aggression - Sears, Hovland and Miller; Sears and Sears, Lewin, Lippitt and White; Dollard, Doob Miller, Mowrer and Sears.
2. Regression - Hamilton; Krechevsky; Sanders; Mowrer; Keister and Updegraff; Barker, Dembo and Lewin; Haslerud.
3. Fixation - Everall; Hall; Hamilton; Patrick; Maier; Glaser and Klee.
4. Repression - Sears.
5. Confused Conative Effort - Philip; Sears.
6. Piling Up of Nervous Strain - Anderson and Liddell; Liddell; Curtis; Cook.
7. Conflict between Excitatory and Inhibitory Stimuli - Pavlov; Krasnagorski; Maier.
8. Increased Motor Activity - Luria; McKinnon; Adams.

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9. (Reactions may Include Any or All of Above) - Marston; Rosenzweig; Brown; Hinton.

It must be stated that the above listing includes the viewpoints of men like Maier, Anderson, Liddell, etc., whose work has been concerned exclusively with animals.

Rosenzweig[17] is apparently the sole worker who has given some attention to the matter of the nature of the barrier in the frustration process, with relation to subsequent reaction. He describes two types of "obstacles" met by the need in its attempted fulfillment; passive, "non-threatening impassability", and active "threatening impassibility". In addition, there are two other important characteristics of the barrier which need to be taken into account in predicting the reactions to frustration, namely: obstacles external to the individual and obstacles internal to the individual. Thus the barrier may possess one of the following four characteristics:

1. The barrier may be passive and external; for example, a locked door.
2. The barrier may be active and external; for example, a person standing in the way of one's wants.
3. The barrier may be active and internal; for example, an "intra-psychic" conflict in the Freudian sense.
4. The barrier may be passive and internal; for example, "inherent incapacities of the individual" in the Adlerian sense of the term.

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The above theoretical division of the characteristics of the barrier suggested to the writer the hypothesis to be tested in the present study, and the types of barrier postulated in this study follow closely the first three of the types listed above.

STUDIES RELATING TO THE DETERMINATION OF THE CHARACTERISTICS OF THE REACTIONAL SYSTEM ENSUING UPON FRUSTRATION

The most clearly defined theoretical system explanatory of the reactions of human subjects to frustration has been given by Rosenzweig.[16-17-18] His definition of frustration is a fairly typical one and has already been given. Briefly, it implies the imposition of a "more or less insurmountable obstacle in the route . . . to the satisfaction of any vital need."[17] He differentiates further between "primary frustration", in which emphasis is placed upon supervenient obstacles in the path to the fulfillment of the need. He states with respect to the reactions of the individual suffering frustration:[19] "Reactions are classified according to whether the fate of the frustrated segmental need or the fate of the personality as a whole is considered. The former . . . (is) need persistive and may be considered to occur invariably after frustration.

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The latter . . . (is) ego-defensive, . . . (and) occurs only under special conditions of ego-threat". He infers further that there is a rough correspondence between the type of reaction and the type of barrier; passive barriers give rise to need persistent reactions while active barriers give rise to ego defensive reactions. After considerable experimentation, he has postulated a three-fold division of ego-defense reactions in which aggression is seen as the main component of reaction to frustration. These are:

1. Extrapunitive; aggression directed outwards to others.
2. Intropunitive; aggression directed inwards to the self.
3. Impunitive; aggression directed neither inwards nor outwards but repressed, sublimated, displaced, etc.

Now this implies that aggression is at least one of the more important consequents of frustration; a thesis advanced by the Yale group who pioneered in the investigation of frustration phenomena.[3] Their initial postulates were essentially as follows: "The occurrence of aggression always presupposes frustration and frustration invariably produces aggression as a reaction". There was a great deal of objection to this one-sided formulation, and in 1941 the same authors[14] published something in the way of a partial retraction as follows: "The previous statement (concerning

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the inevitability of aggression as a consequence of frustration) is misleading. A suggested reformulation is: 'frustration produces instigations to a number of different types of response, one of which is an instigation to some form of aggression. The determination of the presence of such an instigation, when the overt behavior is prevented, can be made by observing indirect or less overt acts".

In the same year, Sears[21] published an article entitled "Nonaggressive reactions to Frustration" in which he noted the possibility of "subsequent action sequences" to frustration other than aggression.

The frustration-aggression hypothesis arose from a need to understand better the consequences of an act terminating in non-reward or punishment, or meeting with interference before termination. Historically the hypothesis stems from Freud's analysis of frustration, but was unsuccessful in establishing his theories.

SUMMARY

In summary, it may be noted that the history of experimental investigations into the phenomena of frustration and frustration-induced behavior has failed to yield completely adequate and lucid theories to account for the full range of observed reactions to frustration. It is considered that previous investigations have suffered from a lack of a consistent hypo-

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thetical--theoretical framework into which the observed data could be fitted.

There is, however, some agreement among authorities upon the following:

1. The basic requirements for the occurrence of frustration; an unsatisfied need, an accessible goal, and some type of barrier to the attainment of that goal.

2. Frustration eventuates in changed behavior, best characterized as unadaptive, but there is high intersubject variability.

3. Some subjects, not all, react with strongly emotional behavior.

4. The ability to "tolerate" frustration is an indicator of a healthy personality.

There is disagreement or lack of evidence about the following:

1. The relationship between intensity of need and extensity of obstruction with reference to the reactions produced.

2. The influence of individual personality differences upon the perception of the nature of the barrier.

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3. The repertoire of reactions to frustration and the causes for differences in reaction to the same barrier.

4. The influence of the barrier upon subsequent reaction.

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THE PROBLEM

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THE PROBLEM

THE EXPERIMENTAL PROBLEM

Any attempt to organize a meaningful theoretical structure about the mass of data available from the literature provides at best, an incomplete picture of the total phenomenon of frustration. The following major questions may be posed:

I. May not the type of barrier imposed account for the variation in intensity of behavioral effects consequent to frustration, effects exceeding those attributable to individual differences, discrepancies in the level and quality of motivation present, and chance factors?

II. If the behavioral change consequent to frustration is mainly emotional as has been suggested, are there parallel changes in other types of behavior (e. g., intellectual, psychomotor, perceptual) developing from the emotional change? May these not vary with the type of frustration barrier imposed?

III. Are there qualitative differences in the affective reactions to frustration which are dependent upon the type of barrier imposed, or on the individual "personality" differences of the frustrated individual, or upon the interaction of the two?

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IV. Is the sum intensity of the behavioral consequents of frustration dependent upon the level of motivation or intensity of need experienced?

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THE HYPOTHESIS AND COROLLARY DEDUCTIONS

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HYPOTHESIS

In a situation of frustration, the resultant affective change in behavior will be found to vary with the type of frustration barrier imposed.

Further, of the three types of frustration barriers which may be distinguished, exterior-personal barriers will produce behavioral changes which will be measurably distinguishable from comparable changes produced by the imposition of either interior-personal or exterior-personal frustration barriers, and these effects will be quantitatively greater than the effects due to either of the latter types of barriers at a statistically significant level.

Corollary 1. There will be differences in the functioning efficiency of individuals in the control group compared with individuals in the experimental (frustrated) groups, as determined by a measure of gross psychomotor performance, such as the performance of a simple perceptual task of moderate difficulty. These differences should be in the direction of a decrease in speed and quality of performance for the frustrated groups.

Corollary 2. There will be differences in the same measured functions between mean performance values

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for a group upon which is imposed external-personal barriers and groups frustrated by the imposition of interior-personal external-impersonal barriers, considered separately.

Corollary 3. The above differences will be separable from and greater than those resulting from the effects of practice and fatigue on performance.

Corollary 4. There will be differences in the quality of the emotional experience produced by the imposition of external-personal barriers, which are distinguishable from comparable effectsproduced by the imposition of either exterior-personal or interior-personal barriers.

Corollary 5. There will be differences in the intensity of the emotional experience, shown by standard measures of emotional change between the groups frustrated by the three different types of barriers and the intensity of the effect will be greater with the FEP group.

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DEFINITIONS

Need: Those factors of imbalance, eventually intra individual, the resolution of which involves the individual's immediate or eventual, physical or psychic functioning integrity.

Frustration: (After Symonds)[25] The blocking or interference with the satisfaction of an aroused need through some barrier or obstruction.

Frustration Barrier: That agent, internal or external to the frustrated individual by which either his goal attainment or reward expectation suffers partial or complete blocking.

External-personal barriers (FEP): The perceived causative agent in a situation of frustration in which the need blocking is attributed to the actions of or consequences of action by an individual other than the individual suffering frustration.

Interior-Personal barriers (FIP): The perceived causative agent in a situation of frustration in which the immediate responsibility for the need-blocking is attributed to the attitudes, acts, or abilities of the individual suffering frustration.

External-Impersonal Barriers (FEI): The perceived causative agent in a situation of frustration in which the agencies of

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need blocking are attributed to accidental, chance, random, or natural factors in the environment.

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PROCEDURE AND METHOD

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PROCEDURE AND METHOD

General Procedure: The following factors are considered to be of importance in studying experimentally induced frustration reactions in human subjects:

1. Frustration may be expected to follow the imposition of a barrier only if there has been previously successful performance of the task.

2. Frustration may be induced by the blocking of an active need and the quantity of frustration-induced arousal may be directly related to the intensity of the preceding motivation.

3. For optimal effect, the imposition of the barrier shall take the form of a removal of reward and there should be no possibility in the situation for the erection of substitute goals or alternate routes to the goal.

4. The subject should be made to perceive the barrier as an obstruction arising from a clear, definite and unitary source.

5. The frustrating situations (FEP, FEI and FIP), should resemble each other in all respects save one; the perceived nature of the barrier.

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6. Some provision should be made for estimating the strength of the induced motivation by the same means utilized in estimating the effects due to frustration.

7. A control group of subjects should be subjected to the same tasks and the same measures as the experimental groups (except the conditions of frustration) so that the changes in behavior subsequent to the imposition of the barrier in the experimental groups may be evaluated by comparison.

8. The control group measures should be obtained in the same fashion as the experimental groups and then compared with the latter so that any changes produced by practice fatigue and uncontrolled factors may be evaluated.

This study takes cognizance of the above factors. It represents an attempt to study in an objective fashion, the reactions of human subjects to three representative types of frustration barrier; where frustration is due to some external human influence, where it is due to characteristics of the frustrated individual, or where it is ascribable to external and accidental agencies.

The general plan of procedure will specify that the subject perform first in the absence of either reward or frustration, next under optimal conditions represented by

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reward and a minimum of frustration, and finally under a condition ushered in by the imposition of the frustration barrier.

Problem Materials: Each subject was presented with a total of sixty four problems which were random arrangements of small bright dots projected upon a screen in a darkened room for exactly one second. The problems were divided into four series: A, B, C, and D, containing sixteen problems each. While the configurations of the dots were different for each problem, there were four problems presented for each step in the "difficulty range" (number of dots per problem). This difficulty range extended from seven dots per problem through fourteen dots per problem.

The sequence of presentation of the problems within a series was determined by random methods for Series A and C. Series B and D were then constructed to parallel Series A and C with respect to the order of presentation of the problems. One-tenth scale reproductions of the problems appear in the Appendix.

Subjects: The subjects were selected from arrivals at the Receiving Block of the Ohio State Penitentiary at Columbus, Ohio. No attempt was made to select them on the basis of chronological age, type of sentence, number of previous sentences, etc. Instead, randomness of selection was secured

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by testing men from odd-numbered beds on odd-numbered days and vice versa. Since there was a complete turnover of Receiving Block population every six days, this system worked nicely. The rapid turnover also took care of such problems as communication among the subjects, etc. A total of one hundred and ten inmates were studied, providing three experimental groups of ninety men each and one control group of twenty men.

Conditions: Four conditions were administered in sequence to the three experimental groups. The first two conditions were identical for all three groups. There was an initial period of performance on the problems where neither frustration nor reward factors were introduced. This will be referred to hereinafter as the NR condition. This was followed by a condition where maximum motivation was stimulated by the offer of rewards for successful performance, hereinafter referred to as "R" condition. Each subject received at least ten awards, none received complete rewarding. It was felt that continuous reward would make the subject "catch on" to the fact that he was being rewarded randomly instead of for correct performance. The rewards used were popular brand cigarettes dispensed by an automatic vending machine described under "Apparatus".

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There is little doubt that cigarettes were highly motivating rewards for this group of subjects. There were continuous requests from inmates and ward attendants to serve as subjects, since "tailor-made" cigarettes are at a premium and are used as a basis for barter among the inmates. Inmates are not permitted funds.

The third and fourth conditions (hereinafter referred to as F_1 and F_2) followed the imposition of the frustration barrier early in the F_1 condition. Between one and three rewarded trials were given before the barrier was imposed to minimize the "artificiality" of the process. The total frustration performance was therefore of the same length as both NR and R conditions combined so that longer-term effects of frustration could be studied.

The control groups received none of the above conditions but were administered the same problems in the same orders followed in the experimental groups. They were instructed that they were to do the problems and regardless of their performance, would receive a full pack of cigarettes at the end.

Selection of Groups and Order of Administration of Problems:

Although the problems were constructed randomly, the

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following administrative procedures were adopted to counterbalance any effects due to differences in difficulty between the four problem series. This is illustrated in Table I beneath.

TABLE I

Method of Selection of Groups and Order of Administration of Problem Series for Experimental Groups

Subject No.*	NR Cond.	R Cond.	Frustration Series 1 & 2 FEP	FIP	FEI
1	A	B	C,D		
2	B	C		D,A	
3	C	D			A,B
4	D	A	B,C		
5	E	B		C,D	
6	B	C			D,A
7	C	D	A,B		
8	D	A		B,C	
9	A	B			C,D
10	B	C	D,A		
n	.	.			

*Serial Order in which S appeared for Testing.

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It is apparent that any difficulties inherent in the problem series were cancelled by this procedure.

Instructions to Subjects:

The subject's instructions provided a valuable opportunity to induce a set favoring one or another type of frustration reaction. The following instructions were given to the subjects.

In all cases, there was some initial informal conversation in which the purposes of the pneumography and PGR electrodes were explained while they were being fastened on the subject. This also provided an opportunity for S's breathing to return to anormal rate.

FEP:NR. We are working on a new psychological test that is designed to show how rapidly and accurately people can grasp things they see. You are helping me set up standards in this new test. None of your scores will be put on your prison record.

Look at this sample problem. (Problem exposed) All that you have to do is to look at each problem and estimate as rapidly as possible the exact number of bright dots that are exposed. You must do this quickly since this machine will

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expose the problems for exactly one second. You may have to guess at first but very soon you will find the problems easier to do. Any questions?

FEP R. You are doing fine. Now I will give you another group of problems similar to the first. You are to do the same thing; estimate the exact number of dots exposed. From now on, however, each time you get the answer right, you will get a cigarette from this machine here (Point). Here's how you get that cigarette. After you have given your answer, press lightly on this switch. The machine will buzz and a cigarette will come out. Now try the switch several times.

FEP F. You are doing well. We will start the last group of problems. They are like the ones you have done and you are to do the same thing, estimate the exact number of dots exposed. You will continue to get a cigarette each time you give a right answer. If you can get five correct answers in a row, I will give you an extra pack of your favorite brand.

(After three or four rewarded responses) You have done OK in the test but I have decided that I will not give you any more cigarettes. You have thirty two more problems to do. Get started on them now. Don't expect any more cigarettes.

FIP NR. (Instructions identical with FEP NR)

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FIP R. OK, here are some more problems. You are to do the same, estimate the exact number of dots exposed. From now on, however, each time you give the right answer you will automatically get a cigarette from this machine here (Point). Here's how you get that cigarette. After you have given your answer, press lightly on this switch. If your answer is right, a cigarette will come out. Now try the switch. Be very careful. This is a delicate switch and the apparatus is easily jammed. Don't press too hard or don't press it too soon after you give your answer. Do you understand?

FIP F1. You are doing well. Now we're ready for the last group of problems. You are to do the same thing, estimate the exact number of dots exposed. You will continue to get a cigarette for each correct answer. If you get five right in a row, you will get an extra pack of your favorite brand. Now I've noticed that you have been pressing the switch too quickly (or too soon after you give the answer). Let me warn you again about this, I don't want the apparatus broken.

(After three or four rewarded responses, press the "breakdown switch".) Oh, oh, . . . did you press the switch too hard? (or, Did you press the switch too quickly?) (Examine the equipment briefly) Well, the solenoid is burnt out. You didn't follow instructions and now the machine is broken down. I'm sorry, I can't stop to fix it now. Let's do the rest of the

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problems. There won't be any more cigarettes.

FEI NR: (Same instructions as FEP and FIP)

FEI R: You are doing fine. Now I will give you another group of problems similar to the first. You are to do the same thing, estimate the exact number of dots exposed. From now on, however, each time you give the right answer you will automatically get a cigarette from this machine. (Point) Here's how you get that cigarette. After you have given your answer, press lightly on this switch. If your answer is right, a cigarette will come out. Now try the switch. That's right press it lightly.

FEI F. You are doing well. Now we're ready for the last group of problems. You are to do the same thing, estimate the number of dots exposed. You will continue to get a cigarette for each correct answer. If you get five right in a row, you will get an extra pack of your favorite brand. OK?

(After three or four rewarded responses, press "breakdown" switch) Oh, oh! (Examines equipment briefly) I'm afraid the cigarette vendor is burnt out. (Say to assistant) I guess I didn't put in a heavy enough breaker the last time. (To S) I'm sorry, the machine is broken down and we can't get any more cigarettes from it. I've had nothing but trouble

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with this apparatus. Let's go on with the rest of the problems, OK?

Measures: Four types of measures were made on the three experimental and control groups. They are discussed briefly beneath.

Performance Measures. Measures of performance, in the form of sum of error scores for each subject, were included because it was felt that this was the most economical and efficient method of reflecting changes in the total functioning efficiency of the subject. Further, the presence of a control group enabled the evaluation of changes due to practice, fatigue and uncontrollable factors contrasted with those due to the imposition of the experimental conditions. Since no normative performance data were available, this necessitated an extra step in the evaluation of the control group performance. (See page 58)

The subject's estimates of the number of dots presented in each problem were recorded and the representative scores for a subject consist of the sums of the deviations of the estimates from the actual number of dots presented in a problem.

PGR Measures. This traditionally used measure of affective energy mobilization was included because of the reported facility with which it reflects minor changes in

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sympathetic nervous system activity. G. L. Freeman[14] has called it "the best general index of the amount of total neuro-muscular activity we have today". J. G. McCurdy,[13] in a summary of PGR studies reported to date, finds correlations ranging from plus .45 to plus 1.00 for PGR variation and S's introspective evaluations of appreciation of emotional experience. The circuit used was essentially that described by Lacey and Siegel[8], which gives adequate sensitivity on a 3" scale micrometer. The data were transformed into "units change in conductance" by use of a transformation chart. This unit of measurement was employed since it was demonstrated by the above authors[9] that this was the most acceptable of seven investigated PGR measures because it is independent of basal resistance level in an S, and because scores so obtained do not violate the assumption of normality in the parent population.

Respiration Measures. The traditional measures of I/E ratio and the newer "I fraction" were investigated and then rejected. It seemed impossible to depict accurately the trends in a thirty minute record of respiration by use of these measures. Instead, a new measure was devised and applied with positive results. This has been designated the "AA" value and is obtained in the following manner.

One minute samples of breathing records were taken at the beginning and at the end of each of the periods represented

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by conditions. The number of inspirations was counted and designated "f". Then a map measurer was run over that sample of the pneumographic tracing. A "total amplitude" was thus obtained for the sample. The counted frequency was then divided into this figure to obtain the AA measure. Comparison between control and experimental group results shows a high degree of contrast with a steady decline across control conditions.

Introspective Report. Because some estimate of the qualitative aspects of the affective change was desired, it was considered necessary to provide some means for assessing this phenomenon. A scale adopted from Stafford and Hsu[24] was used. It was modified by the inclusion of a provision for registering three different levels of intensity; "mildly", "moderately", and "intensely". Weights of 1, 2, and 3, respectively, were used in computing the weighted frequencies found in the section on results. A copy of this check list is to be found in the Appendix.

Equipment, Apparatus and Materials:

Problem Materials. The task with which the subject was presented consisted in making an exact estimate of the number of bright dots approximately .25" in diameter projec-

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ted for exactly one second on an area 12" x 18" located 10' from the subject. The amount of time separating one problem from the next varied with each subject since he was given as much time as he pleased in which to respond, although the average time was probably in the order of eight seconds. There were 64 of these problems divided into four series of sixteen each contained upon regulation half-frame 35 mm. strip film. The background areas of the problems had been excessively overexposed so that there was no apparent background illumination on the screen and the dot areas had been punched completely through the emulsion and film backing with a fine pointed needle. The configurations of these dots are shown in the Appendix. The projector used was a small, 100 Watt SVE Strip Film Projector (5" F. L. Lens) fitted with a solenoid shutter described beneath.

Projector Shutter. The projector shutter consisted of a small 6 VDC solenoid with approximately 1¼" travel, the armature of which was backed with a light compression spring and its front end was connected to the shutter arm with a flexible nylon link. The shutter arm rose vertically to a point immediately in front of the projector lens where it terminated in a thin aluminum foil disc approximately 2½" in diameter intercepting the light emitted from the lens. The ratio of force to effort arm was such as to give an amplification in speed of motion of 10:1 to the lateral movement of

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the solenoid armature. Since the mass of the thin-walled plastic shutter arm and light aluminum shutter were almost negligible, the lag in action due to inertia was very slight. The solenoid coil was operated by current transmitted from a rectifier through the timing switch described beneath.

Timing Switch. The timing switch to provide exact one second exposures was built about a 1 RPS synchronous motor and a 64 station stepping relay. The motor shaft bore a single-point cam which tripped a normally open SPST "Microswitch" once each revolution. At each closure, the current was led into the stepping relay coil and actuated its armature to advance it a single station. Every fifth station was wired together and this network was led to the 6 VDC power supply, while the armature lead was connected to one side of the projector shutter. This arrangement gave a precise one second dwell on each station contact. The remaining side of the shutter coil was led to a silent SPST pushbutton switch and from thence to the power supply. In operation, E produced actuation of the projector shutter by closing this switch, but the time of solenoid actuation was provided by the stepping relay. Every fifth-minus-one station was interconnected and led to a battery and warning pilot light so that E could avoid closing his exposure switch during the period of a dwell.

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Cigarette "Reward" Dispenser. A photograph of this apparatus is to be found in the Appendix. Basically, it consisted of a powerful 22VAC solenoid which actuated a slide in the base of a 24" high, clear plastic cigarette "reservoir". On each actuation cycle, the slide was withdrawn, the bottom cigarette was fed into the space by gravity, and upon break of the circuit a spring forced the bottom cigarette out and closed the orfice of the reservoir until it was actuated again. The current for this solenoid was led through two switches; one, a small instantaneous acting "microswitch" which the subject held in his hand and pressed to secure the reward, the other was a silent SPST push switch located on E's control board. Since these two switches were in series, both E's and S's switches had to be closed before the solenoid operated, so that the dispensing of reward was actually under the control of the assistant operator.

PGR Apparatus. The circuit employed for measuring palmar skin resistance changes was a relatively new one and the circuit diagrams are to be found in (8). Briefly, the circuit is potentiometric in contrast to the traditional modified Wheatstone bridge circuit and has adequate sensitivity for the majority of psychogalvanometric determinations. Sensitivity is estimated at 10 mhos per unit of meter change at the middle ranges of resistance (around 50,000 Ohms.) with a 0-200

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microammeter. The electrodes used were .750 x .500 inches pure silver squares mounted on the inner aspect of a "U" shaped lucite slip. A conducting saline paste was used on the dorsal (indifferent) aspect of the hand.

Pneumograph. The pneumograph used was a standard laboratory type rubber tube enclosing a coiled spring to prevent collapsing. Changes in chest girth due to respiration produced a change in length of the tubing and a drop of the enclosed air pressure. The orfice of the pneumograph was led to a Marey type tambour actuating a light-weight heated stylus on the kymograph.

Kymograph. The kymograph was of standard construction and carried 4" wide waxed recording paper upon which both respiration curves and stimulus and reward presentations were traced. It was possible to determine the type of breathing occurring in exact temporal relationship with the presentation of the problem and of reward.

"Breakdown" Apparatus. This unit was constructed to simulate an apparatus breakdown called for by procedures in the imposition of FEI and FIP barriers. It consisted of a low impedance coil connected in series with the 110VAC supply, an aluminum foil fusible link and a silent footswitch. The fusible link was renewable and was situated behind the

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plastic cigarette dispenser. Upon closure of the switch the full load amperage was passed through the link causing a momentary bright bluish arc, a hum and the smell of fusing metal. Since this circuit was completely independent of the above circuits, it did not produce an actual breakdown.

Feeling Check Lists. A sample of the feeling check list, adapted from one used by Stafford and Hsu[24] is to be found in the Appendix. The only modifications made were the provision for registering three levels of intensity of feeling; "mildly", "moderately", and "intensely".

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ANALYSIS OF THE DATA

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ANALYSIS OF THE DATA

PART I

Introduction, Setting Criteria for Measurement and Evaluative Procedures.

If, as it has been said, a scientific experiment is a matter of "putting a question to nature", adequate statistical analysis of the obtained data would represent the very necessary translation of her grudging reply into terms that are at the same time sufficiently broad to permit some generalization and yet specific enough to provide unequivocal meanings. For data and statements about data are useful only as they provide the basis for clear conclusions, whether the conclusion is an affirmation or a denial of the question asked.

An attempt was made to cast this study into such a form that the questions raised by the hypothesis and corollary deductions could be answered with a minimum of equivocality. To provide a maximum of useful checks and controls the controlled experimental method and techniques of counterbalanced administration of experimental procedures were incorporated into the design.

Certain restrictions, however, were imposed at the outset of the planning to offset any tendency for the study to collapse into a sterile and unrealistic exercise in the scientific method,

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without real meaning and relevance to incidents in the life situation. Since some of these reservations concern the matters of measurement and manipulation of data, they will be discussed briefly beneath.

The essential aspects of the phenomenon of affective reaction which is the central topic of this study are probably highly complex, mediated by cortical activity, and completely inaccessible to direct measurement and observation. Since this situation is a fairly common one in psychology, the traditional strategem of the researcher is that of seeking changes in more accessible types of casually related behavior. The best available measurements of affective change are quite distantly removed in this causal chain. Even the most marked changes at these lower levels are contaminated by an indeterminate number of intervening related and non-related processes. The appearance of any real change, therefore, at the level of the external observer may be slight and highly distorted. Whatever techniques of statistical analysis are chosen, some allowance must be made for reckoning with changes and differences in change which would be minor, weakly positive or only non-negating of the hypothesis.

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Because the experimenter expects distortion and modification between the central process and its observable concomitants, he must be prepared to observe and record as many different aspects of these secondary changes as possible. In addition, he must search for all reasonable combinations of secondary change. In this study both highly objective and subjective measures were included.

Finally, the personal theoretic bias of the experimenter necessarily influences his thinking in the matters of design, measurement and assessment of findings. In this study, the effects of the writer's theoretical bias will be most clearly seen in the definition of significant behavior as an activity, an ongoing process of partly automatic and partly voluntary attempts at the reestablishment of internal physical and external psychic balances; distinct and separable from a parallel set of semi-automatic regulative processes serving to maintain the individual in a state of true physiologic homeostatic equilibrium.

It was this attitude, more than simple respect for controlled scientific method that prompted the inclusion of a control group of subjects. For it is felt that only by a comparison, subjective or rigidly objective, of control and experimental group behavior will it be possible to make some kind of estimate of the differences in change which are

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significant in distinguishing situation-induced activity from the background effects of a continuous, preponderantly subliminal homeostatic flux.

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The Control Group Performance Analysis.

The initial analysis undertaken was that of determining the equivalence between the four series of perceptual problems; A, B, C and D. Since these problems had not been used in previous studies there was an initial question of whether they were of nearly equal difficulty for normal groups or whether, because of variability in difficulty between series their use would produce unwanted error. Therefore a rather extended study of the control group performance on the perceptual problem materials was undertaken.

Problem Difficulty Relative to Discrete Number of Stimuli.

The first of these determinations was that of the relative difficulty of the problems containing different numbers of dots, whether difficulty was directly related to the number of objects to be perceived. An analysis of this relationship is shown in the Table II and Fig. A beneath.

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TABLE II

ITEM ANALYSIS RESULTS, PERCEPTUAL PROBLEMS. Numbers and Percents of Control Group Subjects Giving Correct Estimate

Numbers of dots	Series A*	Series C*	Series B*	Series D*	Mean ABCD*	% of Total
7	11,16	14,10	11,12	10,15	12.4	62%
8	7,9	7,13	12,8	12,10	9.7	48.5%
9	10,8	7,13	10,6	11,10	9.4	47%
10	9,2	8,6	8,7	5,6	6.4	32%
11	1,3	1,3	2.2	3.5	2.5	12.5%
12	4,3	2,5	5,6	2,6	4.1	20.5%
13	0,3	1,0	1,4	2,2	1.7	8.5%
14	3,5	2,1	1,3	3,0	2.2	11%

*Figures given are number of correct estimates given. The first figure is for the first appearance of the problem in the series, second figure is for the second appearance.

(Note) Series A and C are parallel series; Series B and D are are also parallel series in order of presentation.

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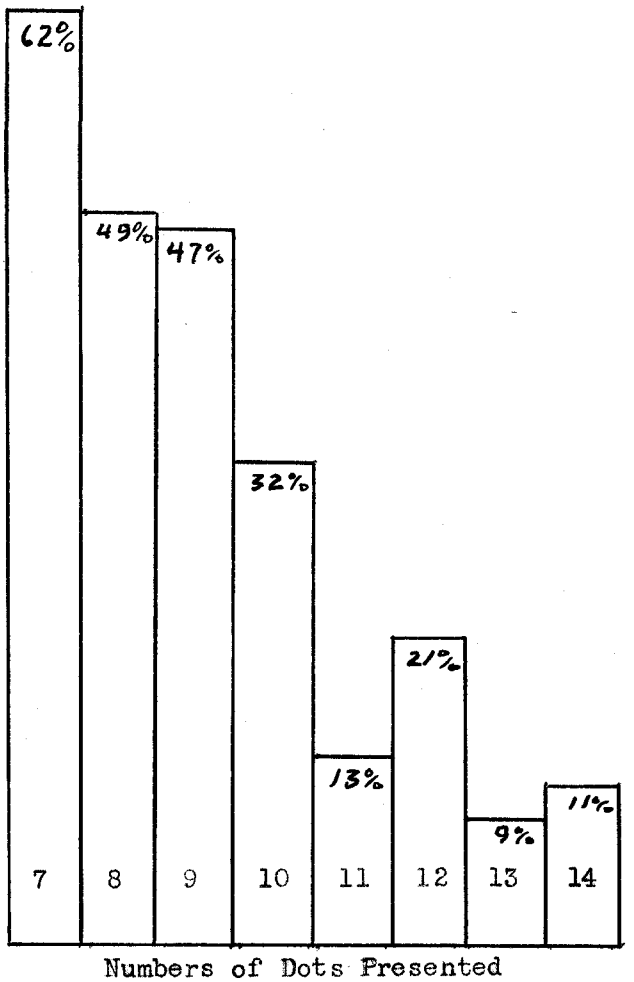

FIGURE A

Relative Difficulty of Problem Materials for Different Numbers of Dots in Terms of Percent of Control Group Giving Correct Estimates

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The trend apparent in these data is that of a direct and approximately linear relationship between simple number of discrete stimuli presented and average success on the problem. There are evidences of a "leveling off" tendency in the right end of the curve which suggests that a study of a larger group might have shown a slightly curvilinear relationship. The differences between problem levels are so great as to suggest that they are statistically significant.

Problem Difficulty Relative to Grouping of Discrete Stimuli, Order of Problem in Series, Interaction Effects.

An analysis of variance was made of the control group perceptual problem performance and is summarized beneath. The Latin square arrangement of the problem series across groups and for conditions enabled the removal of the effects noted in the title above. The data are found in Table III.

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TABLE III

SUM OF SQUARES, MEAN SQUARES AND "F" RATIOS FOR CONTROL GROUP PERCEPTUAL PROBLEM PERFORMANCE (Mean Error Scores)

Source of Variation	Sums of Squares	df	Mean Square	F Ratio
Serial order of presentation between four subgroups	12753	3	4251	1.961 NS
Residual Between Subs.	34954	16	2185	
Total Between Subs.	47707	19		
Between Prob. Groups ABCD	737	3	245.7	1.961 NS
Between serial positions (first, second, third, fourth) in order of administration	2248	3	749.3	5.980 **
Between cells for Latin Square	1602	6	267	2.130 NS
Residual Within Subs.	6016	48	125.3	
Total Within Subs.	10603	60		
TOTAL	58310	79		

** Significant at 1% probability level

* Significant at 5% probability level

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It is apparent from an inspection of the F ratios shown in the above table that the serial order of presentation of a particular problem series had an insignificant effect upon performance (F of 1.946, required at P^{05} 3.20). Further, there was no significant difference between performance in the different problem groups with respect to their order of presentation (F of 1.961, required at P^{05} 3.20). Finally, there was no significant difference in the performance in the different problem series which could be attributed to the dual effect of a particular series presented at particular position in the sequence, (F of 2.130, required at P^{05} 2.29). The significance of the differences discovered between columns (first 16 problems versus second 16 problems, etc.) is attributed to a decline in error score following practice and learning.

Summary.

While the four series were constructed to present an entirely random order of presentation of problems of a particular "difficulty", and the series were rotated across the subjects in a counter balanced fashion, the chance possibility of significant differences due to order of presentation within a series, arrangement of dots, or combined effects of these two factors has been denied.

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Initial Subject Ability and Rate of Improvement in Performance.

One possible source of error introduced by using measures of gross psychomotor performance as an index of changing states of affective arousal would be included if the amount and rate of changes in the level of performance on the perceptual problems due to practice and learning would vary with the initial individual differences in perceptual ability. An attempt was made to evaluate this effect by ranking the twenty control group subjects in order on their performance scores obtained in the first series of 16 problems and again on their performance on the final series of 16 problems. The two sets were then correlated using the Rho coefficient and a value of .21 was obtained with a reliability of .095. The interpretation here is that the relationship is weakly positive but not significant.

Mean Score Improvement with Practice.

As has been suggested previously, the major reasons for performing an intensive analysis of the control group data were that these data were to provide the evaluative baseline against which experimental group findings were to be evaluated.

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If the measures were to include factors other than the expected practice and fatigue effects, the accuracy of the measures as an index would suffer.

Two attacks upon this evaluation were made. The first is found in Table III preceding where the F ratio for differences in score value attributable to serial position in four consecutive presentations is well above the 1% probability level (F 5.980). The graph beneath shows the relationships of the four consecutive means for combined problem series:

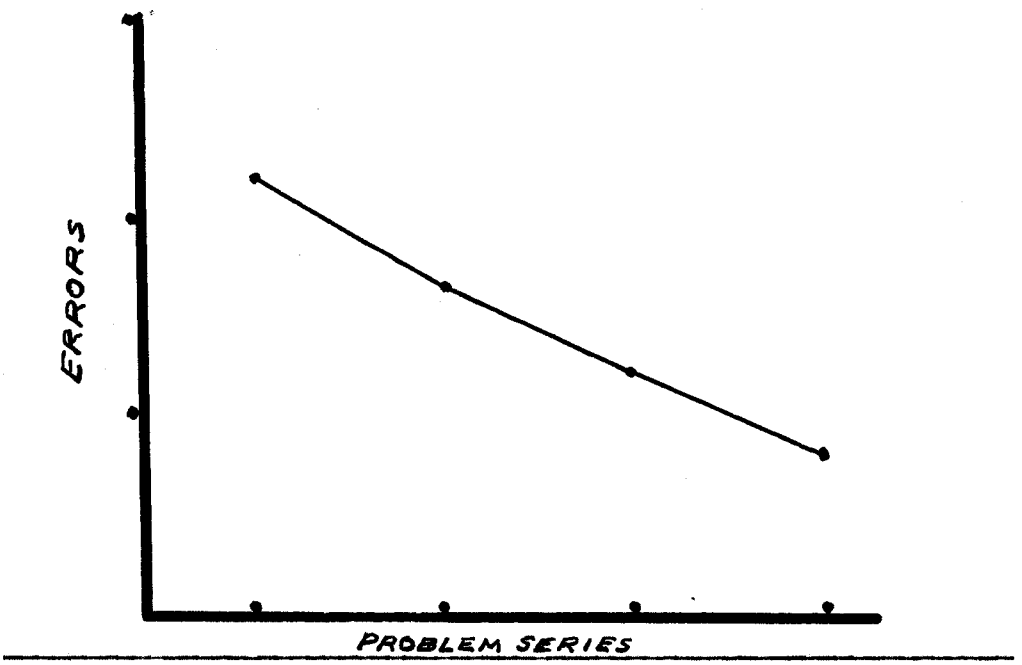

FIGURE B

Changes in Level of Performance on Perceptual Problem Materials with Successive Performance (Control Group)

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The actual value of these means and the "t" tests of significance of the differences are found in Table IV beneath.

TABLE IV

MEANS AND "t" TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN CONSECUTIVE COLUMNS OF CONTROL GROUP PERFORMANCE DATA

Column	Mean	S.D.	"t"		
First	36.5	20.8	1.987	3.060 **	2.970 **
Second	29.7	18.0	1.642		
Third	27.4	19.9			
Fourth	24.8	18.9			

**Significant above the 1% probability level
Note: Formula used was for small, correlated samples

The magnitude of decrease in mean error scores between the first and third, and the first and fourth presentations is large enough to be statistically significant. The required conditions stated above are reliably established.

ANALYSIS OF EXPERIMENTAL GROUP DATA

Performance Measures, Comparison of Findings Across Experimental Groups.

Figure C beneath gives the mean error score values for three experimental and the control group. To provide a clearer

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representation of the relationship of experimental and control group findings, the latter have beem adjusted upward to form a straight line.

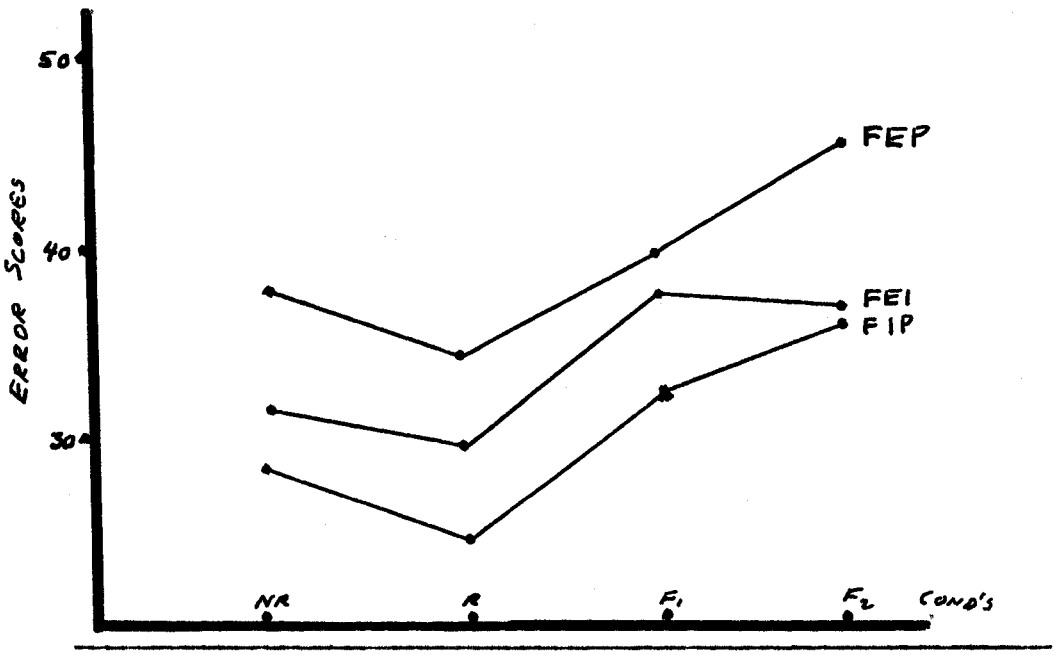

FIGURE C

Performance Measure Results, Four Groups

It is apparent that the performance by the experimental groups did differ from that displayed by the control and that the differences in each case were in the direction of a more rapid decline of error scores between the first and second conditions and of an increase thereafter. The most marked differences in this post-fruatration trend are obtained between FEI and FEP on conditions F_1 and F_2.

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Analysis of variance results on the massed group (all experimental plus control groups) are shown in the following table.

TABLE V

ANALYSIS OF VARIANCE PERFORMANCE RESULTS FOR THREE EXPERIMENTAL AND ONE CONTROL CONDITION

Source of Variation	Sum of Squares	df	Mean Square	F
Between groups@	5203	3	1734	13.237 **
Between Conds.@	5559	3	1853	14.145 **
Int; Groups x Conds.	1180	9	131	
Total Between Cells	11942	15		
Between S's in Same Group	293584	106	2770	15.054 **
Pooled Interaction; S's x Conds. x Groups	58616	318	184	
Total Within Cells	352199	831		
TOTAL	364141	439		

@Expanded in table beneath

Additional analysis of variance on each of the four groups taken separately was performed to discover the contribution of each to the total effect with the results shown in the table beneath.

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TABLE Va

ANALYSIS OF VARIANCE RESULTS ON PERFORMANCE DATA FOR THREE EXPERIMENTAL AND ONE CONTROL GROUP. (BY GROUP)

	Source of Variation		Sums of Squares	df	Mean Square	F Ratio
FEP	Between S's		133214	29	4594	12.218 **
	Between Conditions	FEP	1443	3	481	NS
	Interaction; Subs and Conds		32705	87	376	
FIP	Between S's		53158	29	1833	14.209 **
	Between Conds.	FIP	1512	3	504	3.906 **
	Interaction, S's x Conditions					
FEI	Between S's		59505	29	2052	28.500
	Between Conditions	FEI	1536	3	512	7.111 **
	Interaction; Subs x Conditions		6305	87	72	
CONTROL	Between S's		57707	19	2511	17.081
	Between Conditions	CONTROL	2248	3	749	5.095
	Interaction, S's x Conditions		8355	57	147	

** Significant at 1% probability level

* Significant at 5% probability level

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Summary of Findings: Performance Measures.

1. Steady, apparently linear decline in error scores for control group.

2. All experimental group error scores decline more rapidly from NR to R conditions than would be expected from Control Group performance.

3. FEI and FIP groups show increase of error scores from R to F_1; FEP remains steady.

4. FEI and FIP scores decrease from F_1 to F_2 ; FEP scores increase slightly but to an insignificant degree.

5. Intergroup (mean) differences significant at 1% probability level.

6. Differences between conditions on problem performance are significantly large.

7. FIP and FEI both show highly significant differences between conditions, FEP shows insignificant differences.

8. FEI group shows most intersubject variability, FEP group least. (Therefore more consistency in subject reaction)

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Respiration Measures: Comparison of Findings Across the Experimental and Control Groups.

The same adjustment has been performed here as in the preceding section on Performance Scores. Mean values for the experimental groups have been adjusted by setting control group respiration data at a value of zero change across the four conditions. Mean values are shown in Figure D beneath.

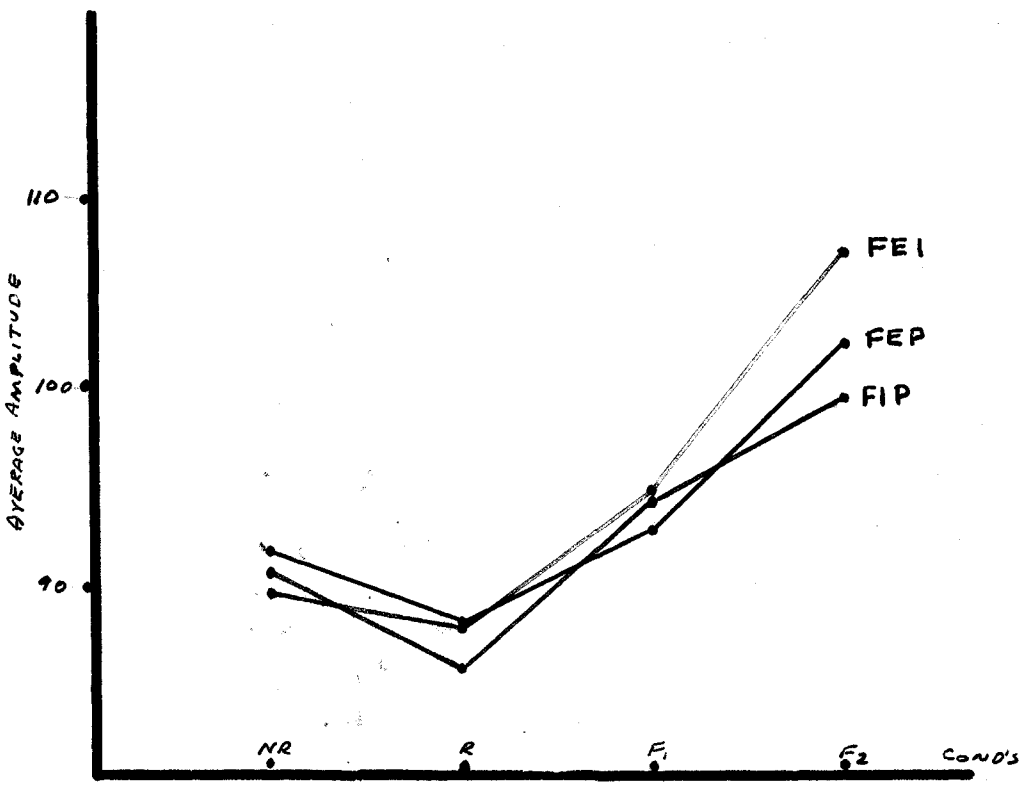

FIGURE D

Respiration Measure Results, Four Groups

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Here, as in the performance measures, the control group curve shows a smooth decline across the four conditions, reflecting a decrease in O_2 intake as the result of a decline in frequency or amplitude of breathing. There was considerable difference between subjects in this respect.

Analysis of variance procedures were used here, first on the massed group data, then on the four groups considered separately. The results of this analysis are given in Tables VI and VIa beneath.

TABLE VI

ANALYSIS OF VARIANCE RESULTS ON RESPIRATION DATA FOR THREE EXPERIMENTAL AND ONE CONTROL GROUP.

Source of Variation	Sums of Squares	df	Mean Square	F
Between groups	52594	3	17531	27.915 **
Between Conditions	7137	7	1020	1.624 ns
Interaction; Groups x Conditions	13194	21	628	
Between Cells	72925	31		
Between S's in same Group	826256	102	8101	1.906 **
Pooled Interaction; S's x Conds x Groups	290391	683	425	
Within Cells	1116647	816		
TOTAL	1189572	847		

** Significant at 1% probability level.

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TABLE VIa

FURTHER ANALYSIS OF VARIANCE RESULTS ON RESPIRATION DATA FOR THREE EXPERIMENTAL AND ONE CONTROL GROUP. (BY GROUP)

	Source of Variation		Sums of Squares	df	Mean Squares	F
	Between Subjects		164633	28	9588½	24.909
FEP	Between Conditions	FEP	3142	7	449	1.166
	Interaction, Subs x Conditions		75491	196	385	
	Between Subjects		108959	27	4036	12.048
	Between Conditions	FIP	3862	7	552	1.657
FIP	Interaction, Subs x Conditions		63377	189	335	
	Between Subjects		248611	28	8879	21.446
	Between Conditions	FEI	2833	7	405	.978
FEI	Interaction; Pooled Subs x Conditions		81170	196	414	
	Between Subjects		304054	19	16003	30.251
	Between Conditions	CONTROL	10493	7	1399	2.834 **
CONTROL	Interaction; Pooled Subs x Conditions		70353	133	529	

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Summary of Findings in Respiration Measures.

1. Steady, probably linear decline in average amplitude measure for control group across four conditions.

2. All experimental groups decline more rapidly from NR to R condition than could be predicted from control group curves.

3. FIP shows considerable increase in average amplitude from R to F_1, FEI shows slight increase between same points while FEP shows actual decline. This decline is less in slope than that shown by control group.

4. FIP shows decline in average amplitude from F_1 to F_2 where it reaches the R condition level. FEI shows marked increase in AA in the same period while FEP group shows negligible upward inflection.

5. Intergroup (mean) differences significantly different at 1% probability level.

6. Differences between conditi ns are not significantly high for massed data.

7. Control group only shows significant differences between conditions (groups considered singly).

8. FEP shows most intersubject variability, FIP group least; (therefore more consistency in individual subject reactions).

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Psychogalvanic response measures, comparison of findings across the experimental groups.

As in the previous graphs of mean values for the experimental measures, the PGR mean values for four conditions have been adjusted so that the curve for the control group is a straight line.

It should be noted here that PGR measures were not obtained on control group members. This was due to the combined factors of apparatus breakdown and continuing cold conditions in the experimental room. It was felt that the cold temperatures alone would seriously distort PGR measures.

Knowledge of the characteristics of the PGR however, permits the prediction that the level of measured conductance would have decreased steadily in a fashion similar to that found in control group data on other measures. However, to insure the least possible amount of error in the evaluation of experimental data, the curve of response for the PGR control was assumed to be "no change", rather than any predicted level of decline. This assumption was also made with regard to the Chi^2 analysis performed in a later section. The following Figure and Tables are based upon the experimental group means for the four conditions.

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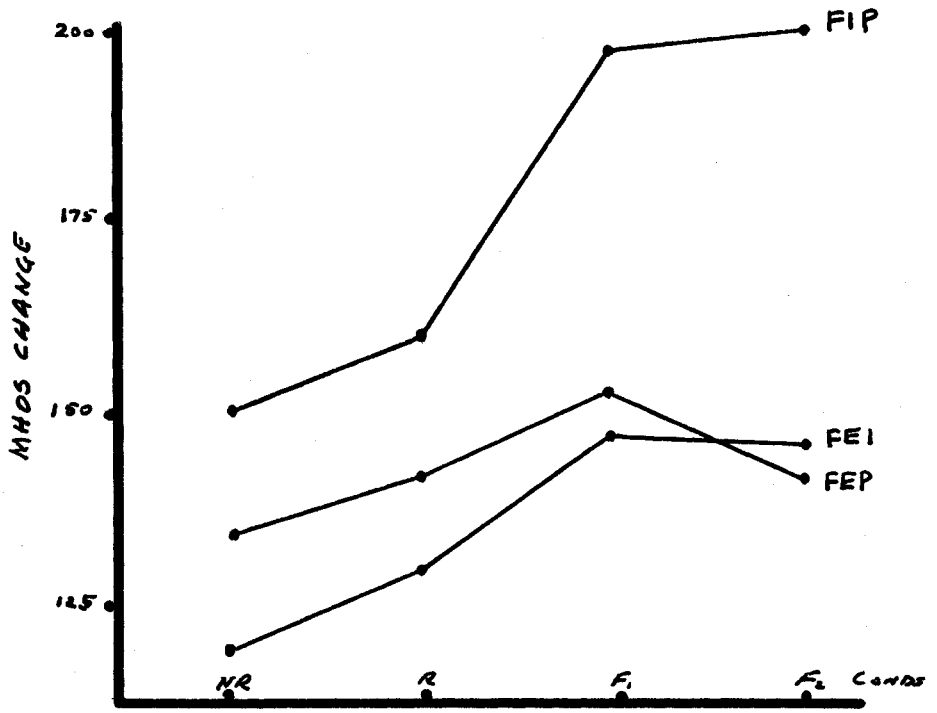

FIGURE E

PGR Measure for Four Groups

The general trend in all three experimental group curves is apparently similar across groups and is in the direction of an increase in level. There are noticeable differences between the groups between R and F_1 conditions with FIP group displaying the greatest amount of change. From F_1 to F_2, however, while the FIP curve continues in a slight rise, the FEI and FEP curves remain steady or decline, respectively.

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Analysis of variance results on the PGR data is to be found in the Tables VII and VIIa beneath.

TABLE VII

Analysis of Variance Results on PGR Data for Three Experimental Groups

Source of Variation	Sums of Squares	df	Mean Square	F	
Between Groups	109292	2	54646	19.013	**
Between Conditions	56563	3	18854	6.560	**
Interaction: groups x conditions	17242	6	2874		
Between Cells	183097	11			
Between S's in same group	2493874	84	29689	39.167	**
Interaction: S's x conds. x groups	190921	252	758		
Within Cells	2684795	336			
TOTAL	2867892	347			

**Significant at 1% probability level

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TABLE VII a

ANALYSIS OF VARIANCE OF PGR DATA, BY GROUP

Source of Variation		Sums of Squares	df	Mean Squares	F	
Between S's		452265	29	15595	33.390	**
Between Conds.	FEP	5168	3	1723	3.689	**
Interaction: S x C		40602	87	467		
Between S's		1566050	27	58002	41.758	**
Between Conds.	FIP	51848	3	17283	12.442	**
Interaction: S x C		112552	81	1389		
Between S's		475559	28	16984	37.742	**
Between Conds.	FEI	16789	3	5596	12.435	
Interaction: S x C		37767	84	450		

** Significant at 1% probability level.

Summary of Findings:

1. All experimental groups display a mild inclination between NR and R conditions.

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3. FIP shows considerable increase from R to F, FEP and FEI show inclination lesser in magnitude but greater than that shown from NR to R.

4. Intergroup (mean) differences are significant at 1% probability level.

5. Differences between massed conditions are significantly high.

6. All groups show significant differences between conditions.

7. Groups and conditions interaction is significant at 5% level.

8. FIP shows greatest intersubject variability, FEP shows least.

Introspective Report, Summary of Findings.

Introspective report data was treated quite directly in a frequency tabulation for the experimental groups. The only additional manipulation was that of weighing the responses in accordance with the following: "Mildly", weight of 1, "Moderately", weight of 2, and "Intensely", weight of 3. The results are presented in a tabular form beneath.

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TABLE VIII

RANKED WEIGHTED SCORES OF INTROSPECTIVE REPORT OF AFFECTIVE CHANGE. EXPERIMENTAL GROUPS

FEP Feeling	Wtd F	FIP Feeling	Wtd F	FEI Feeling	Wtd F
puzzled	24	disappointed	30	disappointed	32
disappointed	20	discouraged	19	puzzled	27
anxious	19	puzzled	17	anxious	14
tense	15	anxious	12	excited	13
interested	11	excited	10	tense	11
uncertain	10	upset	10	discouraged	10
excited	8	tense	10	interested	7
irritable	6	interested	9	upset	4
discouraged	6	ashamed	8	worried	4
upset	5	humiliated	7	amazed	3
amazed	5	worried	7	uncertain	3
ready to quit	4	ready to quit	6	hopeless	2
undisturbed	3	uncertain	5	whole thing silly	2
indifferent	3	whole thing silly	5	inferior	2
worried	1	inadequate	4	miserable	2
whole thing silly	1	stupid	4	thrilled	1
stupid	1	amazed	3	inadequate	1
		inferior	2	depressed	1
		miserable	2	stupid	1
		irritable	1	irritable	1
		tearful	1		
no response	6	depressed	1		
		bored	1	no response	9
		no response	6		
Additional:		Additional:		Additional:	
wondering, surprise, shock, puzzled, unlucky, nervous		scared, nervous, guilty, blamed self, sorry, surprised		surprised, relaxed, terrible, nervous, scared	

Denied by all: tired, angry, ridiculous, daydreaming, sleepy.

Comment on the above findings will be reserved for the "Discussion" section.

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Non-Measurable Factors.

The discussion of findings in this study would not be complete without at least the brief mention of some types of observations which could not be included in the evaluation of the effects of different frustration barriers. These observations concerned various aspects of behavioral change which are the "common currency" of face-to-face human relationships but because these observations lack sufficient objectivity, or are so elusive as to require complex and highly subjective judgments on the part of the observer, they have been excluded from the findings in the interests of tangible objectivity. We are referring here to such behavioral manifestations as facial expression, voice tone, speed and inflection of speech, overt bodily movement, gestures; in short, the totality of unpurified bits of behavioral response which form the basis for one's action and reaction to others.

In the interest of completeness the following observations of the behavior of frustrated subjects have been included:

1. SIGHING. It was noted that quite a number of subjects, at some time following the imposition of the frustration barrier showed frequent and deep sighing. In some records this appears throughout. Since there was no precedent in recording this matter and since its occurrence was not limited to a particular group, it

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was not recorded. One is reminded, however, of the "sigh of resignation" appearing in literature.

2. SPEECH. The subjects were generally polite, deferent and guarded in their relations to the examiner. Their verbal responses to the problems were usually given quickly during the NR series. During rewarded performance a marked slowness in speed of response was noted, together with many quick, spontaneous corrections and a loud, sharp tone of voice. Following frustration, the response time decreased sharply, there was little spontaneous correction and the tone of voice noted could be best described as "surly". One could visualize the eagerness and expectancy in the rewarded series and the disappointment and resentment in the post-frustration speech.

3. Continued Goal Attempts. Following frustration and despite the clear denial of reward to the subjects, E often noted covert pressings of the "reward switch" still in the subjects hand, as if there was an inability to accept the obvious impossibility of obtaining rewards and of relinquishing the goal.

4. Posture. The subject's posture during the pre-frustration series was usually erect, somewhat tensed and alert. Following frustration the subjects often slumped or sprawled in the chair in listless attitudes. The energy mobilization

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resulting from reward had apparently been dissipated or inhibited by the concomitant effects of frustration.

5. Symbolic Rewards. There was evidence that the cigarettes assumed a reward value incommensurate with their barter value. The inmates in cells along which E and the finished subject had to pass made frequent comments such as: "He's not so good, is he Doc, the last guy had a whole handful". Earning the cigarettes seems to have become a symbol of the possession of a mysterious "ability", of "passing"; an evaluation that might possibly mean shortening of sentence or special privileges, or simply, personal supremacy over others.

6. Refusals. There was but a single refusal by an inmate to participate. This man was considered to be a homosexual by his ward mates and as a consequence was severely shunned. Our inmate assistant explained that this man was afraid that he would be sent to a mental institution on the basis of the test findings. The almost unanimous eagerness to participate suggests the intensity of ego needs, of curiosity drives, or needs to escape from boredom that must have made up the motivation complex displayed by the subjects.

7. Miscellaneous. Finally, there was a wide variety of additional bits of evidence, mainly minimal behavioral

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cues which defy verbal description that could be summed up to judgments relative to the intensity of motivation and of affective change with frustration.

It may well be that some significant meanings of the behavioral concomitants of frustration are to be found in these non-measurable factors, but they have not been offered as major evidence in the main problem because of their intrinsic lack of objectivity.

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Integration and Comparison of Group Findings and Tests of Significance of Differences Between Groups and Between Measures.

A final test of the relationships between control and massed experimental groups and for between condition measures was made by the use of the Chi^2 test which was performed in the following manner.

Control group data on each measure were taken as a baseline to provide a "cutoff" point representing the ratio "P" of mean level on conditions F_1 and F_2 to the mean level on condition R. The formula used was as follows:

$$P = \frac{\frac{F_1 + F_2}{2}}{R + \left(\frac{F_1 - F_2}{2}\right)}$$

Next, a P value was computed for all subjects and the frequencies of P occurring in the control group for each measure was made the "expected frequency" value for the Chi^2 analysis. The tabulated frequencies of the experimental groups formed the "observed f" value. Yates correction for discontinuity in small groups was then applied with the resultant chi^2 shown in Table IX beneath.

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TABLE IX

SUMMARY OF FINDINGS OF A CHI^2 ANALYSIS OF EXPERIMENTAL AND CONTROL GROUP MEASURES OF PERFORMANCE[1], BREATHING[2], AND GSR[3].

Group	Performance	Breathing	GSR
FEP	4.201 *	1.7561	11.172 **
FEI	.3125	4.2917 *	3.334
FIP	7.8125 **	.6363	14.642 **
All	12.3260 **	6.6842 *	29.148 **

** Significantly different from Control Group data at the 1% level

* Significantly different from Control Group data at the 5% level

Required chi^2 for 2 degrees of freedom — $p^{.05}$ 5.991; $p^{.01}$ 9.210

Required Chi^2 for 1 degree of freedom — p.05 3.841; p.01 6.635

Note: [1]Performance is defined in terms of "error scores".
[2]Breathing is defined in terms of "average amplitude".
[3]GSR is defined in terms of "mhos change in conductance".

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Summary of Findings: Chi^2 Analysis.

1. Determinations were made between experimental group and corresponding control group in each case.

2. Control and Massed experimental groups were significantly different in the case of all three measures (PGR, Performance, Respiration).

3. PGR measures provided very significant differences between control and experimental values on FEP and FIP.

4. Performance measures provided very significant differences between control and experimental values on FIP group, significant differences on FEP, but failed to show any difference between FEI and control.

5. With respect to the three measures, PGR appeared to offer the finest discrimination between experimental and control group behavior, and respiration measures, the least.

6. With respect to groups, FIP showed the greatest magnitude of difference from control values, and FEI the least.

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DISCUSSION OF FINDINGS AND CONCLUSIONS

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The type of treatment presented in the preceding section does not adequately depict the total picture of differential response tendencies in the experimental groups. It is the purpose of this section to provide a relatively brief overview of the significant differences observed in the data as they relate to the problems raised at the outset of this study. Once this picture has been clearly presented, there will be a more tangible basis established for the formulation of conclusions and generalizations about the relation of the frustration barrier to subsequent affective arousal.

The comparison of behavior under frustration with non-frustrated behavior, identical in all other respects, has disclosed strong evidence of both the effectiveness of the experimental conditions (reward and frustration) in producing expected behavioral changes, and of the sufficiency of the measures employed in detecting these changes resulting from the imposition of the experimental conditions.

The dual contention made above may be supported by the following reasoning. If there was a change in the particular aspect of behavior under observation which tended in one direction under a certain set of conditions (.e.g. control) and in another direction under differing conditions (experimental), then the type of measure employed was successful

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in reflecting behavioral change relating to and instigated by the conditions imposed. However, if there had been no observable differences in the measured aspects of behavior between the same set of conditions as noted above, it would not be possible to state with any finality that the measures were ineffectual in reflecting behavioral change, for there could have been a true lack of change and therefore no significant differences in the measurement.

Further, if a particular measurement yielded quantitatively similar data from individuals who had received identical treatment, the reliability of the information provided by that measurement would be directly related to the closeness of the obtained measures to each other, provided there had been some change in the factor being measured. Otherwise, it would be that the measure employed had been insufficiently sensitive to detect any change or any difference between individuals. It may well be that there is an optimal sensitivity for a particular measurement technique below which the amplitude of change is exaggerated to the point where its significance cannot be reliably evaluated. It is not possible to state, on the basis of the study just completed, whether this optimal point of sensitivity of measurement had been reached. It is considered encouraging, however, to discover relative high within group (intersubject) variability reflective of individual differences in the reactions of subjects to the experimental

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condition of frustration, yet, at the same time, sufficiently pronounced group trends to allow for the detection of significant differences between groups.

1. Referring now to the measure obtained in this study, it is evident that in each case (respiration, performance and PGR) the data obtained on the massed experimental groups were significantly different from those observed in the control group.

Further, measurements made on the control group showed a type and direction of change consistent with that predicted for subjects not exposed to the experimental conditions.

Effectiveness of the Conditions of Reward and Frustration.

Evidence on this matter is of vital importance to an assessment of the full significance of the findings, for it has been assumed that behavior consequent to frustration depends greatly upon the level and type of motivation (goal expectancy) existing before such blocking, that motivation of a certain type and level is a necessary condition for frustration. But an evaluation of the effectiveness of the various conditions in producing changes in behavior, as was pointed out in the preceding section, cannot be made without observing simultaneously the reactions to frustration. Because these two effects are so

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nearly inextricable, the optimum analysis of changes due to frustration is best performed by a determination of the level of certain measured factors following frustration with respect to the level obtained under preceding, rewarded conditions. Findings relative to this type of analysis are presented beneath.

1. Performance data shows a more rapid decline for the experimental groups from NR to R conditions than could be predicted from the decline found between corresponding conditions in the control group. This difference is assumed to reflect the heightened efficiency based upon increased motivation due to reward.

2. PGR measures on the experimental groups show at least slight differences in the direction of increased excitement and energy mobilization from NR to R than would be expected in the absence of any disturbing condition.

3. Changes in the levels of all measures from F_1 to F_2 in the experimental groups are usually present and significantly different from parallel changes in the control group.

4. Ninety percent of the combined experimental group subjects reported an affective change.

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Changes in Affective Reaction Relative to the Type of Frustration Barrier Imposed.

The final question is the central issue of this study: which frustration barrier produces the greatest affective reaction? This question may be best answered by reference to a summary of findings on the three experimental groups presented in tabular form beneath.

TABLE X

SUMMARY OF SIGNIFICANT FINDINGS REVEALED BY THREE MEASURES BETWEEN GROUPS AND ACROSS CONDITIONS (EXPERIMENTAL GROUPS)

	FEP Group			FIP Group			FEI Group		
	Performance	P G R	Respiration	Performance	P G R	Respiration	Performance	P G R	Respiration
Predicted change in Reward Cond.	yes	?	yes	yes	?	yes	yes	?	yes
Predicted Change in F_1 Cond.	no	no	no	yes	yes	yes	yes	no	no
Predicted Change in F_2 condition	no	no	no	no	no	no	no	no	yes
Amount of Inter-subject variability	lo	lo	hi	med	hi	lo	hi	med	med
Significant Difference from Control (Chi^2)	yes	yes	no	yes	yes	no	no	no	yes
Differentiates between Groups (incl. control)	yes	yes	yes	yes	yes	yes	yes	yes	yes

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There were a total of 11 findings supportive of change in the FIP group, in the FEP group, 9, and 8 in the FEI group.

There were a total of 11 findings supportive of change in the PERFORMANCE measure, 10 in the RESPIRATION measure and 7 in the PGR measure.

It will be noted in the above summary of findings that the type of barrier most provocative of a variety of frustration reactions was that represented by the FIP condition; the obstruction imposed by factors internal to the individual.

The finding, not predicted by the hypothesis, allows for several highly interesting interpretations. The first of these is discussed beneath:

The Problem of Self-Blame

Findings from level of aspiration studies have disclosed that a particular individual's aspirations are based upon his recognition of the quality of his past performance and upon his estimate of probable success in a projected task. The person solving the problems in this experiment was faced with a relatively "new" type of task. He had no knowledge of his success in the first (NR) experimental condition. On the second series of problems,

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the rewarded condition, he was arbitrarially given reward at a frequency greater than chance and usually at a frequency greater than that merited by his performance. With the general run of subjects, this was an encouraging as well as rewarding maneuver. The imposition of the FIP barrier, apparently due to his own actions, presented in an abrupt manner the incompatability of the concepts he had formerly held concerning his own ability and the newly-apparent reality of the inferior performance which resulted in the loss of reward. The conflict thus introduced is a conflict between internal and external reality, the revelation that one has mistakenly appraised one's ability to meet the situational demands after an assumption of full confidence to do so. This would be followed immediately by the fear that judgments of the self's ability to handle other situations have been in error, and there could follow a sudden feeling of one's vulnerability to environmental demands hitherto considered distant and safe.

Whatever covert adjustive maneuvers follow, the self is in the position of receiving blame from the self for the failure. This is an unnatural and impossible situation to be perpetuated in some continuous emotional experience such as guilt; consequently, following a period of intense

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energy discharge and affect mobilization, the situation is ushered out by a return to normal.

On the other hand, the imposition of FEI and FEP barriers produce quantitatively less affective change over a pesumably shorter period of time. Here the individual perceives at some level of consciousness, the ineffectuality of any attempt aimed at circumventing the barrier, as a kind of probability of success or failure of that maneuver. The reaction to the FEP barrier should be that in which the greatest display of hostile-aggressive impulses occurs, because there is in reality a culpable individual present to be the recipient of these feelings. Since, however, societal pressure forbids the direct display of such hostile instigations to action, with typical economy and efficiency the organism proceeds with the more acceptable courses of sublimation, repression or displacement of the hostile affect, and there is a drop in the level of overt affective energy mobilization.

In this latter connection it is interesting to note how the quality of reported affective experience varied between the three groups of subjects. In the FIP group, we find such reported feelings (specific to the group by virtue of weighted frequency) as stupidity, inadequacy, incompetence. These could well be feelings engendered by the

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unconscious comparison of the internal and external realities mentioned above; in effect, the individual has found his abilities wanting.

In the reports of the FEI group, we find expressions of frustration-induced attitudes such as the following: "discouragement", "worry", "uncertainty", "hopelessness", "amazement". This is an "adequate" type of response for the situation of an impassible, externally imposed barrier. It is based upon reality and hence adaptive. The most efficient solution to the dilemma is to be found in retreat rechanneling of the need or withdrawal from the situation.

For the FEP group, the introspective reports include feelings such as "uncertainty", "irritability","discouragement", "amazement", "feeling ready to quit". From preceding investigations we would expect to find reports of hostile and aggressive feelings here. The absence of such reported feelings suggests that: a) the reported reactions are "censored" under pressures exerted by social influences regulating the free expression of hostility, or b) such attitudes of hostility were not truly present. If the latter is true, this may be due to the choice of convicted persons as subjects for study. The continuous exposure to

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external personal barriers in the prison environment may have produced thresholds of sensitivity for FEP barriers much in excess of that possessed by more "normal" subjects.

The Novelty of Internal-Personal Barriers

Another possible explanation of the findings may be as follows: We have noted previously how experiences of frustration in varying degrees and forms is common to daily experience. Ever-shifting contacts between individuals in a society such as ours makes for multiple conflictful relationships which may have imbedded in them the elements of frustration. Most of these stressful situations in daily living resemble that represented by our FEI and FEP barriers. Because of their fairly high frequency of occurrence, the adaptive individual quickly learns to formulate adequate methods for meeting and resolving these situations and handling the feelings consequent to frustration. Internal personal obstructions, on the other hand, are infrequently encountered.

The developing individual acquires an awareness of his capacities and incapacities through an examination of the results of his adaptive struggle with the environment. Since he is aware of his shortcomings he avoids overly-

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stressful situations and seeks out situations in which his abilities provide the highest probability of successful action. But, if in our experimental manipulation, we have contrived to face an individual with an infrequently experienced type of barrier, we will be stressing his adjustive capacity solely upon the basis of the infrequency with which this particular kind of adjustment is demanded in daily experience. This would call for an "emergency" type of reaction because of the novelty of the type of adjustment demanded by the situation and by the unavailability of ready defensive devices.

The FIP Barrier as an Experience of "Failure"

The third interesting interpretation relates to the connotations in the FIP barrier of "failure", "inadequacy", and lack of ability. In a society as highly competitive as ours the common and acceptable device utilized to explain possible failure is that of projection: of placing blame upon others or upon bad luck. This manuever is so commonly indulged in that it becomes an almost habitual device used for escaping the consequences of situations. In our society, it is better to have failed to attempt, than to have attempted and failed. The folklore is replete with examples of individuals who surmounted obstacles placed in their paths

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by environment, other people, etc., but not by innate incapacity. The exception is to be found in the "Helen Keller" or "FDR" type of adjustment in which mastery over incapacity is emphasized. Consequently, when we have deliberately induced "failure" by the imposition of an FIP barrier, the frustrated individual not only stands to lose the desired goal, but is made to suffer further from the feeling that he has performed inadequately by group standards.

The Testing Situation as a Contest: Relation of Barriers

Another interpretative possibility to account for the provocative effects of FIP barriers is to be found in the subject's perception of the test situation. It is a common experience in clinical work to encounter individuals who interpret the testing situation as a "contest" between tester and testee with prestige the stake. If this were the case with the experimental groups, it could be that ultimately all types of barriers would be partly perceived as FIP barriers. That is to say, the tester is the competitor against whom the subject matches his skill and wit. Failure is not a matter of an obstruction by the situation or by the tester, but an inadequacy of the individual.

Conclusions.

1. There are significant differences in the affec-

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tive reactions of randomly selected groups of subjects to different types of frustration barriers.

2. The greatest number of changes in all three types of measures for the period from a condition of reward to a condition of frustration was produced by the imposition of INTERNAL PERSONAL FRUSTRATION BARRIERS.

3. The PERFORMANCE MEASURES provided the most effective means for demonstrating these changes.

4. There was a tendency for the levels of measures taken at the latter part of the frustration condition to show a slight decline or an unchanged state from their respective levels at the beginning, except for the respiration measures on the Exterior-Impersonal group which continued to increase in that period.

5. In all other cases, the tendency was for a decline in the level of affective energy mobilization in similar periods.

6. Introspective reports by subjects on the quality of affective experience during frustration disclosed some overlap represented by feelings such as: "disappointment", "puzzlement", "tenseness", "anxiety", "excitement" or "interest". The following, however, are more or less

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specific to a group and may be considered as evidence of specific qualitative affective differences:

FEP - uncertain, amazed, ready to quit;

FIP - ashamed, humiliated, worried, inadequate, stupid, inferior, miserable;

FEI - hopeless, whole thing silly, discouraged.

7. All subjects denied the following feelings: angry, tired, ridiculous.

It would thus appear that aggression is not an invariable consequent of frustration, nor even a highly probable occurrence, except possibly in the case of FEP barriers. Excluding the possibility that this is an artifact resulting from the characteristics of the particular group studied, it is suggested that the evaluation and prediction of qualitative and quantitative aspects of frustrated behavior must take into consideration the specific type of barrier imposed. The repetition of these findings in other groups and situations might mean that much of the preceding findings in frustration reaction studies would have to be reevaluated.

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SUGGESTIONS FOR FUTURE RESEARCH

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Suggestions for further research are developed from two sources: 1) unanswered residuals of questions originally posed for this study, and 2) questions developing out of the relationships observed in the course of the study. These will be discussed beneath.

1. Perhaps the main unanswered questions remaining from this study relate to the reactions of individuals to differing types of frustration barriers. While sufficient consistency of response was discovered to enable the comparison of homogeneous groups, there was considerable intragroup variability. Such questions as the following may be raised:

a) What are the relations between the quality of integration of the personality of a subject and the amount of his reaction to a specific frustration barrier?

b) Using a measure such as the Rosenzweig P-E study, what are the relations between the frustration reaction to specific barriers of persons characterized as "extra-punitive", "intra-punitive" in response, etc.?

c) What are the relations of age and maturity to the quantity and type of reaction to a specific barrier?

d) What are the finer qualitative differences in reactions to the different types of barriers? One could use trained introspectors for subjects or obtain introspec-

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tive data under hypnosis, etc.

e) What are the reactions of individuals in whom stronger or more basic needs were frustrated by the same types of barriers used in this study? Would barriers other than FIP prove to be more provocative if the need frustrated had been of a different, perhaps more basic nature?

2. Questions developing out of relationships observed in this study:

a) What are the relationships on the neurological or physiological level of the three different types of measures included in this study?

b) What are all of the accountable characteristics of the phenomena used as measures, i.e., re-investigation of the correlations between Fere and Tarchanoff effects in the PGR, the relationships of frequency, total amplitude, average amplitude, I fraction and wave shape in the respiration measure: speed, accuracy and difficulty relationships in the performance measures.

c) What is the possibility of using "projective" measures of attitude, feeling, etc., to determine change in affect incident to frustration.

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APPENDIX

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APPENDIX

FEP

McCullogh, age 32, HS grad, sentence bad check, 1-5, two time loser on same charge. "I thought there must be some catch". Impression: quiet, polite, self-contained.

Grey, age 24, 6th gr. ed, sentence; assault with intent to rob, 1-15. Served time at Chillicothe, assault with deadly weapon. Colored. "Didn't pay any attention to it". Impression: curt, hostile.

Alexeing, age 40, no school, sentence; burglary, life. At OSP one year ago for same charge, now a PV. Had 14 sibs. Disgusted tone following F. Impression: hostile colored boy.

Millender, age 66, 8th gr. ed., sentence; felonious assault, 1-10 (sodomy), Previous record at Pittsburgh 1922-1927. "Didn't think I was doing very good anyhow". Doesn't talk to other inmates. Impression: cryptic, sour, withdrawn.

Henry, age 43, no school, sentence: burglary, 1-10. Quite crushed by failure. Wanted "confidential" information on his results. Colored.

Adair, age 28, 9th gr. ed. sentence: non-support, 1-3. Had juvenile record for auto theft. Denies reaction to F.

Lovelace, age 24, 11th gr. ed., sentence: robbery, 1-5. Colored. Arrogant, suspicious hostile and reticent.

Urchoili, age 24, 11th gr. ed., sentence: burglary, 1-15, previous sentence in N. Y., "I was just interested". Impression: intelligent, "sharp", reticent.

Steward, age 21, 8th gr. ed, sentence: armed robbery, 10-25 previous record in W. Va., 1947 for auto theft. Denies reactions.

Rosengarten, age 31, 8th gr. ed., sentence: non-support, 1-3. "What the hell!"

Bryles, age 34, 8th gr. ed., sentence: cutting to kill, 5-15, Feels he deserved punishment, "Lost my head in a drunken brawl, this is my first and last conviction". Denies reaction to F.

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Appendix (cont'd.)

FEP

Carter, age 46, 3rd gr. ed., sentence: nonsupport, 1-3. Has seven children. Previous jail term for assault. Denies reaction to F.

Smith, age 41, 9th gr. ed., four time loser, sentence now: burglary, 1-10, same charge on previous 3., reaction to F: "It was a real surprise, caught me all of a sudden". Impression: not unlikeable, short, energetic, brusque; a "smart crook".

Hane, age 42, 8th gr. ed., two time loser on non-support, 1-3. "Didn't seem to bother me too much, I try to keep my feelings under control, don't blow up unless tramped on too hard". Impression: intelligent and likeable.

Slackford, age 36, 8th gr. ed., sentence: burglary, 1-5, second time upon same charge, also PV. Denies all affect.

Anderson, age 30, 4th gr. ed., sentence: PV, 1st time up for grand larceny, colored, "I must have misunderstood you, I thought I was going to keep on getting cigs".

Vervoski, age 30, no school, first offense, sentence: 2nd degree murder, life. Killed mother in drunken brawl. "I wanted to get all I could get and I just kept on trying to get them". Prison psychologist states this man's I.Q. is 47. Has never been institutionalized.

Elliott, age 40, 2 yrs. HS, two convictions of grand larceny, this sentence is 1-10. "I felt real excited (at F)".

Rogers, age 61, no school, sentence: grand larceny (sodomy), life, has been at Lima State Hosp. "I felt like I was out of luck, felt like my wisdom had failed me in a time of need. I never was considered a dumb person but I'm getting up in the years now". Impression: old, tired, resigned.

Dailey, age 27, 6th gr. ed., sentence: burglary, 2 yrs., denies previous record. Very submissive individual with subsurface hostility.

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DiCicco, age 30, 1 yr coll, sentence: embezzling, up for parole because he has just undergone prefrontal lobotomy. OSP's first inmate. Has special privileges. Seems very intelligent, affect is flat. "I had a distinct feeling of apprehension, uncertainty, lack of confidence in being able to make the right answer, a slight feeling of nervousness". AGCT score of 123. (This inmate assisted for three weeks of experimentation and proved to be extremely helpful. Manner always remained slightly guarded and aloof with flat affect.)

Collins, age 49, 5th gr. ed., sentence: burglary, 1-10, 1949, workhouse sentence in Dayton, Tall, cavernous, unhealthy looking, "I'll take a lot off a man before I'll cause trouble", wants to get Bible to read. "Never thought anything more about it (f)." Impression; mildly schizoid, dull.

Burns, age 44, 2nd yr HS, sentence: PV, 1-3, Served 4 years in OSP in 1947 for auto theft., "got in trouble with parole officer", "Thought you had something up your sleeve (at F)", Impression: short, dynamic, well spoken, polite; Nickname, "Fireball".

Rinderle, age 28, 9th gr. ed., sentence: auto theft, 1-20 previous arrest for breaking and entering, has a juvenile record., (At F) "Just figgered they were your cigs and your machine and you knew what you were doing". Impression: quick, energetic, nervous individual, seems intelligent.

Webb, age 25, 8th gr. ed., sentence: embezzling, 1-10, in Chillicothe '44-45 for mail robbery. "I know what this is for, to see how you do without getting the cigarettes", voice drops drastically in volume after F., Impression: intelligent.

Buschur, age 26, 9th gr. ed., sentence: breaking and entering, 1-2 yrs, 2 previous jail sentences, petty larceny and conversion. "Never thought much about it (F)". Impression: very low intelligence.

Cosby, age 43, 9th gr. ed., sentence: issuing check against insufficient funds, 1-3. No previous records, denies reaction to F. Impression: extratensive, loud, likeable.

Wlaton, age 25, 7th gr. ed., sentence: unarmed robbery, 1-25. In OSP in 1948, accessory to auto theft, 1 year. Has had juvenile record, running away from home. "I'm just disappointed at (F), it didn't bother me, more or less disappointed me". Epileptic.

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FEP (cont'd.)

Cromley, age 34, H.S. grad. Sentence: cutting with intent to kill, 1-20, lengthy criminal record, BIS, Mansfield, etc. "Didn't think much of it (F) either way. Didn't disappoint me, kinda thought it was too good to be true". Takes coke, horse. Impression: Deserves title of habitual criminal, slight, stooped, cringing manner.

Fredricy, age 21, 9th gr. ed., Sentence: auto theft, 1-20, no previous record., (Reaction at F) "Maybe I was doing something I wasn't supposed to do". Self-styled "lone wolf", has juvenile record. Impression: Character disorder.

FIP

Waller, age 29, 9th gr. ed., sentence: operating motor vehicle without owners consent, 1-20 yrs., "just finished time in Kentucky for worthless checks", Section 8 discharge from army, not eligible for reenlistment, "get into trouble when I drink". Impression: pyknic type personality appealing, continuous nervous sniffle, probable character disorder.

Lesnack, age 21, 8th gr. ed., sentence: kidnapping, burglary and larceny, in for 60 years, "Never did much work, shot pool, sold horse". Impression: Psychopath, hostile, arrogant, "young tough".

White, age 26, 10th gr. ed., sentence: burglary and grand larceny, caught escaping from jail, has multiple jail sentences for drink and disorderly conduct, fighting, says he's been nervous all life, stutters, apologizes for breaking machine. Impression: mentally retarded, anxiety neurotic?

Gooch, age 30, 3 yrs college, sentence: nonsupport, 1-3. Occupation process tool designer. Severe marital difficulty. Says "traumatic neurosis in WW II ETO", feels that he contains impulses too much, asked very intelligent questions re purpose of study, effect of sample, etc. Apologizes for apparatus breakdown. Impression: High intelligence, interested, cooperative, nervous, likeable. Needs psychotherapy.

Shepard, age 24, 6th gr. ed., sentence: burglary and felony, 1-10 yrs, previous sentence for 3 yrs in Mansfield. "Made me feel funny and nervous when I broke the machine". Impression: strong psychopathic trends. Smart like fox.

Williams, age 35, no education, sentence: PV, originally breaking and entering in 1946, 1-6 yrs. "That made me more nervous, I take pills for my nerves". Impression: high level moron, not psychopathic, just dull. Like a wild animal.

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FIP (cont'd.)

Laycock, age 32, 11 yrs. ed., sentence: two charges of breaking and entering 2-22 years, two time loser, 1st in 1944-49, voice becomes almost inaudible after F. Denies affect. Impression: strong introvert, hard to judge, seems visibly affected by F.

Crabtree, age 31, 8th gr. ed., sentence: writing checks with insufficient funds, 1-3, previous sentence in W. Va., 46-50, same charge, becomes quite openly hostile after F, cursing under breath. Impression: normal?

Byrd, 92196, age 33, 4th gr. ed., sentence: robbery, "asthma, weak heart".

Seaman, age 32, HS ed, 9 mos. Fed. time in '48, sentence: forgery 1 yr and a day, "very interesting, felt about usual, not excited, didn't pay much attention to apparatus breakdown".

Scaff, age 27, 7th gr. ed., sentence: 2nd degree murder, "I was drinking, picked up pistol and fired it, didn't know it was loaded", killed wife, married since '46.

Hubbell, age 64, HS grad. plus 3 yrs at Columbia U. in Mech. Eng., sentence: passing bad check, 1st offense, no previous record, alcoholic for past several years, son at Northwestern. Impression: loquacious, seems intelligent.

DeMay, age 37, 10th gr. ed., sentence: nonsupport, PV, 1-3 years. Previous sentence: nonsupport, "expected breakdown", denies emotional reaction. Impression: tough guy with scarred throat and cut lip, repulsive, shifty.

Boyd, age 26, 11th gr. ed., sentence: burglary, 1-5 yrs, Florida record for burglary, (49-51, PV, denies juvenile record. "didn't quite get what it was all about Doc". Impression: very eager for cigs, short, blond, arrogant, hostile.

Given, age 27, 11th gr. ed., sentence: forgery, 1-20 yrs., served previous time, '45-46, Moundsville, W. Va., for breaking and entering, 1-10. (at F) "Oh, oh, I bet I blew it up". Impression: quiet, polite, well-spoken, reticent, immature.

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FIP (cont'd.)

Anderson, age 29, HS and trade sch. ed., 1st time up, auto theft, "indeterminate sentence, 1-20", no previous record. "I'm sure I'm wrong on a lot of the problems, I'm ashamed I didn't get closer, I always thought I had intelligence but I'm ashamed I didn't know nothing". "I feel I deserve all I got, if not for this crime, for something else, I got a fair trial". Impression: strongly masochistic, guilt-ridden, repentant, confused, nervous.

Wallace, age 35, 11th gr. ed., sentence: breaking and entering, PV, 1-5 indefinite, "I didn't like that test very well but I'm sorry I broke the machine". Impression: dull, phleg-MATIC.

Knarr, Age 41, 8th gr. ed., sentence: bad check, 1-3, did time in Indiana in 1935, 3 yrs for bad check. "You have to make the best of things". Impression: ambulatory schiz., illiterate but not retarded, father attempted to kill him.

Mitchell, age 34, 4th gr. ed., Original sentence: grand larceny and breaking and entering, 5 yrs served, now in for PV, denies reaction to F. Impression: masochistic, "better this way to come back and serve the rest of the sentence.

Flannagan, age 21, 6th gr. ed., sentence: two time loser on auto theft, 1st in 1950, colored. No comments.

Holt, age 49, 3rd gr. ed., sentence: rape with consent, 1-20, four time loser, once in Mansfield, three times here for burglary, larceny and stickups, deep sighs after F, colored. Impression: typical strongly repressed Negro, slow, quiet.

Russell, age 27, 2 yrs HS, sentence: grand larceny 1-7, "don't feel too bad about being in here, I don' something wrong and I have to pay for it". Denies affect.

Candelaria, age 27, 9th gr. ed., sentence: burglary of inhabitated dwelling, juvenile record, 1942 NTS, Chillicothe, refuses to give all other information, short, slender dark, porto Rican. Impression: one of the two men E was afraid to be in the room alone with, classic psychopath, hostile.

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FIP (cont'd.)

Jones, age 28, Coll. grad., sentence: narcotics possession, 0-10, denies charges, in State reformatory in 1942 for receiving stolen goods, 2 yrs sentence, apologizes profusely for breaking machine, bitter about being in Pen. Impression: intelligent, sensitive to point of paranoia, affable. Colored.

Campbell, age 53, 3rd gr. ed., two records of nonsupport, 1945 for 20 mos., now 1-3 years same charge. Jail many times for drunkeness, farmer, bootlegger, deep sighs following F. Apologizes for breaking machine. Impression: dull normal, bucolic.

Stafford, age 44, HS plus 3 yrs. of college in math and science, sentence: altering checks. "I'm awfully sorry I broke your equipment." "I used not to be temperamental but have become so in last 4-5 years due to domestic difficulties". Impression: apparently normal, highly verbal, mild psychopathy.

FEI

Dabney, age 36, 8th gr. ed., housebreaking 1-5 yrs., up previously in 1942 for 3 yr sentence same charge. No spontaneous statements. Thanks me for cigs. Impression: quiet, attentive, polite, etc.

Cornelius, age 23, 9th gr. ed., burglary, 1-15, 1st offense. Denies introspective affect, says he is nervous, has nightmares. Impression: overtly uncooperative.

Donnelly, age 45, 8th gr. ed., in for forgery, 1-20 yrs. previous sentences for breaking and entering, parole violating, breaking and entering. Denies affective change. Habitual criminal. Impression: short, polite, positive.

Bromley, age 37, 10th gr. ed., breaking and entering, 1-5, previous sentence for auto theft. Denies affective change. Impression: overpolite, fawning, good word usage, seems intelligent.

Chappell, age 25, 10th gr. ed., nonsupport and PV. Denies affective change. 1st prison sentence. Impression: tense, young, goodlooking, tough undercurrent hostility.

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FEI (cont'd.)

Cox, age 31, 8th gr. ed., forgery, 1-20, arrested but not convicted previously for grand larceny. Introspects: "Didn't pay any attention to that". I'm highly nervous, most anything upsets me". Impression: jumpy, uneasy.

Wisher, age 31, HS grad., burglary and larceny, 1-15, previous sentence for check raising, says he can't introspect. Impression: hostile, tense, incommunicative, low intelligence.

Valentine, age 49, 7th gr. ed., felonious assault, 1-10, 1st sentence. "I would have liked to keep on going, would have liked to finished the job." Claims auto accident in 1946 head injury followed by personality change. Was at Lima for 30 days. Charge is really for sodomy. Impression: organic brain damage, possible psychopathy.

St. John, age 42, 9th gr. ed., second degree murder, life, killed wife, in Lima for 2 yrs. "I felt then like I wanted to try much harder". Has had insulin shock. Impression: schizophrenic in remission.

Oliver, age 27, 7th gr. ed., burglary, 1-15, previous sentence same charge. Had diagnosis of schizophrenic at Lima. No reaction to F. Impression: appears still out of contact.

Clark, age 24, 5th gr. ed., grand larceny, housebreaking, 1-15, colored, continuous criminal record, BIS, Mansfield, OSP in rapid succession. "I didn't care." Impression: habitual criminal.

Monjar, age 40, 5th gr. ed., nonsupport, 1-3, previous term same charge. "I didn't mind, I can take a lot unless I'm drinking." Impression: dull, slow, sullen, mildly paranoiad.

Myers, age 45, 4th gr. ed., sodomy, 1-20, no affective change. Crys at "being away from the folks and my little niece". "Never was quick in thinking." Impression: definite psychotic, simple schiz.

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FEI (cont'd.)

Parker, age 40, 3 yrs HS, obtaining money under false pretenses, 1-3, three previous prison sentences. "Never gave it a thought when it broke down." Impression: normal.

Black, age 48, 2 yrs college, bad check, 1-3, second offense. Denies affective change. Is an alcoholic. Impression: fat, deep voice, impressive front, seems intelligent.

Zachary, age 35, 5th gr. ed., cutting to kill, 1-20. No previous record. "Kinda doubted myself after machine broke down."

Shepard, 36, 8th gr. ed., two charges of "bad checks", 1-5. Denies affective change. Impression: hypochondriac.

Savage, age 31, 7th gr. ed., burglary, grand larceny, 1-15, has previous record at Mansfield, "I cover my feelings up". Impression: masochistic.

Elridge, age 37, 10th gr. ed., checks, child neglect and nonsupport, 1-3, "is it my fault?", was in Lima for 6 mos. in 1946, indetermined charge. Impression: intelligent, reactive, understanding, shrewd, may be psychopathic.

Oricoli, age 25, 9th gr. ed., burglary, 1-15, previous sentence in 1948 on narcotics charge. "I felt like laughing." Impression; acute, intelligent.

Dombroski, age 39, 7th gr. ed., nonsupport, 1-3, no previous record. Denies affective change with frustration. Impression: marginal intelligence.

Erwin, age 28, 9th gr. ed., altering to defraud, 1-5, sentenced previously in 1950 on same charge, colored. Impression: low intelligence.

Arterburn, age 51, HS ed., forgery, 1-20 yrs., first sentence, has heart condition. Impression: average intelligence.

Blair, age 26, ith gr. ed., burglary, 1-15, previous sentence in 1948 -49, same charge. Colored. Impression: intelligent.

Pharis, age 25, 8th gr. ed., rape with consent, indeterminate sentence, in for forgery in 1948, 1-20, served one year. Colored. Impression: slow, phlegmatic.

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SUBJECT INQUIRY SHEET

INSTRUCTIONS: It is very important to determine the kind of feelings (emotions, attitudes) that arose during the course of the experiment. The list beneath has been compiled to help you express these feelings as accurately as possible. Place a check in the proper space in the list beneath to describe both the type of feeling and its intensity. Check as many as you wish. If the list is inadequate, write a complete description of your feelings on the reverse side of the sheet.

* * * * * * *

	Mildly	Moderately	Intensely
Miserable	___	___	___
Thrilled	___	___	___
Humiliated	___	___	___
Tired	___	___	___
Disappointed	___	___	___
Angry	___	___	___
Inferior	___	___	___
Bored	___	___	___
Inadequate	___	___	___
Depressed	___	___	___
Tearful	___	___	___
Indifferent	___	___	___
Puzzled	___	___	___
Anxious	___	___	___
Stupid	___	___	___
Uncertain	___	___	___

	Mildly	Moderately	Intensely
Whole thing silly	___	___	___
Discouraged	___	___	___
Hopeless	___	___	___
Undisturbed	___	___	___
Worried	___	___	___
Excited	___	___	___
Upset	___	___	___
Amazed	___	___	___
Ridiculous	___	___	___
Ashamed	___	___	___
Tense	___	___	___
Irritable	___	___	___
Daydreaming	___	___	___
Sleepy	___	___	___
Interested	___	___	___
Ready to quit	___	___	___

* *

Score 1st 16 ...
Score 2nd 16 ...
Score F series..

Exp. Var... FEI FEP FIP
Mean score, 1st series........
Mean score, 2nd series........

PGR ( ) ( ) ( ) ( ) ( )
10..12..14..11...8..13...7...9..13..11..10..12..14...8...7...9
Resp.

PGR ( ) ( ) ( ) ( ) ( )
9..14..11..10..12..13...7...8..12...8...7..13..14..11...9..10
Resp.

PGR ( ) ( ) ( ) ( ) ( )
10..12..14..11...8..13...7...9..13..11..10..12..14...8...7...9
Resp.

PGR ( ) ( ) ( ) ( ) ( )
9..14..11..10..12..13...7...8..12...8...7..13..14..11...9..10
Resp.

PGR ( ) ( ) ( ) ( ) ( )

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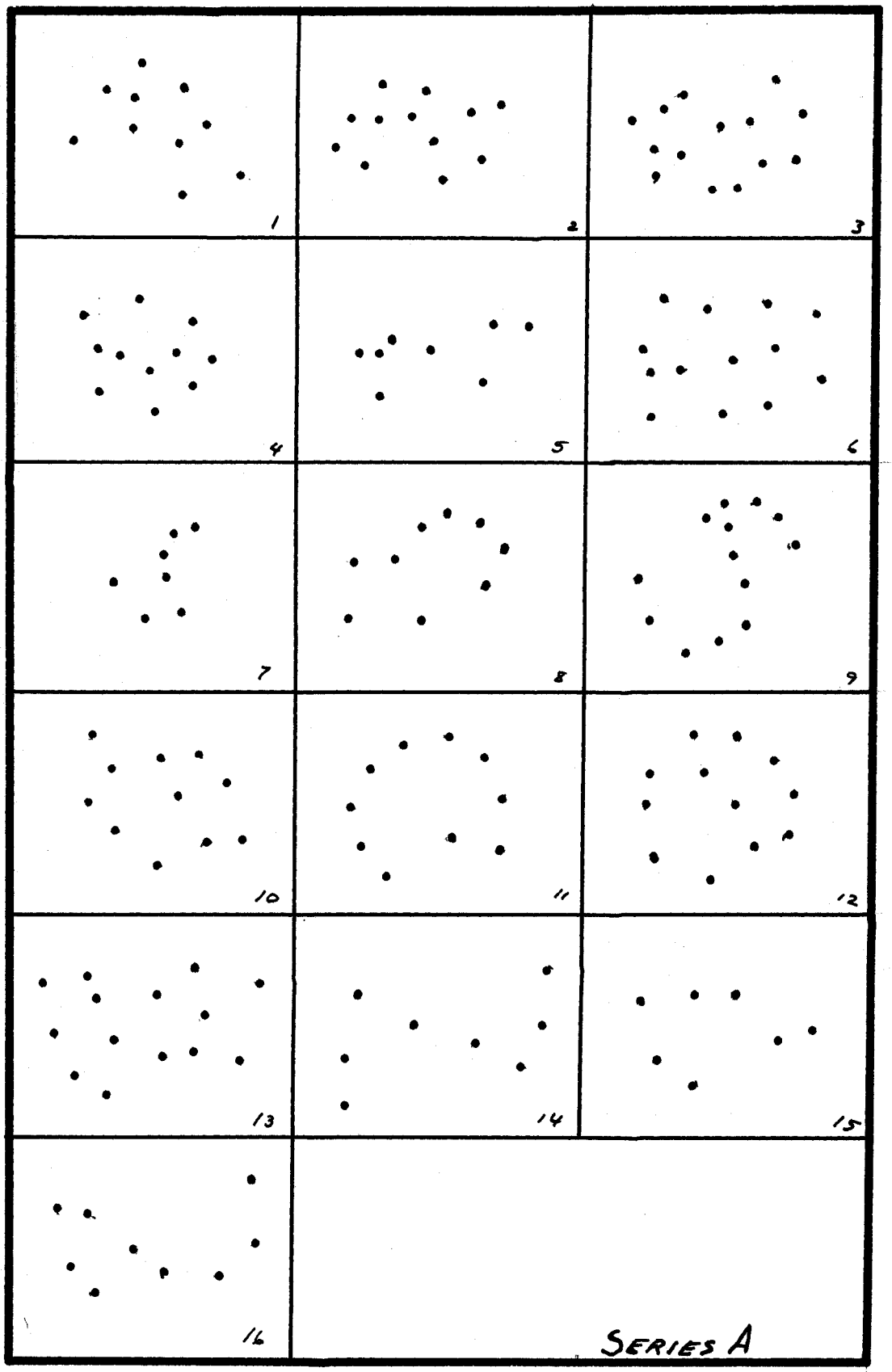

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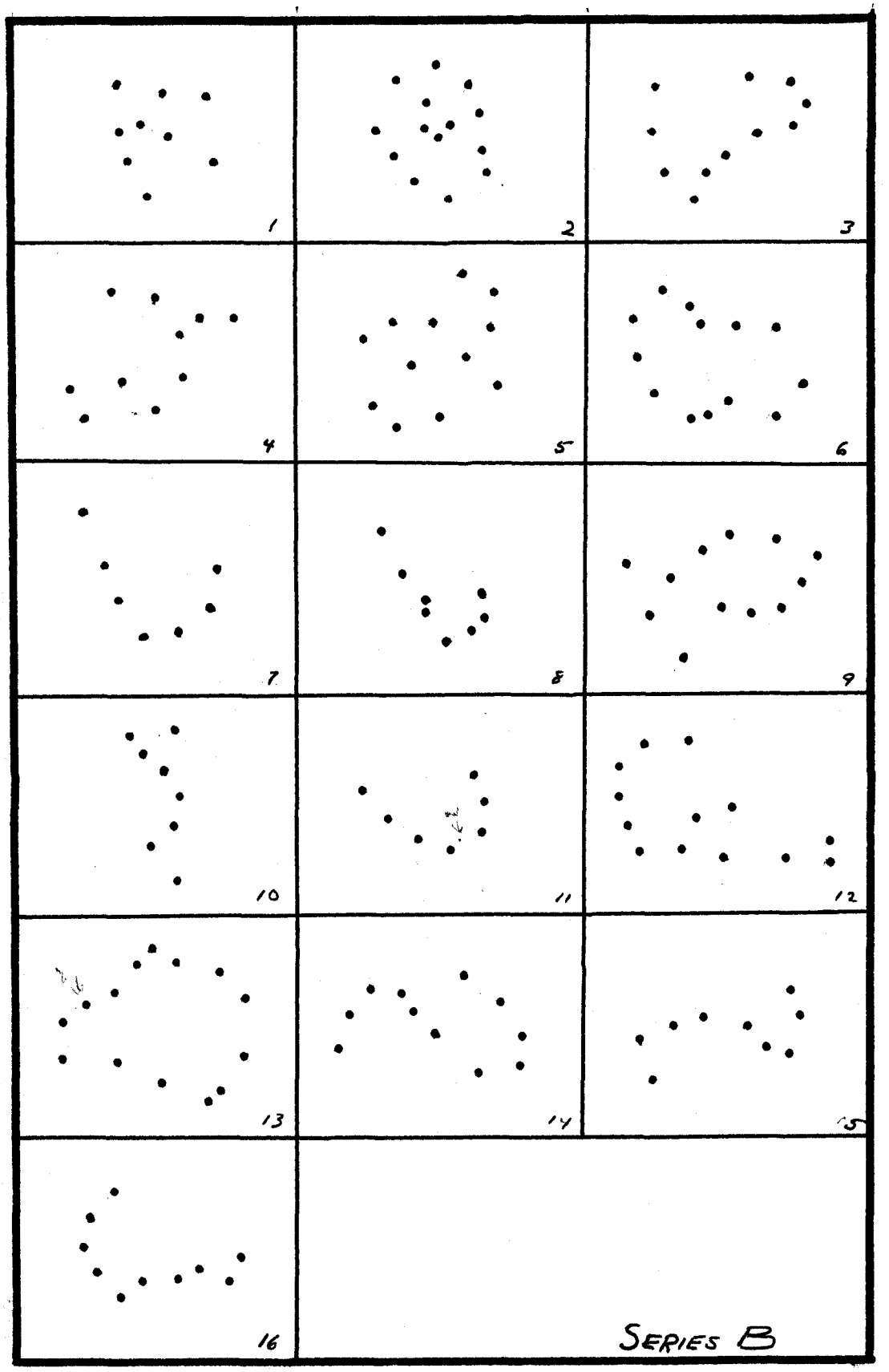

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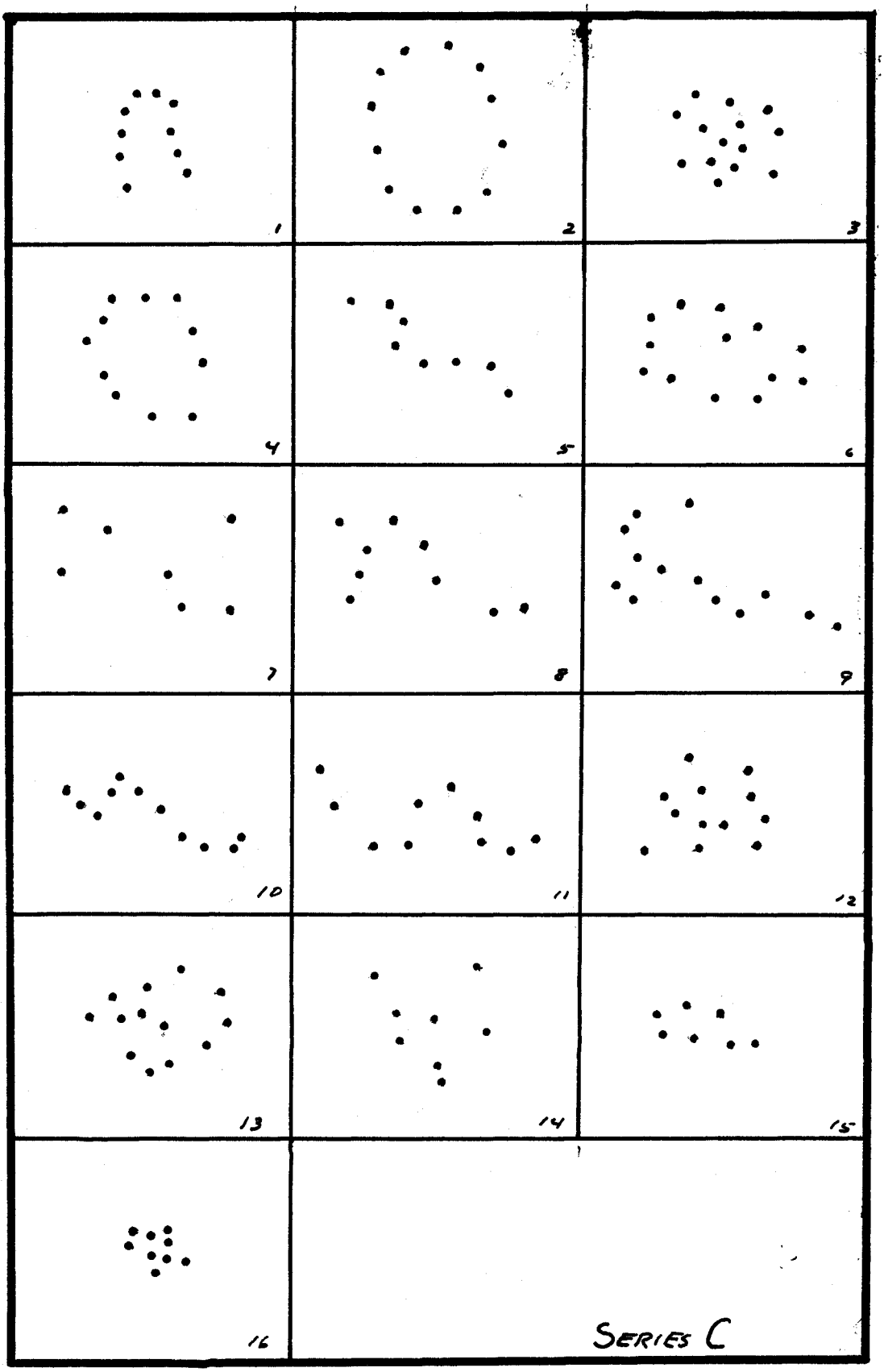

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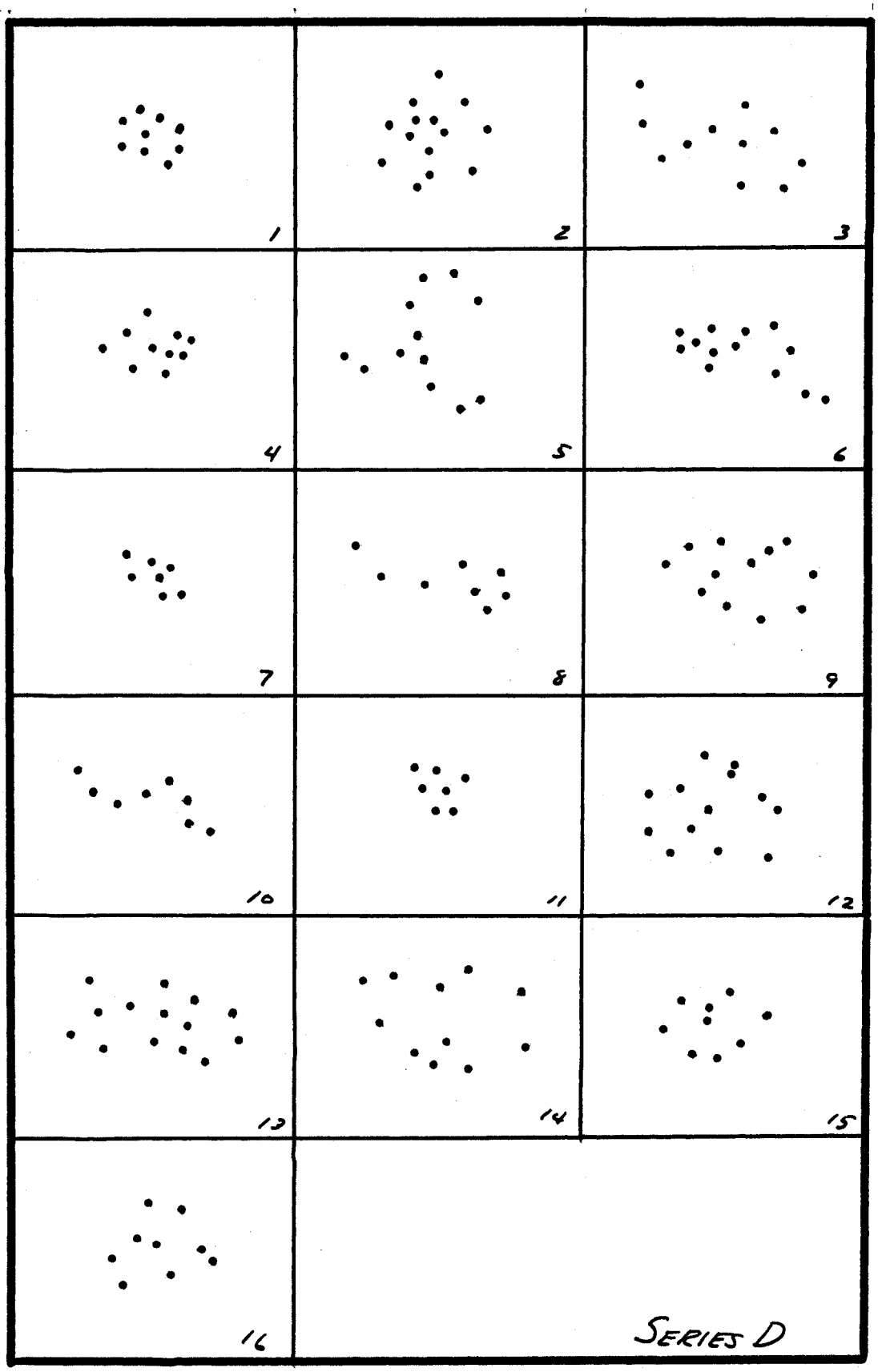

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