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Loyola University

SELF-CONCEPT DIFFERENCES IN THE ALCOHOLIC UNDER VARYING  
CONDITIONS OF DRINKING AND SOBRIETY

A Dissertation

Submitted to the Graduate School

In Partial Fulfillment of the Requirements

For the Degree

Doctor of Philosophy

Department of Psychology

James A. Vanderpool

Chicago, Illinois

November, 1966

## PREFACE

In 1965, there were over six million known alcoholics in the United States alone. Undoubtedly there are millions more who are not included in these statistics. Only those who have sought treatment in recognized centers, joined groups such as Alcoholics Anonymous or have come into conflict with the Law are included in the conservative estimate of six million. Some statisticians suggest that there are at least twenty-five million alcoholics and potentially millions more who might become alcoholics.

Many authorities feel that alcoholism is second only to heart disease as the major health problem in the United States today. A report from Russia, prepared in August, 1966, indicated that in that country, the majority of serious crimes were committed by individuals under the influence of alcohol. Both in Russia and the United States, a large percentage of vehicle and other accidents can be attributed directly or indirectly to drinking and alcoholism. In a recent survey, it was found that over 30% of the suicides in the United States in recent years occurred when individuals were drinking. Many crimes, particularly of violence, are committed by those who are drinking; the exact percentage in the United States is unknown. At this time, Congress is seriously considering possible Federal agencies and government resources and facilities for diagnosis, treatment and research study of alcoholism.

Millions of dollars are being spent annually by public and private agencies to study alcoholism. The Christopher D. Smithers Foundation, Inc., alone, has spent over two million dollars in the past ten years for research in this field; even the Licensed Beverage Industries, Inc., is providing small grants for pilot studies into the etiology and treatment of alcoholism.

Alcoholism respects no color, creed, race, profession or national origin. Rich and poor, illiterate and gifted, the criminal and the genius are all susceptible to alcoholism. In the past, less alcoholism was found among the Jewish and Chinese people in America. Today there is a noticeable increase in alcoholism even in these groups as they cease to be less autonomous subcultures in the general population. Increasing numbers of alcoholics are evident in the second and third generation of the American born descendants of certain European nationalities. In many European countries the incidence of alcoholism is still relatively low, and drinking is a ritualistic act associated with eating and special festivities, but drinking for drinking's sake is practically non-existent.

Conservatively, over 34,000 studies have been made on alcoholism. The Rutgers Center of Alcohol Studies, The State University, New Brunswick, New Jersey, has provided an invaluable service to those studying alcoholism. The Center has prepared over 25,000 comprehensive abstracts of research studies and have made these available through various centers in the United States. The present investigator is indebted to the Center and to the American Medical Association, with offices in Chicago, Illinois, Warren Albert, Librarian, for providing copies of relevant abstracts for this study.

Although millions of dollars have been spent and thousands of studies have been made, the cause and cure of alcoholism still remains unknown. Most investigators believe that it is a combination of both physical and psychological factors which cause alcoholism. Many classify alcoholism as a "symptomatic disease". That is to say, the potential alcoholic has certain psychological problems which he feels he cannot handle; alcohol becomes the means to escape and avoid the problems. Unfortunately, for yet unknown

predispositive reasons and physical susceptibilities, he cannot control his drinking and he becomes an alcoholic. It is the opinion of the present investigator, that the alcoholic drinks, psychologically speaking, not to alleviate but to avoid anxiety and tension. Then, for presently unknown physiological reasons, he becomes an alcoholic.

Although promising steps are being made in etiological investigations of alcoholism, there is no known cure for the disease at the present time. The cliches "once an alcoholic, always an alcoholic", and, "for the alcoholic one drink is not enough but one drink is one too many" are tragically true for the alcoholic. There is no known cure. Once an individual is convinced that he is an alcoholic, he must accept the fact that he can never take a drink again and that he must remain a "dry" alcoholic for the rest of his life if he wishes to maintain sobriety.

If attempts to cure alcoholism have been discouraging, therapeutic attempts to rehabilitate the alcoholic have been equally discouraging. Alcoholics Anonymous has done the most impressive work. Some doctors prescribe Antabuse fully aware that it is not a cure for alcoholism but a deterrent to drinking. Antabuse has been found a useful "crutch" for maintaining sobriety by some alcoholics. Because of the characteristic dependency of the alcoholic, group rather than individual therapy is recommended by many therapists. However, using all known treatment techniques and rehabilitation programs, it is believed that less than 10% of the alcoholic population maintains permanent sobriety after treatment. There is no evidence that an alcoholic, even after varied and intensive therapy, can, subsequently become a social drinker.

Encouragement and offers to assist in any research program that might

shed some light on the causes, cures, and treatment of alcoholism, are forthcoming from innumerable sources. This was the case in the present study. Many people offered to help with the research. It would be impractical and impossible to name all who assisted in this project. Those who made a substantial contribution in time and effort are worthy of special mention.

The author wishes to express his gratitude to the psychologists appointed by Loyola University, Chicago, Illinois, who served as the Dissertation Advisory Board, namely, Frank J. Kobler, Ph.D., Director of the Clinical Training Program in Psychology, Chairman and Principal Advisor, The Reverend Charles A. Curran, Ph.D., Horacio Rimoldi, Ph.D., Ronald Walker, Ph.D., and, Patrick Laughlin, Ph.D.

This research project would not have been possible had it not been for the interest, efforts and encouragement of Charles P. Harris, M.D., Unit Chief and Director of the Alcoholic Rehabilitation Ward, Downey Veterans Administration Hospital, Downey, Illinois, who contributed valuable suggestions regarding the experimental design and made it possible to conduct the research. The author wishes to express, in a very special way, his deep appreciation and personal admiration to Doctor Harris.

Gratitude is expressed to the Research Committee of Downey Veterans Administration Hospital including W. W. Bourke, M.D., Hospital Director, V. B. Raulinaitis, M.D., Chief of Staff, and, L. London, M.D., Acting as Chairman of the Research Committee, for approving and assisting the present study as an official Veterans Administration research project.

The author wishes to acknowledge the assistance given by members of the Psychology Department at Downey, including Fred E. Spaner, Ph.D., Chief

Psychology Service, James T. Morton, Ph.D., Director of Clinical Training, John W. Scanlan, Ph.D., Coordinator of Readjustment Services, and, in a special way, to the Coordinator of the Psychological Research Laboratory, Robert P. Barrell, Ph.D. and his staff.

The author is particularly indebted to Alan S. DeWolfe, Ph.D., of the Psychology Research staff, for serving as chief statistical consultant and adviser.

The Nursing staff at Downey was most cooperative, especially Lucy Warner, R.N., who actively participated in the experimental procedures.

Two of the Social Work Service at Downey were most helpful, namely, Stanley Sawicki, M.S.W., Chief Social Worker of the Alcoholic Ward, and, Miss Agnes Wesoloske, M.S.W.

The Research-in-Aging Laboratory at Downey, including H. G. Weinstein, M.S., Director, Moira Breen, Ph.D., Linda Lynn, and Joan Lund, provided a valuable service including assessment of blood alcohol levels.

A special debt of gratitude is acknowledged to the staff of the Chicago Alcoholic Treatment Center (CATC), Chicago, Illinois, and the Mayor's Commission for the Rehabilitation of Persons for approving the research and for permitting the use of patients at the CATC for control subjects. The author is particularly grateful to Phyllis Snyder, Executive Director of the Center, to Vincent Pisani, Ph.D., Chief Psychologist, and, Gerald Freedman, Social Worker, for their assistance.

Psychometric assistance by the Fiscal Department of Downey, the Data Processing Centers at Loyola University and Northwestern University, Evanston, Illinois, and, by Mrs. Rosalia Paiva and Michael Donnelly of the Psychometric Laboratory at Loyola University, is gratefully acknowledged.

Personal communications from W. H. Fitts, Ph.D., author of the Tennessee Department of Mental Health Self Concept Scale, were most helpful.

Sisters Mary Evangeline, Clement Marie, and Mary Jonita, School Sisters of Notre Dame, gave generously of their time compiling some of the data.

The author is particularly indebted to his personal research and secretarial staff including Mrs. Anton Baer, typist, Miss Lucy Beck, M.S. in L.S., Research Librarian, and, especially, his personal secretary, Miss Josette Bourgoin for her constant and faithful assistance in gathering the materials, assisting in the actual testing, and preparing this dissertation.

The author is indebted to many people for making this research possible, however, he wishes to express his deepest gratitude and to convey his profound respect to 143 alcoholics who gave generously of themselves and their time in the hope that they might help not only themselves but also their brother alcoholics.



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## CHAPTER I

### INTRODUCTION--STATEMENT OF THE PROBLEM AND HYPOTHESES

The purpose of the present study is two-fold: (1) to investigate certain dimensions of the self-concept of alcoholics, and, (2) to assess changes in these self-concept dimensions under controlled conditions of drinking and sobriety.

It is hypothesized: (1) alcoholics, in general, have a poorer and more negative self-concept than nonalcoholics; and, (2) alcoholics drink to improve their self-concepts. Specifically, it is hypothesized that appropriate psychological and statistical assessments of certain dimensions of the self-concept of a group of alcoholics will indicate significant differences from a normative group along sufficient dimensions of the self-concept to conclude that alcoholics have a poorer self-concept than nonalcoholics. Secondly, it is hypothesized that assessment of these dimensions of the self-concept under controlled conditions of drinking and sobriety, will indicate significantly more positive self-concepts when the alcoholics are drinking "optimally"--that is, momentarily satisfied and able to function but not drunk--than when they are sober or only partially satisfied.

The underlying assumptions of this study are as follows: The self-concept--the self as the individual who is known to himself--is a major determinant of overt behavior and an important concept in understanding unique human persons. Self-concept studies focus on what a person is, or thinks he is, rather than on what he does; and, methodologically, depends upon conscious self-evaluation and personal self-report by the individual. Further, the self-concept is an ever changing facet of the human personality.

The self-concept, therefore, may become more or less positive or negative depending on life experiences which affect the individual's evaluation of himself.

The self-concept is not a unitary dimension of personality. Certain factors emerge as critically important in the formation of the self-concept. Analysis of these factors, or dimensions, is necessary for understanding individual differences. Certain dimensions, however, considered individually and collectively, seem important in understanding both the individual and certain groups of individuals with similar problems.

Although there is no specific "alcoholic personality" as such, alcoholics, individually and collectively, feel inadequate. Specifically, in terms of self-concept dimensions, they may (1) lack self-esteem, self-confidence and self-acceptance, (2) feel dependent, immature and insecure, (3) feel estranged and lack a feeling of social worth, (4) feel sexually and physically inadequate, and, (5) have low tolerance for stress and strain.

Alcoholics drink, primarily, not to alleviate anxiety and tension but to avoid and to insulate themselves against the anxiety and tension which their feelings of inadequacy would occasion. Drinking, therefore, within limits, gives the alcoholic a feeling of well-being and improves his self-concept as it has been defined. Unfortunately, the alcoholic is unable, for physiological and psychological reasons, to keep his drinking within "optimal" limits, loses control of his drinking, and subsequently, increases his own feeling of inadequacy and undermines his positive self-concept.

An individual may be a "drunk" but not be an alcoholic. The alcoholic

is distinguished from others who drink on the basis of the following criteria: (a) he is a compulsive drinker; (b) he lacks normal control over the amount he drinks once he has begun to drink; and, (c) drinking seriously interferes with his vocational, familial, social or personal life. In most cases of alcoholism, all three elements are present. An individual may be considered a potential alcoholic if any of the three criteria are met.

In the present study, it is assumed that alcoholism is a symptomatic disease involving both physiological and psychological factors. There is no known cure for alcoholism; attempts to rehabilitate the alcoholic have been disappointing. It is felt by the present investigator, along with others, that the self-concept of alcoholics must of necessity be improved so that he can handle adequately, the tensions and anxieties of normal living without feeling the necessity of escape through alcoholic consumption.

In the vast scientific literature on alcoholism, a minimal number of studies have been conducted to assess the alcoholic self-concept and its dimensions. As far as can be determined by the present investigator, no similar study can be found which examines important dimensions of the self-concept of the alcoholic under controlled conditions of drinking and sobriety.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### The Alcoholic Personality

Because of the great influence of Freud and the psychoanalytical school, early investigators assumed that there was a definite alcoholic personality, and, etiologically was due to latent or repressed homosexuality (Parker, 1959). Ferenczi (1912) stated: "alcoholism is the result of subconscious homosexual conflict which cannot be solved." Most investigators, however, disagree. For example, Botwinick and Machover (1951), after psychometric examination of both alcoholics and non-alcoholics concluded: "latent or otherwise, homosexuality, cannot be an essential factor in alcoholism, although it may play a dynamic role in individual cases." Korman and Stubblefield (1961) maintain that "although inadequate in sexual roles, the alcoholics showed no signs of homosexuality, latent or overt." Mathias (1956) using both the MMPI and the Rorschach with alcoholics found only suggestive trends of homosexuality but strong self-aggressive, assertive and submissive tendencies.

Although some investigators considered the possibility of a specific alcoholic personality, the majority of studies made in the past two decades overwhelmingly deny that there is a unique alcoholic personality. In 1946, Landis and Bolles maintained that "there is no unitary personality constellation which leads, of necessity, to addiction." After a critical evaluation of 37 studies in personality characteristics of alcoholics, Sutherland, Schroeder, and Tordella (1950) concluded: "None of the studies surveyed shows results which would justify the conclusions that one type of person is more likely to develop alcoholism than another." Coleman (1956, p. 408) asserted: "Alcoholics have many behavior traits in common, and their drinking behavior



raises such similar problems for them that they seem superficially alike. Yet there is no specific personality constellation which is characteristic of alcoholics or which can be used to predict loss of control." Syme (1957) in a critique of studies of the personality characteristics of alcoholics in all available relevant literature from 1936 to 1956 was convinced that "there is no warrant for concluding that persons of one type are more likely to become alcoholics than persons of another type." Similarly, Witkin, Karp, and Goodenough (1959, p. 504) also agreed: "The literature on alcoholism provides no clear evidence that particular kinds of people are more likely to become alcoholics than others." Recently, Hoff (1965) in a comprehensive study categorically stated that "psychological investigations have failed to reveal a characteristic alcoholic personality." / These conclusions are in accord with those of many other investigators such as Kieve (1950), Seliger (1952), Kaldegg (1956), Lazarus (1956), Armstrong (1958), Murphy (1958), Bathurst and Glatt (1959), Kennedy and Fish (1959), Rosen (1960), and, Fox (1961). Connor (1960 and in Pittman and Snyder, 1962), after a survey of the literature and his own study on the self-concept of the alcoholic, amusingly concludes: "it would not seem to be amiss to suggest that the search for the 'alcoholic personality' has partaken of the nature of the examination of the elephant by the five blind men."

On the other hand, alcoholics--individually and as groups--seem to show important variations in certain dimensions of their personalities including their self-concepts from the personalities of non-alcoholics. In 1941 Seliger and Rosenberg maintained that "certain personality factors are of common occurrence among alcoholics", and, Moore (1942) that "although there is no alcoholic personality, some traits occur very frequently in

alcoholics." These frequently occurring factors and traits are variously designated by different investigators. <sup>5767</sup> *is known to orig.*

Worthy of consideration, in this regard, are the studies of Halpern (1946a, 1946b) who postulated that "the alcoholic appears to be a maladjusted immature individual who has developed few techniques for alleviating his feelings of discomfort. He does not recognize limitations or inadequacies in his personality.....He externalizes his conflicts but he does not strive for activity or aggression; he tries to find a passive way of handling his difficulties."

Manson (1948a, 1948b) suggests seven possible characteristics of the alcoholic: "anxiety, depressive fluctuations, emotional sensitivity, feelings of resentment, failure to complete social objectives, feelings of loneliness, and poor interpersonal relationships."

Stewart (1950) asserts that the "alcoholic personality is a combination of emotional immaturity and dependency and tensions which alcohol relieves", while Shulman (1951) maintains that the alcoholic is an "individual who rarely belongs to groups, is isolated, and ambivalent toward women, and has high aspirations with inability to pursue them." <sup>6</sup> Similarly, Randall and Rogers (1953) contend that "the alcoholic patient is typically an immature, dependent person with an unrealistic level of aspiration....and an unwillingness to make sacrifices in terms of time and energy necessary for even mediocre success." Earlier, Rotter (1945) had noted also the low level of aspiration of the alcoholic; Piotrowski, Lewis, Miksztal and Phillips (1958) called attention to the alcoholics' negative self image.

Wallinga (1956) suggests that "emotional traits such as strong dependency needs, wish to avoid responsibility and self-destructive drives are

often found in alcoholics." De Palma and Clayton (1958) declare: "the alcoholic is characterized by squandered intellectual potentials, low tolerance for stress, sociopathology and submissive sociability." Scott (1958) insists that "the fundamental characteristic (of the alcoholic) is not homosexuality but immaturity."

Extensive research by Machover and Puzzo (1959a, 1959b, 1959c) indicated that the alcoholic differs from the non-alcoholic at least 60% of the time on 23 out of 88 personality descriptive designations. These were: schizoid character deviation, mother involvement, father involvement, oral dependence, castration problems, castration anxiety, feelings of insufficiency, general ambivalence, low self-esteem, sex-ambivalence, depression, social withdrawal, female identification, homosexuality trends, narcissism, feelings of frustration, hostility, difficulty in expression of hostility, general guilt feelings, high level of tension or anxiety, denial, generally defensive attitudes, and, obsessiveness-compulsiveness.

Armstrong, et al (1958, 1959, 1963) in a neo-Freudian framework, suggest, dynamically, that the alcoholic perceives the "mother as a cold, dominant person and the father as a warm but ineffectual person; this parental constellation is considered to lead to difficulty in emotional development and identification as well as to tendencies to regress to the oral level." ' Lisansky (1960) suggests "There are probably several different predisposing constellations of personality traits which, in combination with appropriate physiological and sociocultural conditions, make it likely that the individual in question will become an alcoholic....The future alcoholic has experienced in early life too much frustration or pain although the specific conditions causing this deprivation vary widely." Lisansky suggests

out of this imbalance of pleasure and pain the predisposed individual has developed the following traits: "(a) an intensely strong dependency; (b) weak and inadequate defense mechanisms against this excessive need, leading to, under certain conditions, (c) an intense dependence-independence conflict; there is also (d) a low degree of frustration or tension tolerance; and (e) unresolved love-hate ambivalences." Lisansky concludes: "the tremendous value of alcohol for this predisposed individual is that it serves him in many different ways by reducing tensions, diminishing the sense of frustration, and providing simultaneously a means of punishing others and the self."

Hayner (1961) maintains that characteristically the alcoholic's "parents raised him in such a way that he has become a dependent personality." Aronson and Gilbert (1963) interpret their experimental findings to suggest that "a passive-aggressive personality may both precede and be a causative factor in alcoholism."

Dependency is considered a critical factor in the personality structure and in the self-concept of the alcoholic. Button (1956a, 1956b) using the Rorschach and the MMPI "A1" scale developed by Holmes (1953), found not only depression but dependency in the alcoholic. Witkin and his associates (Witkin, Karp and Goodenough, 1959; Karp, Witkin and Goodenough, 1965; Karp and Konstadt, 1965) have attempted to assess dependency on the basis of experimental field dependency. They contend that the greater field dependency on the part of the alcoholic indicates that he is a more dependent person than the non-alcoholic. Some investigators question the validity of equating field dependency with psychological dependency (Alexander and Gudeman, 1966). Although one may question the methods of measurement, dependency, as such, is considered by most investigators characteristic of the

alcoholic.

General or specific feelings of inadequacy are characteristic of most alcoholics. Many investigators feel that if the alcoholic must be diagnostically designated, he is more often an inadequate personality rather than a psychoneurotic or psychotic person. This is not to deny that some alcoholics are psychoneurotics and others psychotics. For example, Ceccarelli (1958) using the MMPI suggested that 70% of the alcoholics tested showed schizoid and schizophrenic traits often associated with depression. Fuller (1966) in a study of 818 alcoholics states; "The verdict is that the alcoholic is not a psychotic and not a psychopath or sociopath"; he concludes, however, that the 16 Personality Factor Questionnaire (the 16 P. F. Test) profile of alcoholics resembles that of the neurotic. More fundamental: many investigators believe that the alcoholic drinks to avoid neurotic anxiety because he feels inadequate and unable to cope with the problems and frustrations which would occasion neurotic anxiety.

The inadequacy felt by the alcoholic may take many forms and affect many different areas. For example, he may feel physically, sexually, emotionally, or socially inadequate. Podolsky (1959, 1960, 1961a, 1961b, and 1962) in his extensive studies of the alcoholic personality suggests many possible areas of inadequacy:

The inadequate personality of the alcoholic is characterized by the following traits: Inadequate responses to ordinary intellectual, emotional, social and physical demands; inadaptability, ineptness, poor judgment, lack of physical and emotional stamina, social incapacity; lack of persistence or continuity of effort or attachment; a tendency to ignore obligations; low tenacity of purpose; hypersensitivity of the ego coupled with a rather passive kind of defenselessness; oversensitivity in interpersonal relationships; diminished social responsiveness; active depreciation of normal emotional display, coupled with a sense of deprivation; excessive reserve and meticulous conformity, pedantic fussiness, and, at

times, fantasies in which an aggressive role is played. The alcoholism often represents an attempt to ward off intolerable feelings of inadequacy, inferiority and unworthiness and to attain some degree of emotional equilibrium (1962, p. 106).

Similarly, Connor (1960) in a specific study of the self-concept, contends that although there is no alcoholic personality as such "the self of the alcoholic appears to be lacking in structure, in organization and integration."

Coleman (1956, p. 408) summarizes the investigations of the alcoholic personality in the following words:

Despite the fact that studies have failed to show any alcoholic personality type, there is considerable evidence to indicate that alcoholics are often immature, passive-dependent persons with unrealistically high levels of aspirations coupled with an inability to tolerate failure.

Moore (1963) reviews the theories and research findings in the areas of physiology and biochemistry, sociology and anthropology, and psychology and psychiatry, concludes that a unitary factor to explain chronic alcoholism "seems doomed to failure." He emphasizes, among other considerations, the use of alcohol to avoid stress:

Most likely, a person arrives in this world with an as yet undefined constitutional vulnerability, faces early painful disappointments to which he reacts through a lifetime with chronic anticipation of repeated disappointment, high tension, and internalized rage, and then learns through cultural definition the solutions that are available to him.....he gradually "solves" his internal stress with alcohol, a substance ideally suited for this function.

In two comprehensive surveys of the existing literature, Hoff (1961, 1965) concurs with the opinion of previous investigators that there is no alcoholic personality as such, however, he agrees that alcoholics, individually and as groups, show important variations in certain personality traits and in certain self-concept dimensions from the non-alcoholic. He

summarizes his findings as follows: "alcoholics are often characterized as unusually dependent, sexually immature, inadequate and having a low tolerance for unwanted feelings and tensions."

Considering the extant literature, certain conclusions would seem to be tenable:

1. There is no specific alcoholic personality as such.
2. Alcoholics, as such, are not diagnostically as a group to be characterized as psychotic, sociopathic, or neurotic but as inadequate personalities.
3. The inadequacy of the alcoholic may take many forms and affect many areas. In terms of self-concept dimensions this feeling of inadequacy is most evident in the alcoholics:
  - a) feeling dependent, immature and insecure;
  - b) lacking self-esteem, self-confidence and self-acceptance;
  - c) feeling sexually and physically inadequate;
  - d) having low tolerance for stress and strain; and
  - e) feeling estranged and lacking in social worth.

#### The Self Concept---Theoretical Considerations

The potential importance of the self concept for personality theory has been recognized by many well-known psychologists and students of human behavior. Among these are Adler (1924), Mead (1934), Horney (1937), Fromm (1939), Angyal (1941), Lecky (1945), Sullivan (1947), Snygg and Combs (1949), Freud (1950), McClelland (1951), Rogers (1951), Maslow (1954), Hall and Lindzey (1957), and Lynd (1958).

The self and the self-concept are variously defined according to different theoretical orientations. Strong and Feder (1961) suggest "every evaluative statement that a person makes concerning himself can be considered a sample of his self-concept from which inferences may then be made about the

various properties of that self-concept." Ruth Wylie (1961, p. 1) points out that: "in psychological discussions the word 'self' has been used in many different ways. Two chief meanings emerge, however: the self as subject or agent, and the self as the individual who is known to himself (English and English, 1958). The words 'self-concept' have come into common use to refer to the second meaning." This "self as the individual who is known to himself" will serve as the operational definition for the concept "self-concept" in the present study.

The self-concept, as defined, is concerned primarily, therefore, with conscious self-evaluation by the subject and is dependent on personal self-report rather than on evaluation by others. Attention is focused---when considering the self-concept of the alcoholic---on who he is---or thinks he is---rather than on what he does.

The theoretical orientation of this research is, therefore, similar to that of Ralph G. Connor (1962) who alone, to any degree, reports in the immense literature on alcoholism, a study of the self-concept of the alcoholic. In his words:

In broad perspective, contemporary role theory regards personality as action systems arising out of the interplay of self and role. The self is what the person "is", an organization of qualities, the role is what the person "does", an organization of acts. When we come to consider alcoholics, we find that in the main the alcoholic is characterized in terms of acts and very little in terms of qualities; that is, the effective definition of an alcoholic still rests on what he does and not what he is---on role rather than on any real understanding of the self. Furthermore, when we analyze personality in terms of role theory it becomes apparent that anything distinctive of the alcoholic which precedes alcoholism must reside in the self, since role (what there is of it in alcoholism) by definition is learned and could not reasonably be expected to antedate the experience of alcoholism. Following role theory then, the essential problem facing research into personality factors in alcoholism centers around the question of the self-concept of alcoholics, and the principal questions



are these: What are the self-concepts of alcoholics? Are they peculiar to and characteristic of the alcoholic? Do they precede or follow after the alcoholic experience? What techniques will be used to measure the self-concepts? (Connor in Pittman and Snyder, 1962, p. 455)

Four of the basic assumptions of the present study, already presented, are consistent with self-concept theory presented in the literature, namely:

1. The self-concept--"self as the individual who is known to himself"--is a major determinant of overt behavior and a significant concept in understanding unique human persons.
2. The self-concept is not a unitary dimension of personality. Certain "dimensions" emerge as critically important in the formation of the self-concept. Analysis of these factors, or dimensions, is necessary for understanding individual differences. Certain dimensions, however, considered individually and collectively, seem important in understanding both the individual and certain groups of individuals with similar problems.
3. Alcoholics, individually and as groups, show important variations in certain dimensions of the self-concept from the non alcoholic.
4. The self-concept is not static but dynamically subject to change and alteration.

#### Psychological Assessment of the Self Concept in General

Little experimental research was done prior to 1940 on the self-concept since the emphasis on unconscious processes were of major concern to Freud and the psychoanalyst, and, the subjective aspects of self-concept theory was anathema to the behaviorists. Since 1940, a large body of literature has accumulated which is concerned with experimental measurement and assessment of the self-concept. Ruth C. Wylie (1961) in The Self-Concept:

a Critical Survey of Research Literature considers extensively and thoroughly experiments which have sought to measure self-concept or factors affecting the self-concept from 1940-1958. Donald Strong and Daniel Feder (1961) in Measurement of the Self-Concept: A Critique of the Literature present a concise exposition and evaluation of fifteen of the most important experimental attempts to measure the self-concept. According to Strong and Feder, Raimy (1948) was the first to develop a methodology for measuring self-reference changes during psychotherapy. Since that time, five general methods of evaluating the self-concept have been employed:

1. Q Sorts.--The Q sort technique was developed by Stephenson (1953) and involves the correlation of persons instead of tests making possible both idiopathic studies and comparative studies of an individual's concept of himself with similar self-concepts of others. Many Q sorts have been developed. Noteworthy are the following: (a) The Q sort of Butler and Haigh (1954) consisting of 100 statements which were sorted by the individual to describe himself, called the self-sort, and, how he would like to be, called the ideal-sort, and, what the ordinary person is like, called the ordinary sort. Truax et al (1966) used the "Rockefeller Modification" of the Butler and Haigh Q sort to analyze changes that occurred during psychotherapy; (b) Hilden (1958) used 1575 sentences which constituted a "universe of personal concepts." The subjects sorted these sentences for self and the ideal self. At least 21 other sets of Q sorts, in addition to those of Butler and Haigh, and, Hilden were developed between 1950 and 1958 to study self-regarding attitudes (Wylie, 1961, p. 59).

Although Q sort techniques provide for certain uniqueness in measurement, according to Strong and Feder (1961, p. 171):

"the correlation of persons does not take into strict account certain mean differences. Individuals may be grouped according to similarity in profiles but may be entirely different in personality structure. Cluster analysis using some type of distance function could be a possible answer to this existing defect...One obvious limitation of the Q sort is the fact that the procedure is time consuming."

2. Response Methods.--Questions or open-ended sentences have been used to a limited extent as a method of measuring self-concept. Two of the most important are the familiar Incomplete Sentences Blank (Rotter and Willerman, 1947; Freeman, 1956) which provides a single measurement of over-all adjustment, and, the W-A-Y Technique developed by Bugental and Zelen (1949, 1950) and extended by Parks (1951). In the latter technique the subjects are asked to write three answers or responses to the question: "Who are you?" Such methods are limited in that quantification and objective scoring are difficult, and, it is often difficult to classify responses according to preselected categories.

3. Likert-Type Rating Method.--The majority of the devices constructed to measure the self-concept utilize ratings based on five-point scales. Some of the most important instruments are: (a) The Index of Adjustment and Values (Bills, Vance and McLean, 1951) which purports to measure self-concept, acceptance of self, ideal self and the discrepancy between the concept of self and the concept of the ideal self; (b) Brownfain's (1952) Self-Rating Inventory consisting of 25 descriptive traits which seeks to measure the "private self", "the positive self", "the negative self", and, "the social self"; (c) Two scales developed by Berger (1952) in which self-acceptance and acceptance of others is measured by 36 statements by one of the scales and acceptance of others is assessed by 28 statements on the second scale; (d) The Phillips Questionnaire (Phillips, 1951) attempts to

measure self-others attitudes; (e) Worchel's Self-Activity Inventory (Worchel, 1957, Hillson and Worchel, 1957) consists of 54 statements to evaluate hostility, achievement, and sexual dependency needs; (f) The Sheerer Scale (Sheerer, 1949) was devised to measure attitudes toward self and others by judge-selections of definitions of self-acceptance and respect; (g) The Jourard Questionnaire (1957) was designed to obtain a self-cathexis or self-esteem discrepancy score; (h) The Fey Questionnaire (Fey, 1954) seeks to assess self-acceptance, acceptance of others and the readiness for therapy; (i) The Ewing Personal Rating Form (Ewing, 1954) which attempts to measure changes in attitudes during counseling, and, (j) The Tennessee Department of Mental Health Self Concept Scale developed by William Fitts (1965) which is used in the present study and will be described in detail later in this chapter.

Although the Likert-type rating methods are the most numerous and most popular testing procedures, all have limitations. As Strong and Feder (1961) point out, all of this type instrument not only obliterates the uniqueness of individual items but basically assumes that all items included hold equal importance in the calculation of a final score. In addition, each instrument has its own particular limitations such as administration, scoring, reliability, norms, and validity. Examination of all the more popular instruments of this type did not reveal one single instrument that could assess the self-concept dimensions of the alcoholic precisely as desired in this study. The Tennessee Department of Mental Health Self Concept Scale (Pitts, 1965), was adjudged, however, the best available standardized instrument and was used, therefore, in conjunction with an adjective check list in the present study.

(4) Check Lists.--Such methods involve checking appropriate adjectives or statements that describe the subject. An interpersonal check list was developed by Leary (1957) purporting to measure the subject's way in which he presents himself and his view of the world, and, his ego ideal. Matteson (1958) developed a Self-Evaluation Scale, a check-list type instrument which seeks to focus attention upon indices of aspiration and discrepancy. The check list of Merrill and Heathers (1954) is an adjective check list in which adjectives are checked as descriptive or not descriptive of the subject.

One of the most widely used adjective check lists was developed by Harrison G. Gough (1955). The revised presentation of The Adjective Check List (Gough and Heilbrun, 1965) is used in the present study. Although adjective check lists have been subjected to many criticisms, particularly as regards validity, the Adjective Check List of Gough and Heilbrun was considered the best check list available. Its use was also suggested by the fact that Connor (1960) adapted the adjective check lists of Gough (1955) and Sarbin (1955) for his study of the self concept of the alcoholic. Since, along with the Tennessee Self Concept Scale, the Adjective Check List constitutes one of the major instruments used, a detail discussion will be found later in the chapter.

Strong and Feder (1961) suggest that "the Likert-type rating method appears to have an advantage over check lists....Check list methods are limited in that they provide no structure for qualitative rating of the separate items involved since each item is treated in an all-or-none fashion."

5. Miscellaneous.--Certain well-known instruments have been adapted to measure the self. The most famous is the Barron ego-strength scale

(Barron, 1953) which consists of 68 items from the MMPI. The Barron Scale has been subject to many criticisms, for example: Crumpton, Cantor and Batiste (1960) factor analyzed the results of the scale and while conceding it was a valuable scale concluded that instead of measuring ego-strength it probably measured the absence of specific ego-weaknesses. Korman (1960), Block (1961), Kleinmuntz (1960) and others, have studied the construct validity of the ego-strength scale and are favorably impressed; Adams and Cooper (1962), however, using two Rorschach measures of ego-strength concluded that Barron's ego-strength scale does not tap the same personality variables. Since the MMPI was designed to study pathology, one may question--as do many writers--the adaptability for measuring the self-concept which focuses on a different area of personality.

One of the most widely used instruments for the study of personality is the Sixteen Personality Factor Questionnaire, commonly called the 16 P-F Test, developed by R. B. Cattell and his associates (Cattell and Eber, 1957, 1962, 1964). Forms A and B of this test have been used extensively; the simplified Form C, recently developed, may become useful for subjects who have a below high school reading level. Because Forms A and B require at least a high school reading level, and, because of the length of the test (and the necessity of testing each subject five times with the measure) its use as a primary measuring instrument was not considered advisable in the present study.

In 1963, Shostrom developed a Personal Orientation Inventory (Shostrom, 1963, 1964). It has been used by several investigators including Knapp (1965). It is a normative inventory consisting of 150 paired-opposite statements of values which yields measures for 14 scales representing value

areas held to be of major significance in the development toward self-actualization. To date, its use has been limited and its value as a measurement of the self-concept is uncertain; high correlations have been found, however, between this test and Eysenck's Personality Inventory (Knapp, 1965).

The foregoing considerations indicate that many tests have been devised and adapted since 1950 to measure personality factors and self-concept dimensions. After examination of a large number of these instruments, no single test method, instrument or combination of measures emerge as adequate for assessing the self-concept and its various dimensions. One of the chief limitations of the present study is the adequacy of instruments to measure the self-concept and the dimensions considered most important. No reliable or valid instruments could be found to measure precisely the dimensions desired. Rather than attempt to devise a new instrument, it seemed advisable to adapt two instruments representing the two most popular types of personality factor assessments, namely, the Likert-type rating method, and, the check list method. The best instruments representing these two types seemed to be the Tennessee Department of Mental Health Self Concept Scale and the Gough and Heilbrun Adjective Check List.

The Tennessee Department of Mental Health Self Concept Scale

Nature and Purpose of the Scale.---"Over recent years a wide variety of instruments has been employed to measure the self-concept. Nevertheless, a need has continued for a scale which is simple for the subject, widely applicable, well standardized, and multi-dimensional in its description of the self-concept...the Tennessee Self Concept Scale...was developed to meet this need" (Fitts, 1965). The Scale consists of 100 self descriptive statements which the subject uses to portray his own picture of himself. The

Scale is self administering for either individuals or groups and can be used with subjects age 12 or higher and having at least a sixth grade reading level. Most subjects complete the Scale in 10 to 20 minutes with a mean time of 13 minutes.

Development of the Scale.--Dr. William Fitts began the development of this scale in 1955 after compiling a large pool of self descriptive items from a number of other self-concept measures. After the items were edited, seven clinical psychologists were employed to classify the items according to a 3 x 5, two-dimensional scheme employed on the score sheet.

Nature and Meaning of Scores.--Twenty-nine separate scores are obtained, namely, 13 scores on the "counseling form" of the score sheet and 16 on the "clinical and research form." These scores purport to measure the following: The Self-Criticism Score--indicative of normal or defensive self criticism; Total P Score--the most important single score of overall self esteem; Identity Score--how the individual sees himself basically; the Self-Satisfaction Score--the individual's self acceptance and self-satisfaction; the Behavior Score--which measures the individual's perception of the way he functions; Physical Self Score--the individual's view of his body, state of health, physical appearance, skills, and sexuality; Moral-Ethical Self Score--moral worth and feelings of being a "good" or "bad" person; Personal Self Score--sense of personal worth and feelings of adequacy and worth in social interaction in general; Net Conflict Score--over-affirmation of positive attributes or over-denial of negative attributes; Total Conflict Score--amount of confusion, contradiction and general conflict in self perception; The True-False Ratio--response set and behavioral approach to the tests; three scores indicating variability or



inconsistency from one area of self perception to another; six scores indicating total distribution and specific distribution of answers on the five point scale; and, six "empirical scores" to assist in differential diagnosis, namely, the Defensive Positive Scale, the General Maladjustment Scale, the Psychosis Scale, the Personality Disorder Scale, the Neurosis Scale, and, the Personality Integration Scale, and, finally, the number of deviant signs, which is considered to be a purely empirical scale which is the Scale's best index of psychological disturbance. "This score alone identifies deviant individuals with about 80% accuracy" (Pitts, 1965, p. 5).

Psychometric Data.--The standardization group from which the norms were developed was a broad sample of 626 people including people from various parts of the country ranging in age from 12 to 68. There were approximately equal numbers of both sexes, both Negro and white subjects, and representatives of all social, economic, intellectual and educational levels from 6th grade through the Ph.D. degree. Subjects were obtained from high school and college classes, employers at state institutions and various other sources.

(A) Reliability.--The test-retest reliability with 60 college students over a two-week period ranged from a low of 0.61 to a high of 0.92; for most of the scores the reliability was over 0.80. A study with psychiatric patients produced a coefficient of 0.88 for Total Positive Scores; the Number of Deviant Scores produced a coefficient of 0.80 to 0.90 over a long period of time and for repeated measures on the norm group.

(B) Intercorrelation of Scale Scores.--Intercorrelations of scores for 102 psychiatric patients were determined. "The scores which are logically related show appreciable correlations, as expected...(however)...the major

dimensions of self perception (self esteem, self criticism, variability, certainty, and conflict) are all relatively independent of each other" (Fitts, 1965, p. 15).

(C) Validity.--Validity in such a scale as the Tennessee Self Concept Scale is difficult to express in a single statistical index since there is no single instrument that purports to measure the same dimensions of the self-concept. The author, however, has indicated validity of one or more of the scale scores when comparable scores are obtained on other tests such as the MMPI (Fitts, 1965).

Content validity was based on the judgment of seven clinical psychologists. An item was retained in the scale only if there was unanimous agreement by the judges that it was classified correctly.

Extensive studies have been made by the author in the area of concurrent validity. Correlations with the MMPI using 102 psychiatric patients indicate that "most of the scores of the Scale correlate with the MMPI scores in ways one would expect"; correlation with the Edwards Personal Preference Schedule is low but this is explained by the fact "that the very nature of the two scales is such as to contraindicate very much high linear correlations." Correlations have been made between the Taylor Anxiety Scale, the Cornell Medical Index, the Inventory of Feelings, and the California F-scale indicating significant "correlations in many expected areas."

(D) Personality Changes Under Particular Conditions.--The author points out an important fact to consider when assessing the value of the present instrument, namely, that the self-concept can change, therefore, assessment of "reliability" must consider this fact. As he says:

It is logical to expect that certain life experiences would have consequences for the way in which a person sees himself. Psychotherapy or other positive experiences would be expected to result in enhancement of the self concept, while stress or failure would be expected to result in lower self-esteem. (Fitts, 1965).

Dr. Fitts produces evidence in the 1965 Manual indicating that studies have shown changes do occur as a result of positive and negative life experiences. These studies not only serve as a caution in assessing "reliability" of self-concept instruments but attest to the fact that the self-concept is a dynamic factor in the personality structure which can-- and does--change.

### The Adjective Check List

Nature and Purpose of the Scale.--Gough and Heilbrun (1965) state:

The particular value of the check list approach is that it can offer words and ideas commonly used for description in everyday life in a format which is systematic and standardized.... Although first developed for use by observers in describing others, an adjective list can be and frequently is employed by an individual in self-description. (p. 3)

Development of the Scale.--In 1949 a first effort was made to assemble words for the Adjective Check List. "The 171 words from Cattell's study was canvassed, and words thought to be more or less essential for describing personality from different theoretical vantage points were added (e.g. those of Freud, Jung, Mead, Murray, etc.)". The first list consisting of 279 words was first introduced at the Institute of Personality Assessment and Research in 1950. It was soon apparent that other words should be added. "The present version of 300 words was prepared in 1952. The 300-word Adjective Check List is, therefore, an emergent from the language itself, past study, intuitive and subjective appraisal, empirical testing, and a three-year over-all evaluation." The scale is easily administered in

20 minutes.

Nature and Meaning of Scores.--The test provides 24 scores and indices. They are as follows: Total Number of Adjectives Checked--a self-control index; Number of Favorable Adjectives Checked--an index of desire to please others or impress others; Defensiveness--an index of self-control vs. anxiety and apprehensiveness; Number of Unfavorable Adjectives Checked--an index of impulsivity; Self-Confidence Index--a measure of self-esteem and self-confidence; Self-Control Index; Lability--inner restlessness and inability to tolerate routine and consistency; and, Personal Adjustment, that is, a positive or negative outlook. Fifteen Scales represent Murray's need-press system, namely, Achievement, Dominance, Endurance, Order, Intraception, Nurturance, Affiliation, Heterosexuality, Exhibition, Autonomy, Aggression, Change, Succorance, Abasement, and, Deference. A final index--Counseling Readiness--helps identify counseling clients who are ready for help and who seem likely to profit from it.

Psychometric Data.--The Manual (1965) indicates that 400 males and 400 females were used as subjects for producing intercorrelations among the Standard Scores on the Scales of the Check List; it does not, however, indicate the ages, education or other statistics which might be helpful in evaluating the normative sample.

(A) Reliability.--A sample of 100 men filled out the Check List twice approximately six months apart. Test-retest reliability coefficients varied from a low of  $+.01$  to a high of  $+.86$  with a mean of  $+.54$  and a standard deviation of  $.19$ . The mean reliability figure here is not high, and suggests that the self-image as projected in the ACL responses is perhaps not as stable as that found in the self-report inventories using items and questions.

The authors raise the question: "might not stability vs. instability of the self-image on the ACL reflect a personological disposition, not just statistical error?" With this in mind, the 100 men were studied in three days of assessment and each subject was described by ten observers on the ACL. A descriptive score on each adjective was assigned to each subject by counting the number of times that adjective had been checked about him. These 300 scores were then correlated with the coefficients of stability ( $\phi$  coefficients), with the following results:

Reliability on the ACL may be a meaningful psychological variable and not just a statistical property of the Check List. With subjects of cheerful, informal, and energetic character the ACL tends to be quite reliable in a test-retest situation; with subjects who are awkward, prejudiced, etc., in disposition, the ACL self-reports will show more variations (Gough and Heilburn, 1965, p. 12).

Test-retest reliability of the scales was assessed as follows: Four experimental samples were utilized for the determination of these coefficients, namely, 56 college males and 23 college females tested ten weeks apart, 100 adult males tested six months apart, and, 34 medical students tested five and one-half years apart. Most of the scales appear to possess adequate reliability over the ten week interval of time and some such as Self-Confidence, Dominance and Exhibition, a surprising high stability over the five year interval. "However, the Lab (lability) and Suc (succorance) scales do show rather low reliability, and results with them should, therefore, be interpreted with caution."

Agreement among judges was another method used to determine reliability. From the study of the 100 men discussed above, five cases were drawn for illustration, namely, the 20th, 40th, 60th, 80th and 100th subject. Ten judges were used. The five inter-group reliability coefficients obtained were corrected by the Spearman Brown prophecy formula because the

authors were interested in the reliability for the full group of ten judges. The coefficients were .70, .63, .61, .75, and .61. The authors conclude: "these values are satisfactory, and indicate that the ACL can be used by trained observers to describe others with adequate reliability."

(B) Intercorrelations among the Standard Scores on the Scales.--The intercorrelations of the standard scores of the scales using 800 subjects (400 males and 400 females) is given in the manual. Although most of the coefficients are low enough to indicate an adequate degree of independence among the scales, some such as the personal adjustment vs. favorable adjectives checked and endurance vs. order are high. The authors explain that these scales have an appreciable number of items in common; this overlap significantly augments the interscale correlations. "Unfortunately", concede the authors, "to date it has not been possible to reduce overlap without at the same time impairing validity."

(C) Validity.--Validity presents an understandable problem for the authors of the Adjective Check List, as it does for others who construct instruments for the measurement of personality traits and self concept dimensions such as the Tennessee Self Concept Scale discussed previously. Gough and Heilbrun (1965) make the following observations:

Although indices of validity for the scales of a multi-variate personality measure should be tangible, concrete, and evidential, there is rarely a single and simple variable which may be taken as a criterion for any one scale. The problem of demonstrating validity becomes one of amassing a wealth of information for each scale, and then out of this evidence determining whether a coherent, meaningful, and psychologically useful pattern can be evolved. It is also true that in a complex test a good portion of the "validity" of the instrument in use must come from the skill and insight of the practitioner, from his sensitivity to patterns and configurations and his ability to translate the psychometric information of the profile into a valid formulation of the individual case. (p. 14)

Concerning concurrent validity, a considerable fund of research and technical information has been gathered. Correlations between the scales of the ACL and the (1) California Psychological Inventory, (2), the MMPI, (3) the Edwards' Social Desirability Scale, and, (4) eight measures of intellectual aptitudes and cognitive function show very little correlation, as would be expected, with the 24 scales of the ACL. The most informative correlations were made with the California Psychological Inventory and the MMPI using the usual MMPI scales plus Welsh A (anxiety), Welsh R (repression), Block Ec (ego-control), and the Barron Es (ego-strength). Other correlations have been made between the scales of the ACL and the Barron-Welsh Art Scale, the California F Scale and "ratings of Originality on the Thematic Apperception Test." The correlation between certain of the ACL scales and scales on the other tests is often impressive. Since, however, none of the tests used for comparison purport to measure the same dimensions of personality as the ACL and may be questioned regarding their own validity, no test is useful as a criterion for judging the validity of the ACL and its 24 scales.

#### Factorial Analytic Studies of the Self-Concept

Very few factorial analytical studies have been made of self-concept measures. They are important in the present study because they emphasize the multi-dimensional character of the self-concept and, in addition, suggest certain important factors or dimensions to be considered when attempting to assess the self-concept and when selecting tests to measure the self-concept. One of the underlying assumptions of the research presented in these pages is that the self-concept is not a unitary dimension of personality but is constituted of certain dimensions or factors. Factorial

analytical studies have concurred with this assumption.

Philip A. Smith (1958, 1960, 1962) criticizes most measures of the self-concept because they "generate scores which are treated as positive or negative points on a value continuum despite evidence (Osgood, Suci, and Tannenbaum, 1957) which suggests that a meaningful concept such as the "self" comprises an aggregate of factors rather than a single evaluative dimension" Smith (1960, p. 191). In a factorial analysis of a self-rating device composed of 70 bipolar adjectives descriptive of human personality, Smith (1960) extracted five factors which he designated self-esteem, anxiety-tension, independence, estrangement, and, body image. In a later study using 40 bipolar adjectives, Smith (1962) postulated six intelligible factors after analysis, somewhat similar to the factors found earlier in 1960, namely, self-confidence, social worth, corpulence, potency, independence, and, tension-discomfort. A study of the tests and factorial data, supplied by Doctor Smith to the present investigator, did not indicate that the tests are sufficiently valid or the purity of the factors sufficiently evident to make the tests useful in the present study. However, his studies do point to the importance of considering the self-concept as "an aggregate of factors rather than a single evaluative dimension."

Interestingly, a factorial study by Guertin and Jourard (1962) indicated that male and female self-concept factors show very little correspondence. Self-esteem was most important for men; personal warmth in social settings were more important for women. "It was concluded that mixing of sexes in samples is indefensible" (p. 245).

#### Psychological Testing of Alcoholics

As indicated earlier, most psychological testing of alcoholics has been



undertaken either to determine if an alcoholic personality exists or to determine if the alcoholic can be classified in one of the diagnostic categories of the American Medical Association, 1952.

The Rorschach has been used extensively with the alcoholic (Seliger and Cranford, 1945; Reitzell, 1949; Wiener, 1956, LeVann, 1953). The D-A-P has been used by Navratil (1958) and the T.A.T. by Klebanoff (1947), and, Maddox and Jennings (1959). These projective instruments, however, have been used primarily diagnostically and for determination of psychopathology rather than for assessment of the self-concept or the dimensions of the self-concept and personality structure of the alcoholic.

In addition to the use of the MMPI for diagnosis of the alcoholic three scales which purport to measure alcoholism and distinguish the alcoholic from the non-alcoholic have been developed. W. O. Holmes (1953) developed the "AI" scale from the MMPI, while Hoyt and Sedlacek (1958) developed a second scale for distinguishing alcoholics from non-alcoholics; both were studied critically by Korman (1960). A third scale was developed by Hampton (1951). Studies of these three scales were made by MacAndrew and Geertsma (1963) and by MacAndrew (1965). They concluded: "MMPI derived 'alcoholism scales' have been shown to provide indices not of 'alcoholism', as their authors have maintained, but of general maladjustment." It would seem, therefore, that the MMPI and the scales thus far developed from the MMPI have little value, if any, in measuring the self-concept of the alcoholic or important dimensions of his self-concept. In a study conducted by Muzekari (1965), 180 alcoholics were assessed after a year's treatment, and it was found that the MMPI was unable to clearly and definitively differentiate alcoholics who had abstained for one year or more from those who had relapsed after treatment. He, therefore, warns: Clinicians

using the MMPI to diagnose potentiality for recovery among alcoholics should take heed of these findings and (perhaps) modify their practice." Finally, a factor analytic study of alcoholic as well as criminal and narcotic addict MMPI protocols by Hill, Haertzen and Davis (1962) found that "except for behavior which is peculiarly determined by the particular activity, no other personality characteristic is associated specifically with either alcoholism, narcotic addiction or criminality. Social deviance appears to be the common characteristic."

Only two examples of testing individuals while they were drinking could be found in the literature; neither of these experiments were conducted with alcoholics. Kelly and Barrera (1941) administered the Rorschach to ten subjects experimentally intoxicated. The investigators concluded: "no specific 'Rorschach pattern' can be described for the diagnosis of acute mild alcoholic intoxication." Abramson (1945) administered the MMPI to 20 subjects when sober and, at least three weeks later the same subjects were given, on the average, three cocktails each containing one ounce of whisky, drunk rapidly without food. Mild euphoria, talkativeness, slight unsteadiness appeared and the same test was presented again to the subjects. The results, however, indicated that the attitudes expressed during sobriety and under alcohol were the same; sometimes relative differences were expressed, but not radical ones.

Using a Q sort technique, MacAndrew and Garfinkel (1962) tested 62 alcoholics when they were sober, which asked them to depict their "sober-selves", "drunk-selves", and "ideal-self depictions". "The subjects' sober-self and drunk-self portrayals were marked dissimilar." "The enabling role of alcohol" was concluded as a result of the tests with two approaches

suggested for the interpretation of this enabling role, namely, the "toxic-agent approach" and the social-system approach. The former approach argues "When I am drunk it happens to me that I become assertive"; the latter approach says "Being drunk allows me to be assertive." Although one may not, necessarily, agree with the conclusions from the experiment, this single experiment suggests that the alcoholic may not only see himself as different when he is drinking and sober, but may actually feel different about himself when he is drinking and when he is sober. This would be consistent with the second main hypothesis of the present study, namely, that one of the reasons an alcoholic drinks is to improve his own self-concept.

Nowhere in the vast literature on alcoholism was there found any experimental attempt to study the alcoholic when sober and when drinking.

#### Assessment of the Alcoholic Self Concept

It is surprising, considering over 34,000 studies of alcoholism collected by The Center of Alcoholic Studies, Rutgers University, New Brunswick, New Jersey, that only one major study, dealing explicitly with the self-concept of the alcoholic, could be found. Ralph G. Connor (1960) using a modification of the adjective check list of Gough and Sarbin compared the self-concept of 347 alcoholics with 32 non-alcoholic males in global terms. Connor drew two major conclusions regarding the self-concept of the alcoholic: (1) a generalized lack of organization and integration of the self, and, (2) the pronounced emphasis placed by the alcoholic on "primary relationships" implying that the alcoholic does not extend himself into society in general and has withdrawn to some extent from participation in "secondary relationships." Connor notes that the alcoholic tends to be more neurotic immediately after withdrawal from alcohol than after a lengthy

period of sobriety. Further, the self-concept of the alcoholic becomes more congruent with the self-concept of the non-alcoholic after a period of sobriety.

No attempt was made by Connor to consider the self-concept of the alcoholic in other than global terms; no attempt was made to delineate or analyze specific dimensions of the self-concept. However, his research is one of the first important works on the self-concept of the alcoholic. Further, it indicated that the self-concept of the alcoholic is not a static entity but a dynamic personality trait which is capable of change.

#### Assessment of Changes in the Self-Concept of the Alcoholic

A minimal number of studies suggest that certain dimensions of the self-concept of the alcoholic are subject to change. Most of these studies have noted these changes through test and retest after certain types of therapy.

Gliedman, Rosenthal, Frank, and Nash (1956), using an adjective check list, tested the effectiveness of group therapy of alcoholics with concurrent group meetings of their wives. They concluded that the major contribution of the group program was improvement in self-esteem on the part of the alcoholic. They conclude, cautiously: "it is tempting to speculate that the need to cope with depressiveness, lowered morale, or feelings of damaged self-esteem in general, is one of the more important motivations for excessive drinking."

Ends and Page (1959) tested alcoholics before and after therapy with Q sorts and the MMPI, and contended: Rogerian group-centered psychotherapy resulted in quantitative and qualitative changes in the patients, including increased self-acceptance, increased acceptance of preself and postself

concepts, and psychological growth." Similar changes in the MMPI profiles of alcoholics after psychotherapy, to that noted by Ends and Page, were found by Faibish and Valles (1965).

White and Gaier (1965) assessed body image and self-concept changes after different intervals of sobriety. They found that: "From the initial stages of sobriety until about one year, a gradual increase was observed in the emphasis on body function. Concern for the body occupied lesser importance in sequential months of sobriety."

Blane and Meyers (1963) consider "dependency one of the major components of the personality of alcoholics." Their study of 99 alcoholics after psychotherapy stressed the constructive use of dependency needs in psychotherapy. "The findings indicate that overtly dependent alcoholics respond more positively to therapeutic efforts that stress constructive use of dependency needs."

Shay (1963) studied the changes in the self-concept of 18 institutionalized alcoholics after 30 hours of "discussion training" over a two-week period. The Butler Haigh Q sort was administered at the beginning and end of the period; 23 hypotheses were tested. He concluded that significant changes occurred in the self-concept of the subjects "both in terms of integration of personality and adjustment to society during the participation in group discussion."

Anticipating the assertion of Berne (1964) that the alcoholic's aim is self-castigation, Armstrong and Hoyt (1963), sought to explore the superego of the male alcoholic and hypothesized that upon hospitalization alcoholics are beset with guilt feelings. Using the "IES test, a psychoanalytically oriented instrument designed to measure the strength of impulses (I), ego (E), and superego (S)," and other tests, they concluded:

The most significant finding disclosed that the superego aspect of the self-concept of the alcoholics remained highly moralistic and punitive in comparison with that of the normal group from initial test to retest, while this aspect of their ideal self diminished significantly with an accompanying increment in ego strength. The over-all structure of their self-concept remained unchanged.

#### SUMMARY AND EVALUATION

An immense literature exists regarding alcoholism; over 34,000 articles have appeared between 1900 and 1966. Most of the earlier scientific writings, influenced particularly by Freud and the analytic school (Ferenczi, 1912), assumed that there was a definite alcoholic personality and, etiologically, alcoholism was due to latent or repressed homosexuality. A few writers still insist that there is a unique alcoholic personality, however, the overwhelming majority of investigators do not believe that a specific alcoholic personality exists, for example, Landis and Bolles (1946), Sutherland et al (1950), Kieve, (1950), Seliger (1952), Kaldegg (1956), Lazarus, (1956), Coleman (1956), Syme (1957), Armstrong (1958), Murphy (1958), Bathurst and Glatt (1959), Kennedy and Fish (1959), Witkin et al (1959), Rosen (1960), Connor (1960), Fox (1961), Hoff (1965), and others.

A few writers still insist that alcoholism is due to latent or repressed homosexuality (Parker, 1959), however, the majority deny that this is so (Botwinick and Machover, 1951; Korman and Stubblefield, 1961; Mathias, 1956, etc.).

On the other hand, alcoholics seem to show important variations in personality traits and in certain dimensions of their self-concepts from the non-alcoholic (Seliger and Rosenberg, 1941; Moore, 1942, Manson, 1948a, 1948b; Machover and Puzzo, 1959a, 1959b, 1959c). Piotrowski, Lewis, Miksztal and Phillips (1958) emphasized the negative self-image of the

alcoholic while De Palma and Clayton (1958) noted the low tolerance for stress and strain found in alcoholics. Rotter (1945), Shulman (1951), and, Randall and Rogers (1953), pointed out the important fact that alcoholics, in general, had unrealistic goals. In their studies, they found that either the alcoholic's level of aspiration was too low or unrealistically too high.

Many writers consider that immaturity and dependency are the most important characteristics of the alcoholic personality (Halpern, 1946a, 1946b; Stewart, 1950; Wallinga, 1956; Button, 1956a, 1956b; Armstrong, 1958, 1959, 1963; Witkin et al, 1959; Lisansky, 1960; Hayne, 1961; Gilbert, 1963; Karp et al, 1965a, 1965b, Blane and Meyers, 1963, etc.). Some of these investigators suggest that immaturity and dependence are causative factors in the alcoholic's general feeling of estrangement, loneliness, lack of social worth, and, general inadequacy.

Connor (1960) points out the general lack of structure, organization and integration of the alcoholic personality. From his extensive studies of the alcoholic, Podolsky (1959, 1960, 1961a, 1961b, 1962) concluded that the alcoholic, basically, is an inadequate personality. His responses to ordinary intellectual, emotional, social and physical demands are inadequate responses. "Alcoholism often represents an attempt to ward off intolerable feelings of inadequacy, inferiority and unworthiness and to attain some degree of emotional equilibrium (Podolsky, 1962, p. 106)."

Coleman (1956) summarizes the investigations of research on the alcoholic personality: "studies have failed to show any alcoholic personality type," however, "alcoholics are often immature, passive-dependent persons with unrealistically high levels of aspirations coupled with an inability

to tolerate failure."

After two comprehensive surveys of existing literature on alcoholism, Hoff (1961, 1965) concurs with Coleman that most investigators do not believe that there is an alcoholic personality as such. He agrees, however, that most investigators consider that there are important variations in certain personality traits in the alcoholic. He concludes: "alcoholics are often characterized as unusually dependent, sexually immature, inadequate and having a low tolerance for unwanted feelings and tensions." From two factorial analytical studies of the alcoholic self-concept, Smith (1958, 1960, 1962) considered that self-confidence, social worth, corpulence, independence, and, tension-discomfort are key facts to consider in the study of the alcoholic.

Most psychological testing of alcoholics has been undertaken either to determine if an alcoholic personality exists or to determine if the alcoholic fits into any of the diagnostic categories of the American Medical Association. Many different psychological instruments have been used; many of the results have led to the general conclusion that there is no definite alcoholic personality and that the alcoholic cannot be classified as essentially psychotic or a neurotic. Ceccarelli (1958), using the MMPI, suggested that 70% of the alcoholics tested showed schizoid and schizophrenic traits often associated with depression. However, Fuller, (1966), after analyzing the 16 PF profiles of 818 alcoholics tested by himself and others, concluded that "the verdict is that the alcoholic is not a psychotic and not a psychopath or sociopath." On the other hand, Fuller maintained that the "16 PF profile of alcoholics resembles that of the neurotic."



After studying the MMPI and 16 PF profiles of over 60 alcoholics who were tested immediately after withdrawal from alcohol and tested approximately 60 days later, it is the opinion of the present investigator--which is shared by others--(e.g. Hill, Haertzen and Davis, 1962) that the neurotic pattern found by fuller is an artifact of withdrawal rather than necessarily characteristic of the alcoholic. Elevation, for example, of the depression scale on the MMPI and the second order anxiety scale on the 16 PF, is very evident on testing immediately following withdrawal. Often after 60 days these elevations are no longer significant. This is not to deny that some alcoholics are neurotic and some may be psychotic, however, there is little in the literature to suggest that alcoholics as such may be diagnostically categorized.

The MMPI has been used extensively with alcoholics. Three alcoholic scales have been developed from the MMPI, namely, the AI scale of Holmes (1953), a second scale by Hoyt and Sedlacek (1958), and, a scale by Hampton (1951). MacAndrew and Geertsma (1963) studied these three scales critically. They concluded that the scales are measures not of alcoholism, as they purport to be, but of general maladjustment.

The Rorschach has been used extensively with the alcoholic (Seliger and Cranford, 1945; Reitzell, 1949; Wiener, 1956; Le Vann, 1953, and others). The Draw-A-Person has been used by Navratil (1958) and the T.A.T. by Klebanoff (1947) and Maddox and Jennings (1959). These projective instruments, however, have been used primarily for diagnostic purposes and for assessment of psychopathology rather than for studies of the personality structure and self-concept of the alcoholic. Two studies, using the Rorschach, and the MMPI respectively, have been made on non-alcoholics when

drinking (Kelly and Barrera); no studies could be found which tested the alcoholic when he was drinking and when sober.

A minimal number of studies have been made on the self-concept or the dimensions of the self-concept of the alcoholic. MacAndrew and Garfinkel (1962), using a Q sort technique, studied the differences in the "sober self", the "drunk self" and the "ideal self" as depicted by the alcoholic relative to himself. Only one study could be found that explicitly studied the self-concept of the alcoholic. Connor (1960) considered the self-concept of the alcoholic in global terms. He concluded that the alcoholic emphasizes primary relationships (e.g. familial), and avoids normal secondary relations of society in general. In addition, the alcoholic's personality lacks structure, organization and integration.

Psychological tests have been used by several investigators to evaluate changes that may have occurred after specific therapies (Gliedman, Rosenthal, Frank, and Nash, 1956; Ends and Page, 1959, Shay, 1963; White and Gaier, 1965, etc.). No particular therapy has been found to be completely successful; psychological testing, however, has assisted in the evaluation of many therapeutic techniques.

Self-concept studies have proliferated since 1950. Many definitions have been suggested for the "self" and "the self-concept." The operational definition used in the present study is as follows: The self-concept is the "self as the individual who is known to himself." The focus, therefore, in considering the self-concept of the alcoholic is on who he is--or thinks he is--rather than on what he does. It involves conscious self-evaluation by the person and is dependent on personal self-report rather than on evaluation by others. The self-concept is not a

unitary dimension of personality but involves multi-dimensional factors.

Many psychological instruments have been used to evaluate the self-concept (Wylie, 1961; Strong and Feder, 1961); few have been used to evaluate the self-concept of the alcoholic. Five general methods have been employed to assess the self-concept: (1) Q sorts, (2) response methods, (3) Likert-type rating methods, (4) check lists, and, (5) miscellaneous methods and adaptations of other instruments such as the Barron ego-strength scale from the MMPI. The Likert-type method is the most popular; the check list method is gaining in popularity. After examining each method and the potential instruments available, The Tennessee Department of Mental Health Self Concept Scale (Fitts, 1965), representing the Likert-type method, and, The Adjective Check List of Gough and Heilbrun (1965) were considered the best available tests for the present study. The nature, purposes, development, scale meanings and psychometric data regarding these two tests have been indicated. No existing instrument was considered ideally suitable for the present investigation; the two tests chosen seem to be the best that were available.

CHAPTER THREE  
DESIGN OF THE EXPERIMENT

Subjects

One hundred and forty-three adult male alcoholics volunteered for this research project. Fifteen men served as subjects for a pilot study to evaluate the usefulness of the test instruments and to improve the experimental design. Twenty-eight were eliminated as potential control or experimental subjects. Fifty men constituted the control group; 50 men constituted the experimental group.

For the purposes of this study the "alcoholic" is distinguished from others who drink on the basis of the following criteria: (1) he is a compulsive drinker; (2) he lacks normal control over the amount he drinks once he has begun to drink; (3) drinking seriously interferes with his work life, family life or some other facet of normal living; and, (4) he has been admitted to a recognized institution as an alcoholic. The last criterion was essential; one or more of the first three criteria was present in every case.

Potential subjects were drawn from three different populations: (1) alcoholics admitted for treatment to the Alcoholic Rehabilitation Unit of Downey Veterans Administration Hospital, Downey, Illinois; (2) other alcoholic patients in the Downey patient population; and, (3) alcoholics admitted to the Chicago Alcoholic Treatment Center, Chicago, Illinois.

Fifteen alcoholics in the Downey Alcoholic Unit on March 15, 1966, volunteered to serve as the pilot group. The 71 alcoholics present in the three aforementioned populations on April 29, May 5, and July 1, 1966, respectively, who were certain they would be patients sufficiently long to complete the testing, were considered potential control subjects. All 57

alcoholics admitted to the Downey Alcoholic Unit between April 22, 1966, and August 19, 1966, were considered potential experimental subjects.

Neither the control group nor the experimental group were systematically biased; all patients in the three populations on the dates mentioned were considered potential subjects. They were eliminated as subjects from both groups for one of two reasons on the following bases: (1) either on the basis of psychological and psychiatric evaluation, subsequent to admission which indicated that the potential subject was seriously brain damaged, psychotic, mentally retarded, or physically or psychologically unsuitable for testing, or, (2) failure to complete the testing. After psychological and psychiatric evaluation, six of the potential control group and four of the potential experimental group were eliminated. Fifteen of the potential control group and three of the potential experimental group did not remain patients long enough to complete the testing.

All 50 experimental subjects were patients in the Downey Alcoholic Rehabilitation Unit; 15 of the control subjects were from the Unit, 11 were patients in other Units at Downey V.A. Hospital, and, the remaining 24 subjects were under treatment at the Chicago Alcoholic Treatment Center.

All 100 subjects were English speaking; five of the control group were Negro, one Mexican and 44 white; three of the experimental group were Negro and 47 were white. Ages ranged from 28 to 61 for the 50 control subjects and from 25 to 71 for the 50 experimental subjects; education ranged from 6 to 18 years and from 6 to 16 years, respectively, for the two groups. Eight of the control group were single, 16 were married, 25 were separated or divorced and one was a widower. The socio-economic status for the majority of both groups was lower middle class. Seven of the control group

were business or professional men, two represented clerical occupations, 20 were skilled laborers, 20 were unskilled laborers, and, one was a bartender. Over 75% of both groups had spent some time in penal institutions because of their drinking; 60% of the subjects had been hospitalized more than once for alcoholism.

The purpose of the control group was two-fold: (1) Relative to the first hypothesis that alcoholic groups have lower self concepts than comparable groups of nonalcoholics, the control group served as a second alcoholic group to compare with nonalcoholics and, in combination with the experimental group, provided a combined group of 100 alcoholics to compare with nonalcoholic norm groups, and, (2) since the control group and the experimental group were tested, for the purposes of this study, four times at the same intervals, the control group was used to correct for the effects of serial and repeated testing.

All the subjects were most cooperative. None complained of the time required for testing. On the contrary, they evidenced their willingness to cooperate in a study which might contribute to a better understanding of the alcoholic and to the treatment of alcoholism. Many did participate at great inconvenience to themselves. The test results, therefore, would seem to have been obtained under optimal conditions.

## Procedures

Selection and evaluation of the experimental subjects.--The standard and detailed procedure which was used in the selection of the 50 alcoholics who served as the experimental group consisted, chronologically, of the following operations:

(A) Initially, the social worker for the Alcoholic Rehabilitation Unit at Downey Veterans Administration Hospital, Downey, Illinois, interviewed all potential candidates for admission to the Unit between April 20, 1966, and August 30, 1966. A social history was taken which included not only the usual data regarding family history, early childhood, education, military history, work history, marital status, previous hospitalizations, present life situation, etc., but also, a history of his drinking habits and drinking pattern. The latter focused on the following: (1) the age at which the alcoholic had his first drink; (2) when he began heavy drinking; (3) when the veteran became an alcoholic; (4) the lengths of periods of drinking and sobriety especially in the past five years; (5) the amounts and kinds of alcoholic beverages consumed; (6) his drinking pattern, for example, a weekend drinker, a drinker on the job, an evening drinker only, etc., and, most importantly (7) the amount of alcohol the veteran said he was able to consume and function "optimally"--that is, satisfied and able to carry on in his work and daily routine--but not yet drunk. In all cases a member of the potential patient's family, spouse, or close associate was interviewed prior to admission to the hospital. Reports of these initial interviews were given to the Unit Chief, a physician.

(B) The Unit Chief reviewed the findings of the social worker and determined the suitability of the potential patient-subject. Available

clinical records were reviewed by an "intake staff" consisting of psychiatrists, physicians, psychologists, social workers, and, nurses. The veteran was interviewed, personally by this staff. After staffing, he was placed on an observation ward (unless it was necessary to put him on a medical ward) so that appropriate medication could be administered to him during the withdrawal and "drying out" period.

At least one day prior to admission to the Alcoholic Rehabilitation Unit, all medication including tranquilizers, which might interfere in any way with the testing was discontinued. The patient-subject was then admitted to the Alcoholic Unit; no medication, which the Unit Chief considered might affect the tests, was permitted during the testing period.

(C) On the day of admission to the Alcoholic Unit, the social and alcoholic history of the patient was made available to both the psychiatrist and the psychologist conducting this study. Since the psychiatrist had already interviewed the veteran prior to admission, the psychologist conducted a private interview on the day of admission to the Unit. The purpose of the interview by the psychologist was not only to determine the drinking pattern of the patient but also his optimal drinking capacity. Both the psychiatrist and psychologist individually made a clinical judgment as to the optimal drinking capacity of the patient.

Subsequently, the alcoholic was interviewed jointly by the psychiatrist and the psychologist. Nurses, social workers, and other psychologists who might assist in the evaluation of the optimal capacity of the patient were invited to participate in this joint interview. The type of interview varied in length and content. An essential part of each interview consisted of a standard interrogation which was recorded on the form



designated "Interview Form Sheet For Determination of Drinking Habits and Optimal Drinking" to be found in Appendix A.

Following the joint interview, the individual judgments of the psychiatrist and the psychologist were made known to each other. When there was concurrence, the optimal drinking capacity was recorded, as well as the kind, amounts, and time intervals for administration of alcohol. Instructions were then given to the nurse by the doctor to withhold breakfast and all solids and liquids, except water, on the fourth and seventh days after the admission date. She was instructed further to give the patient his optimal dosages of alcohol at the specified intervals, beginning at 7:30 A.M., on the fourth day, and, one-half the optimal dosage at the same intervals on the seventh day.

An alcoholic who had been on the Unit's program for some time was assigned to assist in the testing and to take care of any special needs of the new patient particularly when he was drinking.

Testing procedures for the experimental group.---For the purposes of this study, the subjects were tested four times. The initial testing (Test I) was conducted on the day of admission to the Alcoholic Unit when the patient had been sober at least five days, the second testing (Test II) on the fourth day when drinking optimally, the third testing (Test III) on the seventh day when drinking at one-half optimal capacity, and, the fourth testing (Test IV) on the fourteenth day when there had been no alcoholic consumption for one week after Test III.

Approximately one hour was necessary to complete the testing each time. Testing began promptly at 8:15 A.M. for Test II and Test III when the subjects were drinking.

The principle tests administered at each session were The Adjective Check List, (ACL), prepared by Harrison G. Gough in 1952 and described in The Adjective Check List Manual by Harrison G. Gough, Ph.D., and Alfred B. Heilbrun, Jr., Ph.D. (1965), and, The Tennessee (Department of Mental Health) Self Concept Scale, (TSCS), prepared by William H. Fitts, Ph.D., in 1964 and described in The Tennessee (Department of Mental Health) Self Concept Scale Manual (1965). Although not all of the 24 variables on the ACL and the 29 variables on the TSCS were relevant to the present study, both tests were given in their entirety and the irrelevant variables were eliminated before statistical analysis was completed.

In addition to the principle tests, three auxiliary testings of the subjects were made:

a. The Ferguson Form Boards #2, 4, & 5, described in Catalog #37007, C. H. Stoelting Company, Chicago, Illinois, were administered at all four test sessions. In a personal communication to the present investigator, dated April 19, 1966, J. J. Heger, Sr., of C. H. Stoelting Company, indicated that "This series was discontinued over ten years ago. We have no manuals on hand that might be helpful to you." No statistical significance can be asserted for the results after administration of the three form boards, nor, is any significance claimed in the present study. The purposes of these administrations were two-fold: (1) they served as an indirect and approximate assessment of the ability of the subjects to function when drinking and when sober since they involved manipulative and motor control factors, and, (2) the men enjoyed the tests so much that they served as motivational agents for cooperating with the principle tests.

b. Blood Alcohol Assessment was made three times by The Research-in-Aging

Laboratory staff at Downey V. A. Hospital, namely, during the Test I session and promptly at 8:30 A.M. during the Test II and Test III sessions. The blood alcohol level of the subjects when sober, drinking optimally, and drinking at half-optimal levels were compared to the levels indicated by the U. S. National Safety Council (1951) not only to assess the alcoholic blood level when the subjects were sober and when they were drinking but also to serve as a check on the clinical judgment of optimal drinking. According to these standards the normal level of blood alcohol, where there is no consumption of alcohol, ranges between 0.00% and 0.05%; there is evidence of drinking but the individual is not necessarily intoxicated when the blood alcohol level ranges between 0.10% and 0.15%. Legally, a person is considered drunk when the level of blood alcohol exceeds 0.15%.

c. The Otis Test of Mental Abilities, Form A, was administered to all subjects approximately three weeks after admission to the Alcoholic Unit. This assessment was not made immediately upon admission but was delayed since it was assumed that an alcoholic does not begin to approximate his normal functioning for about a month after heavy alcoholic consumption. The Otis Test was given for two purposes: (1) to estimate the I.Q. of the subjects, and, (2) to determine if the experimental group and the control group were matched on this variable. Admittedly, the Form A of the Otis Test is not ideally suited for administration to subjects who do not have at least a high school education; for these it served as a rough estimate, only, of their intelligence. Since, however, there were equal numbers of subjects in the experimental and control groups who did not have at least a high school education, the tests were valuable for matching the two groups.

d. Within the first month on the ward, a battery of psychological tests

were given to the experimental subjects, including the Bender Gestalt, the T.A.T., the H-T-P, the D-A-P, and, the MMPI. A diagnostic report was prepared from the test results and presented to a diagnostic staff consisting of the Unit Chief, the psychologist conducting the present study, the social worker, the nurse, and other members of the professional staff. If the staff considered that the patient on the Alcoholic Unit was mentally retarded, psychotic or seriously brain damaged, he was eliminated from the present study. As indicated earlier, four subjects were dropped on this basis.

Selection, evaluation and testing of the control group.---There was no original screening of alcoholics who were to serve as the control group. All alcoholic patients in the Alcoholic Rehabilitation Center in Downey Veterans Administration Hospital on April 29, 1966, alcoholics in other wards at Downey on May 5, 1966, and, patients in the Chicago Alcoholic Treatment Center on July 1, 1966, who volunteered for the study were considered potential control group subjects. Seventy-one alcoholics were initially tested (Test I) using The Adjective Check List (ACL), The Tennessee Self Concept Scale (TSCS), and, three Ferguson Form Boards. Fifty-six remained at the respective hospital or center long enough to complete the full battery of tests.

Following Test I, the potential control subjects were tested at the same intervals as the experimental group, namely, four days after the initial testing (Test II), seven days after Test I (Test III), and, fourteen days after Test I (Test IV). The ACL, the TSCS, and the Form Boards were administered at all four sessions.

The Otis Test of Mental Abilities, Form A, was administered to all subjects after they had been at least three weeks in the hospital or center.

Psychological and psychiatric evaluation of the 56 potential control subjects indicated that six were mentally retarded, psychotic, seriously brain damaged or otherwise unsuitable subjects and were eliminated from the study. Three of the potential subjects from the Chicago Alcoholic Treatment Center (CATC) were eliminated on the basis of scores below 68 on the Otis Test, elevation of the psychotic scale above a standard score of 80 on the Tennessee Self Concept Scale or excessive time, e.g., 600 seconds on a form board. Three of the potential subjects from the two Downey Hospital populations were eliminated not only on the basis of the test scores used as criteria for the patients at the Chicago Alcoholic Treatment Center but also on the basis of formal diagnoses, after psychological and psychiatric evaluation, which forms a part of the clinical record of each patient at Downey Hospital.

Evaluation and statistical analysis of the data.--The data were evaluated and assessed in the following manner:

A. Preliminary evaluation of the data involved the determination of the means, standard deviations, and, in some cases, the medians and ranges for the 24 variables on The Adjective Check List, the 29 variables on the Tennessee Self Concept Scale, the three scores on the Ferguson Form Boards for each of the four testings as well as blood alcohol levels for the experimental group for three testings, and, once each for the three constants, age, I.Q. and education. Four 60 X 60 matrices, involving all the variables and the constants were prepared for both the control and experimental groups as well as a 60 X 60 matrix for all four tests for the combined groups. The primary purposes of these preliminary evaluations were: (1) to determine if the control group were matched particularly in regard to age, IQ and

education by t tests, (2) to determine with the correlations used if any of these constants were significantly correlated with any variables on the principle tests; (3) to determine if the optimal level of blood alcohol had been obtained for the experimental group; and, (4) to assist in the elimination of unreliable, overlapping or irrelevant variables.

B. In order to test the first hypothesis that assessments of certain dimensions of the self-concept of groups of alcoholics will indicate significant differences from a normative group along sufficient dimensions of the self-concept to conclude that alcoholics have a poorer self-concept than nonalcoholics, a variety of evaluative methods were used.

Standardized test results on the 53 variables of the Adjective Check List and the Tennessee Self Concept Scale from the initial testing (Test I) of both the experimental and control groups formed the bases for evaluation of the first hypothesis. Comparison of the control and experimental group on each variable by appropriate t tests were intended to indicate significant differences between the two groups on any variables. Similar comparison of the control, the experimental and the combined control and experimental groups with the normative samples of 800 subjects for the Adjective Check List and 626 subjects for the Tennessee Self Concept Scale, respectively, suggested variables on which the alcoholic groups differed significantly from the normative samples. Variables which differed significantly for both the experimental and control groups from the normative groups but did not differ significantly from each other were more easily interpreted statistically relative to the first hypothesis; variables which differed significantly for both the experimental and control groups from the normative groups and which differed significantly from each other were less easily

interpreted statistically; finally, variables which indicated no difference between the combined control and experimental groups and the normative samples were not considered further.

C. The second hypothesis of this study states that assessment of certain dimensions of the self-concept of alcoholics under controlled conditions of drinking and sobriety would indicate significantly more positive self-concepts when the alcoholics were drinking optimally than when they were sober or drinking at a sub-optimal level. Two general methods of statistical analysis were used to test this hypothesis, namely, analyses of variance and trend analyses by orthogonal polynomials (i.e., slope, curvature and inflection). Results from the four testings of both the experimental and control groups were used in these analyses after elimination of the constants, age, IQ, and, education, blood level assessments, Form Board results, and variables on the Adjective Check List and the Tennessee Self Concept Scale which were clearly unreliable, overlapping or irrelevant.

The main analyses of variance were analyses for repeated measures for two groups with four measures for each subject. Separate 2 X 4 analyses were done for each self-concept dimension used. Variations in the scores of the experimental and control group were compared at the four trend points for each of the self-concept dimensions to determine if there were significant groups by trend points interaction which would establish effects on the experimental group over and above the effect of repeated testing. Where this was established, a 1 X 4 analysis of variance for repeated measures was done using the experimental group only. Where the predicted F for trend points was

significant, the means at the four trend points were compared with each other by  $t$  tests to determine significance between testings. Where the assumption of homogeneity of variance was not tenable, if the  $F_{\max}$  of a Hartley test was significant also, a more stringent level of significance was applied, namely, the .01 level of significance for the  $F$ 's.

The second method of analysis compared the curves resulting from variations across the four test points for each relevant variable in the control group with the same curves for the variable in the experimental group to determine differences in slope, curvature and inflection. For each measure, the best fitting straight line for each group was found. The slopes (i.e., the angles formed by the intersection of the lines with the "x" and "y" axes) were compared. Secondly, not assuming linearity, the curvature of the two lines determined by each of the two groups of four points was evaluated for significant differences. Finally, the inflection of these two curves was studied to determine if the change in curvature over these four points differed significantly for the two groups.

This second method is essentially an extension of the first method which involved analyses of variance. This analysis of variance in the analysis and comparison of curves is described by D. A. Grant (1956). Relative to the present study, the analysis involved linear, quadratic and cubic analyses for slope, curvature and inflection, respectively, for each variable separately. The linear, quadratic and cubic analyses were the maximum possible since the method permits one less analysis than the total number of trend points for each variable, and there were four points in the present investigation.



## CHAPTER IV

### RESULTS AND DISCUSSION

#### Preliminary Evaluation of the Data

A. Age, I.Q. and Education.--Although there was no systematic bias in the selection of the subjects for the experimental and control groups, the groups were compared for age, IQ and education as a precautionary measure. There was no significant difference between the two groups ( $t$  test values of 0.67, -1.60, and -1.01 respectively) indicating the groups were matched on these three variables.

The mean age of the control group was 43.28 (SD 6.94) with a median of 44 and a range from 28 to 61 years; the mean age of the experimental group was 44.32 (SD 8.27) with a median of 44 and a range from 25 to 71 years. The mean age for the combined group of 100 subjects was 43.80 (SD 7.65).

The mean IQ of the control group was 95.04 (SD 12.28) with a median of 94.5 and a range from 75 to 128; the mean IQ of the experimental group was 99.12 (SD 12.85) with a median of 97.3 and a range from 69 to 127. Although the mean IQ of the experimental group was slightly higher, it was not significantly different from the mean IQ of the control group. The mean IQ for the combined group of 100 subjects was 97.08 (SD 12.73).

The experimental group mean educational level was somewhat higher than the mean level for the control group but there was no significant difference. The mean educational level in terms of years of schooling for the control group was 11.12 (SD 2.74) with a median of 11.8 and a range from 6 to 18 years; the mean for the experimental group was 11.64 (SD 2.36) with a median of 11.9 and a range from 6 to 16 years. The mean educational level for the combined group of 100 subjects was 11.38 (SD 2.57).

50 experimental subjects indicates that the two groups were matched on the bases of age, IQ and education.

Analysis of the 60 X 60 correlation matrix for the control group on Test I for all constants and variables suggested some correlation between age and response bias, net conflict, total conflict, total variability and certainty as indicated by the distribution of scores; examination of the 60 X 60 matrix for the experimental group, however, did not indicate any significant correlations with any relevant variables. Analysis of the 60 X 60 matrix for the combined groups (Appendix B, Table 7, pg. 121) suggested minimally significant positive correlation of age with Total Conflict, and with Certainty as indicated by Distribution of Scores. No importance relative to the present study was attached to these correlations.

Analyses of the three matrices on Test I indicated that IQ and education were significantly correlated, as it would be expected, for each group and for the combination of both groups. IQ was significantly correlated, also, with Lability and negatively correlated with Response Bias and Net Conflict Scores. IQ showed minimally significant correlation with Succorance for the control group only. None of these correlations would appear to be importantly related to the present investigation.

Interestingly enough, although not important in the present study, education for the combined groups showed similar correlations to those for IQ, namely, positively correlated with not only IQ but also Lability and negatively correlated with Response Bias and Net Conflict Scores.

B. Ferguson Form Boards.--Three Ferguson Form Boards, #2, 4, and, 5, were administered to both control and experimental groups at all four

testings. No statistical significance can be claimed for the results. As indicated in Appendix C, the dispersion is so great for each testing and each board for both groups that the means become statistically meaningless. Even the medians and ranges show such variation that no reliability may be claimed for any or all of the form boards as tests (Appendix C). The main reason for giving the form boards was to obtain an indirect and approximate assessment of the ability of the subjects to function when they were drinking and when they were sober. Analysis of the medians for the two groups for the four tests suggested: (1) Both groups functioned approximately alike on Test I, when both were sober; the medians were 58" and 52", 95" and 100", and, 125" and 113", respectively, for the control and experimental groups for the three form boards. (2) The control group functioned slightly better on Test II when the experimental group were drinking optimally; the medians were 38", 68", and 91" for the three boards for the control group, and, 62", 110", and 143" for the experimental group. (3) The control group did not function as well as the experimental group on Test III when the experimental group were drinking at one-half optimal dosages; the medians for the control group were 31", 56" and 78" while the medians for the experimental group were 41", 74" and 94". (4) Finally, the control group function minimally better than the experimental group on Test IV when both were sober; the medians for the control group were 27", 49", and 64" and 31", 51" and 74" for the experimental group. The results are suggestive only that the alcoholic does not function better in motor and manipulative operations when drinking optimally, however, he functions as well, or better, when he is drinking one-half optimal dosages as he does when he is sober.

C. Blood Alcohol Level Assessment.--According to the U. S. National Safety Council (1951), the normal level for blood alcohol when an individual has not been drinking is 0.00-0.05%. Nothing is set forth in the standards for 0.05%-0.10%, however, it is suggested that such a blood level of alcohol is above the normal. There is evidence of drinking, but the individual is not necessarily intoxicated when the percentage of alcohol is between 0.10% and 0.15%. Legally, a person is considered intoxicated if the blood level is 0.15% or over.

In the present study, blood alcohol levels were taken randomly from the control group and at three regular times from the experimental group, namely, when they were sober (Test I), when they were drinking optimally on the fourth day (Test II), and, on the seventh day (Test III) when the experimental group were drinking one-half the optimal amount. Assessment of the blood alcohol level was made by members of the staff of the Research-in-Aging Laboratory at Downey Veterans Administration Hospital. The method of blood alcohol level assessment is described by Bonnichsen and Lundgren (1957) and by Bonnichsen and Theorell (1951).

Random sampling of subjects in the control group when they were sober indicated that the alcohol blood level was the same (0.008%) as that of the experimental group on the first day of testing when they were sober, namely, 0.0081% (SD 0.0022). The mean of 0.1188% (SD 0.038) for the blood alcohol level for the 50 experimental subjects during Test II, when they were drinking optimally, was within the lower range of the blood alcohol level desired, namely, 0.10%-0.15%. The mean blood alcohol level for the experimental group was 0.0645% (SD 0.0290) during Test III when they were drinking one-half the optimal amount. This compares favorably with the blood alcohol

level of 0.1188% when the subjects were given twice the amount during Test II.

A detailed analysis of the blood alcohol levels during both Test II and Test III may be found in Appendix D. Summarily, the data indicates that during Test II, 5 subjects had blood alcohol levels at the level of legal intoxication (above 0.15%), 28 subjects were in the ideal range for this study showing definite blood alcohol but not necessarily legal intoxication, namely, between 0.10% and 0.15%, 16 blood alcohol levels were above normal (0.05%-0.10%) and one remained in the normal range (0.05% or less). On Test III, when drinking one-half the optimal amount, the blood alcohol level was normal (0.00-0.05%) for 16 subjects, above normal (0.05%-0.10%) for 28 drinkers, at the level of evident drinking (0.10%-0.15%) in 5 cases, and, the blood alcohol level of one subject was above the legal intoxication level (0.15%-over).

Several incidental but interesting observations were made during the testings especially when the men were drinking:

(a) Most of the alcoholics tested were able to estimate accurately the amount of alcohol they needed to consume to function optimally and to raise their blood alcohol level to 0.10%-0.15%, which was considered the optimal blood alcohol level in this study. A few, however, complained that they had underrated the amount of alcohol they needed for optimal functioning; the blood alcohol level assessment in every case indicated that the level of 0.10% had not been reached. Three admitted that they had consumed a little too much alcohol; blood alcohol assessment indicated that these were three of the five subjects with alcoholic blood levels above the level of legal intoxication (0.15%).

(b) The alcoholic, himself, is the best judge of the amount and the time interval between drinks that are necessary to maintain an optimal level. Originally, it had been planned to specify the exact amount of alcohol to give the subject at the beginning of the alcoholic ingestion period (7:30 AM) and to regulate the amount and time exactly for further alcoholic consumption during the testing period. It was noted immediately that such a procedure caused tension, frustration and irritation in the subjects. This part of the experimental design was changed after four subjects had been tested. Instead, the total amount of the alcohol that a subject was to consume in one hour was placed before him. He drank as much as he wished at the beginning of the testing procedure and was free to space and to vary the amounts consumed during the balance of the hour.

(c) Four distinct types of drinkers were found among the alcoholics tested. Originally, it had been planned to give all the subjects 95 proof alcohol made by diluting pure distilled alcohol. This worked very well for the first three subjects, however, the fourth subject maintained that he was a beer drinker and did not drink any other form of alcohol. Nevertheless, he agreed to consume the 95 proof alcohol. Although the amount given him was less than that prescribed for the first three subjects, he was unable to complete Test II and appeared drunk; assessment of his blood alcohol level indicated 0.24%--the highest in the study and well beyond the level of legal intoxication. It was necessary to eliminate his Test II and begin his testing over again. When he was given beer in the amount and at the times he suggested, his blood alcohol level for Test II was ideally 0.14%.

A second change in experimental procedure followed the second testing of this fourth subject. Each man was permitted to drink according to his

own taste insofar as it was feasible. Four types of drinking followed according to the type alcoholic beverage normally consumed: (1) drinking the 95 proof alcohol by those who ordinarily drank whiskey or vodka (although they would have preferred whiskey or vodka); (2) drinking alcohol and beer simultaneously; (3) consuming beer alone; or (4) drinking wine only. Interestingly, the drinking pattern of these four types of drinkers were different: (1) Those who drank 95 proof alcohol would drink two or three shots immediately and then space the consumption of the balance of the alcohol at regular intervals during the hour. (2) the alcohol and beer drinker would drink a shot or two followed immediately by a beer and then he would space the consumption of the balance of the alcohol while sipping the beer continuously during the entire time interval. (3) The alcoholic who consumed beer alone would begin by drinking two or three beers rapidly at the beginning of the session and sip the balance of the beer during the hour. (4) Finally, the wine drinker began by sipping wine at the beginning of the hour and continued to sip at a regular pace during the testing time.

(d) There is a possibility that there is some relation between alcoholic tolerance and blood level alcohol. Several patients contended that they felt they had developed a low tolerance for alcohol. Comparison of the blood alcohol level when they were drinking optimally with the level when they were drinking half as much often indicated that the percentage of alcohol in the blood on the second test was more than half the amount found in the blood on the first test. For example, one patient's blood contained 0.133% alcohol when he was drinking optimally (Test II), however, half the amount of alcohol during Test III raised the blood alcohol level to 0.100%. In another case where the patient felt he could no longer tolerate as much

alcohol as he could in the past, his blood alcohol level was respectively 0.155% and 0.105% on the tests of optimal and half-optimal drinking.

(e) Although there were only two wine drinkers, their tests suggest that it requires less alcohol in terms of pure ethanol when wine is drunk rather than other alcoholic beverages used in the tests to raise the level of blood alcohol and to sustain this level. For example, on Test II (optimal drinking) one of the wine drinkers consumed far less alcohol than most subjects who drank 95 proof alcohol or beer, however, his blood alcohol level assessment was 0.139%--one of the highest recorded--although he consumed no more pure alcohol than any other subject. The second subject on Test III (half-optimal drinking) registered 0.133%, the highest on Test III. Some speculate that the sugars, particularly fructose, in wines, may prevent rapid oxidation of the alcohol and removal of the alcohol from the blood. Since it is not the purpose of this study to investigate this phenomenon, it is simply noted here as a possible area for further study by biochemists and other interested specialists.

D. The Principle Tests.--A total of 620 Tennessee Self Concept Scales (TSCS) and 562 Adjective Check Lists (ACL) were given to 143 alcoholics. Test results for 43 of the men were eliminated. The 500 remaining Adjective Check Lists were machine scored and the results reported in standard scores with a mean of 50 and a standard deviation of 10. The majority of the 500 Tennessee Self Concept Scales were machine scored and the raw scores converted to standard scores with a comparable mean of 50 and a standard deviation of 10. Doctor Fitts (1965), author of the Tennessee Self Concept Scale, warns that the distribution of a few of the combined scores for the normative group were somewhat skewed. However, he indicates that "the T-Scores of



the Profile Sheets are McCall's T-Scores (Walker, 1943) and thus involve his special system for forcing all raw score distributions into a grid of normally distributed standard scores with a mean of 50 and standard deviation of 10." Nevertheless, accurate interpretation of the standard scores on the Tennessee Self Concept Scale should take into account the skewness of the distribution.

The psychological instruments used, namely the ACL with 24 variables and the TSCS with 29 variables, were the best tests that could be found. Neither the ACL, the TSCS, nor a combination of both instruments ideally measured the specific dimensions of the self-concept considered most relevant. Five dimensions of the self-concept were considered most important for the present study: (1) self-esteem, self-confidence and self-acceptance, (2) dependency, immaturity and insecurity, (3) estrangement and social worth, (4) sexual and physical adequacy, and, (5) tolerance for stress and strain.

Since none of the variables on either test instrument measured precisely and exclusively the five dimensions of the self-concept of the alcoholic being investigated, the 53 variables on the combined tests were classified first as possibly relevant to one of the five self-concept dimensions or clearly irrelevant to any of them. The variables were not classified arbitrarily. The definitions and descriptions of all the variables in the two test manuals were studied by three judges. All concurred that a minimum of 11 variables were clearly irrelevant. The remaining 42 variables were classified after the judges had agreed on the most appropriate of the five possible categories. It was evident that many variables might have been classified in more than one category. It was clear from this examination that many of the variables as well as the five categories overlapped. Further examination

of these 42 variables indicated that two more should be eliminated because one duplicated a variable retained and another was considered statistically not comparable to the other 28 variables on the TSCS (Fitts, 1965, p. 15). The classification of the 40 variables retained and the 13 variables eliminated are listed and categorized in Appendix E.

#### Evaluation of the First Hypothesis

The first hypothesis of this study states: alcoholics, in general, have a poorer and more negative self-concept than the nonalcoholic. Specifically, it was hypothesized that appropriate psychological and statistical assessment of certain dimensions of the self-concept of a group (or groups) of alcoholics would indicate significant differences from a normative group along sufficient dimensions of the self-concept to conclude that alcoholics have poorer self-concepts than nonalcoholics.

To test statistically the first hypothesis, only the initial testing (Test I) of the 50 control and 50 experimental subjects was used. All raw scores for the 53 variables on the two tests were converted to standard scores. Not only were the scores for the 40 relevant variables but also the scores for the 13 eliminated variables converted to standard scores so that complete profiles and complete statistical analyses of both complete tests could be made. The standard scores for both tests were based on a mean of 50 and a standard deviation of 10. It was possible, therefore, to evaluate the test scores on the bases of standard equivalents.

The results for Test I of the control and experimental groups are presented, graphically, for the ACL in Figure 1, page 63, and, for the TSCS in Figure 2, page 64. The standard score means and standard deviations for all the 53 variables may be found in Appendix B.

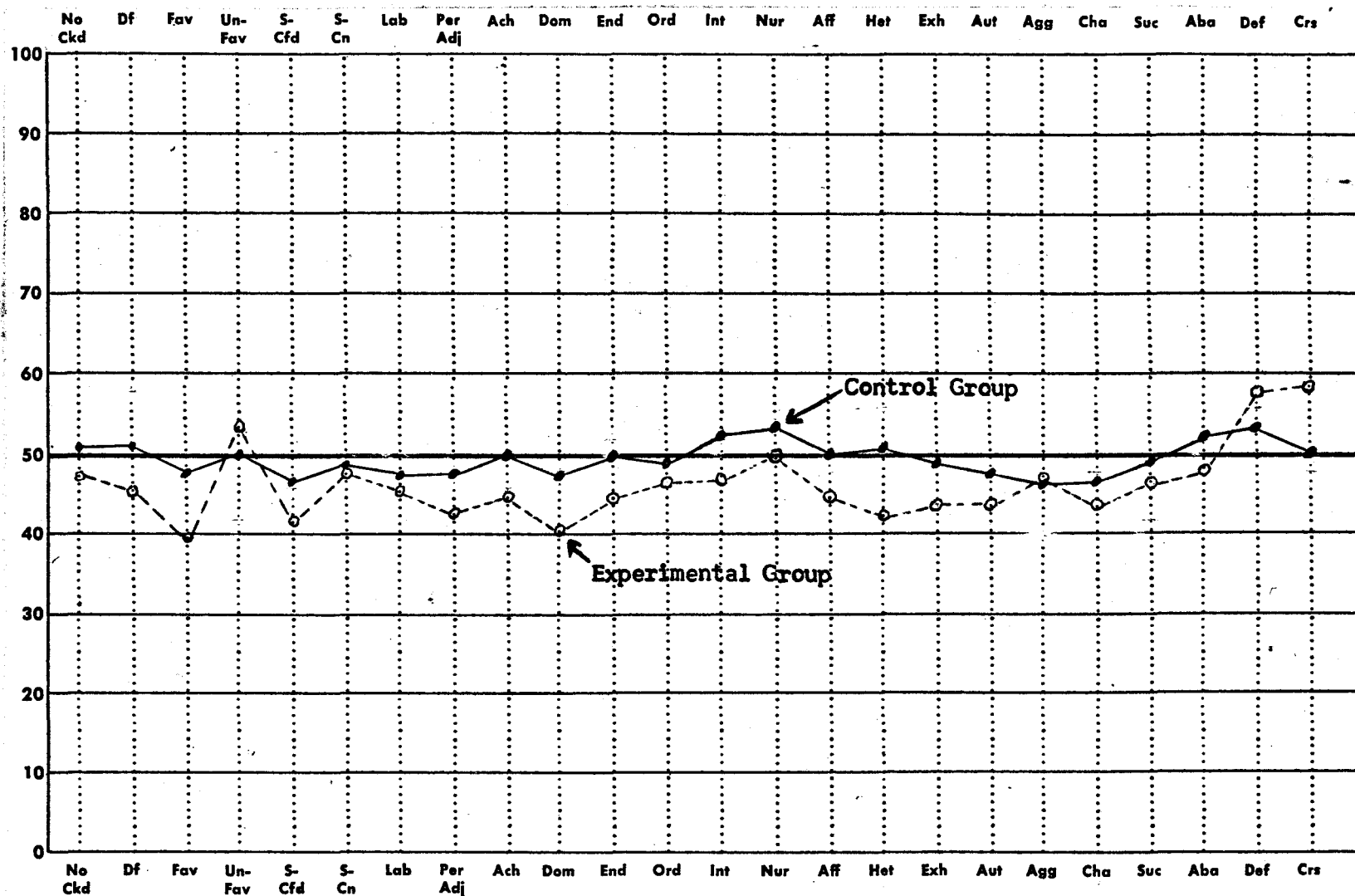


Fig. 1 Comparison of the standard scores of 50 experimental subjects and 50 control subjects on the 24 variables of the Adjective Check List and with the standard score of 50 (SD 10.00) of the normative population of 800 subjects.

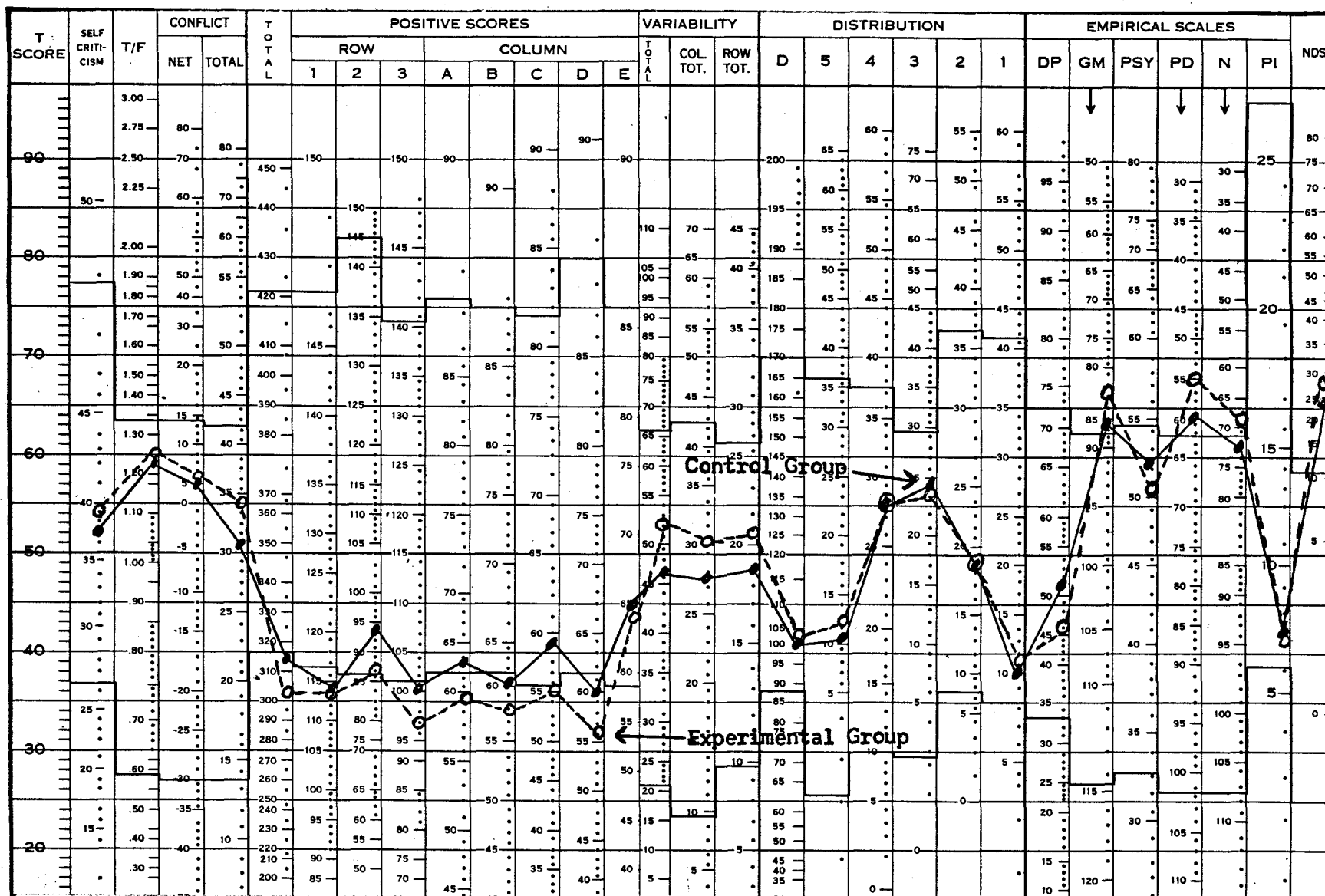


Fig. 2 Standard scores of 50 experimental and 50 control subjects on the 29 variables of the Tennessee Self Concept Scale with standard score of 50 (SD 10.00) for normative population of 626.

Table 1

Levels of Significant Differences of Adjective Check List and  
Tennessee Self Concept Scale Scores between  
Control, Experimental, Combined and Normative Groups

Variable Number	Control <sup>a</sup>	Control <sup>a</sup>	Experimental <sup>a</sup>	Combined <sup>a</sup>
And	Above	Above	Above	Group
Description	Experimental <sup>a</sup>	Norms <sup>b</sup>	Norms <sup>b</sup>	Above Norms <sup>b</sup>
<b>I. <u>Adjective Check List:</u></b>				
1--Number Adj. Checked				
2--Defensiveness	.01			
3--Favorable Adj.	.001		- .001	-.001 <sup>c</sup>
4--Unfavorable Adj.				
5--Self Confidence	.01	- .05	- .001	- .001
6--Self Control				
7--Lability			- .01	- .02
8--Personal Adjustment	.05		- .001	- .001
9--Achievement	.02		- .01	- .05
10--Dominance	.001		- .001	- .001
11--Endurance	.05			
12--Order				

<sup>a</sup> Control group N = 50; experimental group N = 50; combined group N=100.

<sup>b</sup> Normative samples for the ACL = 800 and 626 for the TSCS.

<sup>c</sup> Negative signs before *p* indicate reverse significance.

(Table continued on next page).

Table 1--Continued

Variable Number	Control <sup>a</sup>	Control <sup>a</sup>	Experimental <sup>a</sup>	Combined <sup>a</sup>
And	Above	Above	Above	Group
Description	Experimental <sup>a</sup>	Norms <sup>b</sup>	Norms <sup>b</sup>	Above Norms <sup>b</sup>
13--Intraception	.02	.05		
14--Nurturance				
15--Affiliation	.02		- .01	
16--Heterosexuality	.001		- .001	- .02
17--Exhibition	.02		- .001	- .01
18--Autonomy			- .01	- .01
19--Aggression		- .05		- .02
20--Change		- .02	- .001	- .001
21--Succorance	- .001		.001	.01
22--Abasement	- .01		.001	.001
23--Deference	- .02	.02	.001	.001
24--Counsel. Readiness	- .001		.001	.001

<sup>a</sup> Control Group N = 50; experimental group N = 50; combined group N=100.

<sup>b</sup> Normative samples for the ACL = 800 and 626 for the TSCS.

<sup>c</sup> Negative signs before P indicate reverse significance.

(Table continued on next page).

Table 1--Continued

Variable Number	Control <sup>a</sup>	Control <sup>a</sup>	Experimental <sup>a</sup>	Combined <sup>a</sup>
And	Above	Above	Above	Group
Description	Experimental <sup>a</sup>	Norms <sup>b</sup>	Norms <sup>b</sup>	Above Norms <sup>b</sup>
<b>II. <u>Tenn. Self Concept Scales:</u></b>				
25--Self Criticism		.05	.01	.001
26--Response Bias (T/F)		.001	.001	.001
27--Net Conflict Scores		.001	.001	.001
28--Total Conflict			.01	.02
29--Self Esteem (Tot. <u>P</u> )		- .001	- .001	- .001
30--Identity		- .001	- .001	- .001
31--Self Satisfaction	.05	- .001	- .001	- .001
32--Behavioral Self		- .001	- .001	- .001
33--Physical Self		- .001	- .001	- .001
34--Moral-Ethical Self		- .001	- .001	- .001
35--Personal Self	.05	- .001	- .001	- .001
36--Family Self		- .001	- .001	- .001
37--Social Self		- .01	- .001	- .001
38--Total Variability	- .05		.05	

<sup>a</sup> Control Group N = 50; experimental group N = 50; combined group N = 100.

<sup>b</sup> Normative samples for the ACL = 800 and 626 for the TSCS.

<sup>c</sup> Negative signs before P indicate reverse significance.

(Table continued on next page).

Table 1--Continued

Variable Number	Control <sup>a</sup>	Control <sup>a</sup>	Experimental <sup>a</sup>	Combined <sup>a</sup>
And	Above	Above	Above	Group
Description	Experimental <sup>a</sup>	Norms <sup>b</sup>	Norms <sup>b</sup>	Above Norms <sup>b</sup>
39--Column Variability				
40--Row Variability				
41--Distribution Scores		- .001	- .001	- .001
42--Answers: True		- .001	- .01	- .001
43--Answers: Mostly True		.01	.01	.001
44--Answers: True & False		.01	.01	.001
45--Answers: Mostly False				
46--Answers: False		- .001	- .001	- .001
47--Defense Positive		- .05	- .001	- .001
48--General Maladjust.		.001		.001
49--Psychosis		.001	.001	.01
50--Sociopathology		.001	.001	.001
51--Neurosis		.001	.001	.001
52--Personal Integrat.		- .001	- .001	- .001
53--Deviant Scores (#)		.001	.001	.001

<sup>a</sup> Control Group N = 50; experimental group N = 50; combined group N=100.

<sup>b</sup> Normative samples for the ACL = 800 and 626 for the TSCS.

<sup>c</sup> Negative signs before P indicate reverse significance.



The significance of any differences was assessed through appropriate t tests, not only between the standard score means of the control and experimental group, but also, between the means of the control, the experimental, and the combined control and experimental groups (N=100) respectively, and the normative samples for the two tests. The levels of significance found are reported in Table 1, pages 65-68.

The Tennessee Self Concept Scale.---Relative to the present study, the levels of significance for the TSCS variables for Test I in Table 1, pages 67-68, are most striking. The means of the control and experimental groups differed significantly from each other on only three of the 29 variables, namely, Self Satisfaction, Personal Self, and Total Variability of scores, and even on these three variables at the .05 level only. On the other hand, the means of the combined group of 100 alcoholics varied significantly from the means of the normative population on 25 of the 29 variables. This variability was at the .001 level or beyond for all but two of the 25 variables. The mean differences were significant for the Total Conflict score at the .02 level and the Clinical-Research Psychosis variable at the .01 level. For four of the variables, there were no significant differences between the means of the combined group and the normative sample. These variables were: Total Variability, Column Variability, Row Variability and questions answered "Mostly False". Prior to the analysis of the data all except Total Variability had been assessed as irrelevant variables. Further, while the means of two of the three variables (Self Satisfaction and Personal Self) showed significant differences at the .05 level for the experimental and control groups, the means were significantly different for both groups, individually and collectively, from the normative samples at the .001 level.

Considering the control and experimental groups separately, both had significant mean differences on the same variables from the normative sample except in three instances, namely, on the variables Total Conflict, Total Variability and General Maladjustment. However, no significance relative to the first hypothesis is inferred from these disparities.

Examination of the means of the 23 variables on which the control, experimental and combined groups did not differ significantly from each other but differed at the .001 level or beyond with the means of the normative sample, and, examination of the means of the two variables on which the control group and experimental group differed at the .05 level only but differed at the .001 level respectively from the means of the normative population, lead to the following conclusions:

(1) The significant differences between the means of the combined alcoholic and normative groups on the variables Completely True, Mostly True, Partly True and Partly False, and, Completely False might be interpreted as indications of response tendency differences. However, as noted earlier, the alcoholic and normative group means were not significantly different on Total Variability, Row Variability, Column Variability, Number of Adjectives Checked, Defensiveness, Unfavorable Adjectives Checked, and, Mostly False which are also response tendency indicators. Therefore, it would appear that the differences in the use of the Completely True, Mostly True, Partly True and Partly False categories by the combined alcoholic and the normative groups may have been due to differences between the two groups in the characteristics being evaluated on the Scales rather than due to response tendencies. However, no direct relevance to the study of the self-concept and its dimensions was attached to the scores on any of the true and false variables.

(2) Nineteen variables remained for which there were no significant difference between the means of the control and experimental groups but the means differed significantly for both groups, singly and collectively, at the .001 level from the normative population means. In addition, two variables remained whose means differed significantly at the .05 level from each other but varied significantly at the .001 level from the means of the normative samples. On every one of these 21 variables, the alcoholic manifested a poorer self-concept than the nonalcoholic. Within the limits of the validity of these scores on the TSCS, the first hypothesis was definitely confirmed for the two groups of alcoholics considered separately or collectively.

(3) In addition, the significant differences on these 21 variables for the alcoholic group and normative population confirm the assertion that certain measurable dimensions of the self-concept contribute to the negative self-concept of the alcoholic. The alcoholic expresses his significant lack of self-esteem on the most important single scale on the counseling form of the TSCS, the Self Esteem scale, and, on a similar scale, the Identity scale. Further, he seems to lack the usual defenses to maintain even minimal self-esteem (Defense Positive scale). He does not accept himself (the Response Bias and Net Conflict scores), lacks self-confidence (Total Distribution of scores) and is not satisfied with himself as he perceives himself (the Self Criticism, Behavioral and the Self Satisfaction scales).

The alcoholic feels estranged and lacking in social worth in all the areas tested. He feels he is a "bad" person (Moral-Ethical Self scale), and, inadequate and lacking in social worth both in his relationships with

his closest and most immediate circle of associates (the Family Self scale) and in his social interaction with other people in general (the Social Self scale).

Not only does he feel inadequate in both intimate and general social relationships but also feels physically and sexually inadequate (the Physical Self scale). Further, he feels generally inadequate as a person apart from his body and his relationships with others (Personal Self scale).

(4) Five of the 21 variables under discussion are found on the clinical research portion of the TSCS and are only indirectly related to the self-concept since their stated purposes are to measure or suggest psychopathology. In self-concept terms, however, they imply that the alcoholic feels he is more psychotic, sociopathic, neurotic and lacking in personal integration than the nonalcoholic (the Psychotic, Sociopathic, Neurotic, Personality Integration and NDS scales).

(5) On the basis of the TSCS alone, within the limits of the scale validities and with due recognition of the possible error in generalizing from the 100 alcoholics tested to all alcoholics, not only is the hypothesis confirmed that alcoholics have poorer self-concepts than nonalcoholics but also that alcoholics differ significantly, and negatively, on the concept dimensions of (1) self-esteem, self-confidence and self-acceptance, (2) affiliation and social worth, and, (3) sexual and physical adequacy. Indirectly, the significant scales on the TSCS suggest that the alcoholic has a low tolerance for stress and strain, and feels insecure. None of the TSCS variables measured dependency and immaturity directly. However, poor self-concepts, especially in alcoholics, have been related, dynamically, to dependency and immaturity by many investigators (e.g. Halpern, 1946a, 1946b;

Manson, 1948a, 1948b, Stewart, 1950; Shulman, 1951; Wallinga, 1956; Button, 1956a, 1956b; Hayner, 1961, and other).

The Adjective Check List.--The results from the ACL on Test I are less impressive and significant for the self-concept study of the alcoholic than were the results from the same testing with the TSCS. The levels of significant differences between the means of the control group and the experimental group may be found in Table 1, pages 63-64. The table also includes significant differences between the means of the two alcoholic groups, individually and collectively, and the means of the normative population of 800 college students. At the outset, it should be noted that a normative population of college students is biased and is not comparable, in a strict sense, to the alcoholic groups tested. Comparison of the alcoholic groups with the normative sample of college students was necessary, however, since no other normative standards were set forth in the manual (Gough and Heilbrun, 1965). For this reason, results on the ACL were more important for studying differences between the control and the experimental groups, and, changes which might occur between the two groups during each of the four testings. A complete record of significant changes between the means of the two groups during the four testings for the TSCS as well as the ACL variables may be found in Table 2, pages 77-80.

Only three of the 24 variables of the ACL were of comparable statistical significance to 25 of the 29 variables on the TSCS on Test I; only one of these three variables showed no significant difference between the means of the control and experimental groups. This latter variable was Change; the means of both the control and experimental groups, individually and collectively, were significantly lower than the normative means in each

case. In self-concept terms, this variable is related to feelings of inadequacy, since the low scorers on this variable have little confidence in themselves, and, are apprehensive regarding their ability to cope with ill-defined and risk-involving situations.

Two of the possibly important variables are related to self-confidence and dependency, respectively. On the Self-Confidence scale, the control group appeared to be more self-confident than the experimental group. However, both groups had significantly lower mean scores on the Self Confidence scale than the normative groups. On the Deference scale--one of the few measures seemingly related to dependency and immaturity--the control group was significantly less deferential than the experimental group but both groups were more deferential than the normative population.

Three variables, prior to an analysis of the data, were considered irrelevant to the present study and were eliminated. These variables were (1) Number of Adjectives Checked, (2) Favorable Adjectives Checked, and, (3) Unfavorable Adjectives Checked. Results on nine additional variables were not significantly important for either affirmation or denial of the first hypothesis. The results on the scales, however, did not contradict affirmation of the first hypothesis. These scales were: (1) Self Control, (2) Order, (3) Nurturance, (4) Lability, (5) Autonomy, (6) Intraception, (7) Defensiveness, (8) Endurance, and, (9) Affiliation. These variables were retained for, as it will be indicated later, changes on many of these scales showed significant differences between the groups on Tests II and III.

The nine remaining variables were retained for two reasons: (1) to compare the control and experimental groups since significant differences existed on all variable means, and, (2) to study any changes in these

variable mean differences which might occur after each of the four testings.

Relative to self-esteem, the control group evidenced significantly less Abasement than the experimental group. On the other hand, the mean of the experimental group was significant at the .001 level when this mean was compared with the mean of the normative population. Secondly, on the Counseling Readiness variable, with its implication that high scores on this variable suggest lack of self-confidence, the experimental group, significantly, lacked self-confidence when it was compared both with the control group and the normative sample.

On four variables, analysis of mean differences suggested that the experimental group felt more estranged and significantly less social worth than either the control group or the normative population. These were: (1) Personal Adjustment, (2) Achievement, (3) Dominance, and, (4) Exhibition. On a fifth variable, Aggression, the control group and the combined group of alcoholics were significantly less aggressive than the normative population.

On one of the few variables pertinent to assessment of dependency and immaturity, namely, Succorance, the experimental group mean was significantly higher on this variable when compared to both the control group and the normative population.

Finally, on the variable, Heterosexuality, the control group mean was significantly higher than the experimental group mean ( $p$  less than .001) while the experimental group mean was significantly lower than the normative mean ( $p$  less than .001).

Relative to the first hypothesis the results from Test I of the ACL

did not contradict the conclusions made after analysis of the results of Test I of the TSCS. In three instances, the results served as additional confirmation of the hypotheses that alcoholics have less self-confidence, feel less inadequate, and are more dependent and immature than the non-alcoholic.

Considering both the test results on Test I using the TSCS and ACL, and with due regard to the validity of the tests and the alcoholic sample population, the first hypothesis was confirmed. The alcoholic has a more negative self-concept than the nonalcoholic. In terms of self-concept dimensions, the test results suggest, emphatically, that the alcoholic lacks self-esteem, self-confidence and self-acceptance, feels estranged and lacking in social worth and feels sexually and physically inadequate. Certain results suggest, further, that he is more dependent and immature than the nonalcoholic. Indirectly, the results suggest that the alcoholic has lower tolerance for stress and strain.



## Analyses of Data Pertinent to the Second Hypothesis

Processing the test scores for four administrations of the ACL and TSCS involved eight different steps and procedures. The more relevant data resulting from these analyses may be found at the end of this section in Tables 2-6, pages 80-96; additional information is contained in Appendixes F and G, pages 130-135.

1. Levels of significant differences of ACL and TSCS scores between the experimental and control groups on four testings.---In the process of printing out the means, standard deviation and correlation coefficients for all 53 variables on the ACL and TSCS, the computer produced  $\pm$  tests for significant differences between the scores of the control and experimental groups for each of the four testings. No statistical significance was inferred from any of the  $\pm$  tests until the analyses of variances (steps 4 and 5) were conducted. Nevertheless, for completeness the results are presented in Table 3, pages 80-83.

2. Elimination of variables.---Three judges, including the principle investigator in this study, analyzed the 53 variables in terms of relevancy, reliability and overlapping. Thirteen variables were eliminated before proceeding. The names and reasons for the elimination of these variables may be found in Appendix E, pages 130-132.

3. Graphic presentation of test results on 40 variables.---A non-statistical analysis of differences between mean test scores for the two groups and for the four testings was a visual aid to the analysis of test results. Figures 3-9, pages 84-90, contain the graphic illustrations for the test results for 40 variables. Test results for 5 variables were then dropped as indicated in Appendix F, pages 133-135 because of overlapping.

4. Levels of significant differences by a 2 X 4 analysis of variance for repeated measures on test scores for 35 variables and 4 testings.--

The primary purposes of these analyses were (1) to determine if there were statistically significant differences in the test performance of the two groups between the four testings over and above the effects of repeated measures, and, (2) most importantly, to determine if any interactions had occurred. Differences between groups of subjects were considered of secondary importance, however, it was noted that significant differences existed for scores on 19 variables. Table 3, pages 91-93, indicate the levels of significant differences for scores of 35 variables; data relevant to determining these levels may be found in Appendix G, Table 11. Significant differences between tests were found for scores on 31 variables. In addition, significant interactions occurred for scores on 18 variables. Only the scores for the variable Lability indicated a significant interaction but no significant difference between tests.

5. Levels of significant differences by a 1 X 4 analysis of variance for repeated measures on test scores for 35 variables and 4 testings for the experimental group only.--This analysis indicated that significant differences existed between scores of the experimental subjects on all 35 variables. This was considered of secondary importance to the evidence that significant differences existed between trials for the experimental group on scores for 30 variables. The results of this analysis may be found in Table 3, pages 91-93; additional data may be found in Appendix G, Table 12. After this analysis, test scores for the 35 variables were evaluation as follows:

- (1) scores for 17 variables could be more easily interpreted statistically,
- (2) scores for 13 variables could be less easily interpreted statistically,

(3) scores for 5 variables had little statistical significance relevant to the study, therefore, the results on these 5 variables were eliminated.

6. Hartley Tests.--Homogeneity was not assumed for scores for any of the 17 variables with interactions. However, the interactions were significant at the .01 level or beyond except in 8 instances. Hartley Tests for  $F_{\max}$ s were performed for scores on these 8 variables. The results are recorded in Appendix G, Table 13. No significant differences were found between the  $F_{\max}$ s and the  $F_{\min}$ s, therefore, the test results were retained as significant.

7. Levels of significant differences between four tests of the experimental group.--To determine on which tests, specifically, the scores of the experimental group showed greater significant differences,  $t$  tests for significance of differences were performed for scores for 30 variables. The results may be found in Tables 4 and 5, pages 94 and 95. Although only 5 significant differences existed between test results for Tests I and II, 14 significant differences were found between the results for Tests II and IV. It would appear that Test IV rather than Test I was a more stable measure of the alcoholic's sober self concept and more useful in assessing the effects of drinking on test results.

8. Orthogonal polynomial analysis of variance.--The final analysis of the data was an orthogonal polynomial analysis for slope, curvature, and inflection for the scores for the 17 variables showing interactions. The results may be found in Table 6, page 96; a description of the method and the basic data for the analysis may be found in Appendix G. Test results for all 17 variables produced significant  $F$ s for linear components, or slope; scores for 16 variables produced significant results on the quadratic component assessing curvature and scores for 8 variables for the cubic inflection component.

Table 2

Levels of Significant Differences of Adjective Check List and  
Tennessee Self Concept Scale Scores between the  
Experimental and Control Groups on Four Testings

Variable Number	Test <sup>a</sup>	Test <sup>a</sup>	Test <sup>a</sup>	Test <sup>a</sup>
And Description	I	II	III	IV
<b>I. <u>Adjective Check List:</u></b>				
1--Number of Adj. Checked		- .001	- .02	
2--Defensiveness	.01			
3--Favorable Adj.	.001			
4--Unfavorable Adj.				
5--Self Confidence	.01		.02	
6--Self Control				
7--Lability				
8--Personal Adjustment	.05			
9--Achievement	.02	.05		
10--Dominance	.001	.001	.05	
11--Endurance	.05	.02		
12--Order				
13--Intracception	.02			
14--Nurturance				

<sup>a</sup> Positive scores indicate control group means above experimental;  
negative scores indicate the reverse significance.

(Table continued on next page).

Table 2--Continued

Variable Number	Test <sup>a</sup>	Test <sup>a</sup>	Test <sup>a</sup>	Test <sup>a</sup>
And Description	I	II	III	IV
15--Affiliation	.02			
16--Heterosexuality	.001	- .05		
17--Exhibition	.02			
18--Autonomy			.01	
19--Aggression		.05	.05	
20--Change		- .05		- .05
21--Succorance	- .001	- .01		- .02
22--Abasement	- .01	- .001	- .01	- .01
23--Deference	- .02	- .05	- .01	- .05
24--Counsel. Readiness	- .001	- .001		

II. Tenn. Self Concept Scales:

25--Self Criticism

26--Response Bias (T/F)

<sup>a</sup> Positive scores indicate control group means above experimental;  
negative scores indicate reverse significance.

(Table continued on next page).

Table 2--Continued

Variable Number And Description	Test <sup>a</sup> I	Test <sup>a</sup> II	Test <sup>a</sup> III	Test <sup>a</sup> IV
27--Net Conflict Scores				
28--Total Conflict		- .001		
29--Self Esteem (Tot. <u>p</u> )		.01	.05	.05
30--Identity				
31--Self Satisfaction	.05	.001	.001	.01
32--Behavioral Self		.05	.05	
33--Physical Self		.01		
34--Moral-Ethical Self			.02	.05
35--Personal Self	.05	.001	.001	.01
36--Family Self		.02	.02	.05
37--Social Self				
38--Total Variability	- .05	- .001	.001	- .02
39--Column Variability		.01	.01	- .05

<sup>a</sup> Positive scores indicate control group means above experimental;  
negative scores indicate reverse significance.

(Table continued on next page).

Table 2--Continued

Variable Number And Description	Test <sup>a</sup> I	Test <sup>a</sup> II	Test <sup>a</sup> III	Test <sup>a</sup> IV
40--Row Variability		- .001	.01	- .02
41--Distribution Score		- .01		
42--Answers; True		- .02		
43--Answers: Mostly True				
44--Answers: True & False				
45--Answers: Mostly False				- .01
46--Answers: False		- .01		
47--Defense Positive		.02	.05	.001
48--General Maladjustment		- .02	- .05	
49--Psychosis				
50--Sociopathology		- .02	- .05	- .01
51--Neurosis		- .01	- .02	- .05
52--Personal Integration		.02		
53--Deviant Scores (#)		- .05		

<sup>a</sup> Positive scores indicate control group means above experimental;  
negative scores indicate reverse significance.

# Seven Figures Presenting Graphically Test Results for Forty Variables

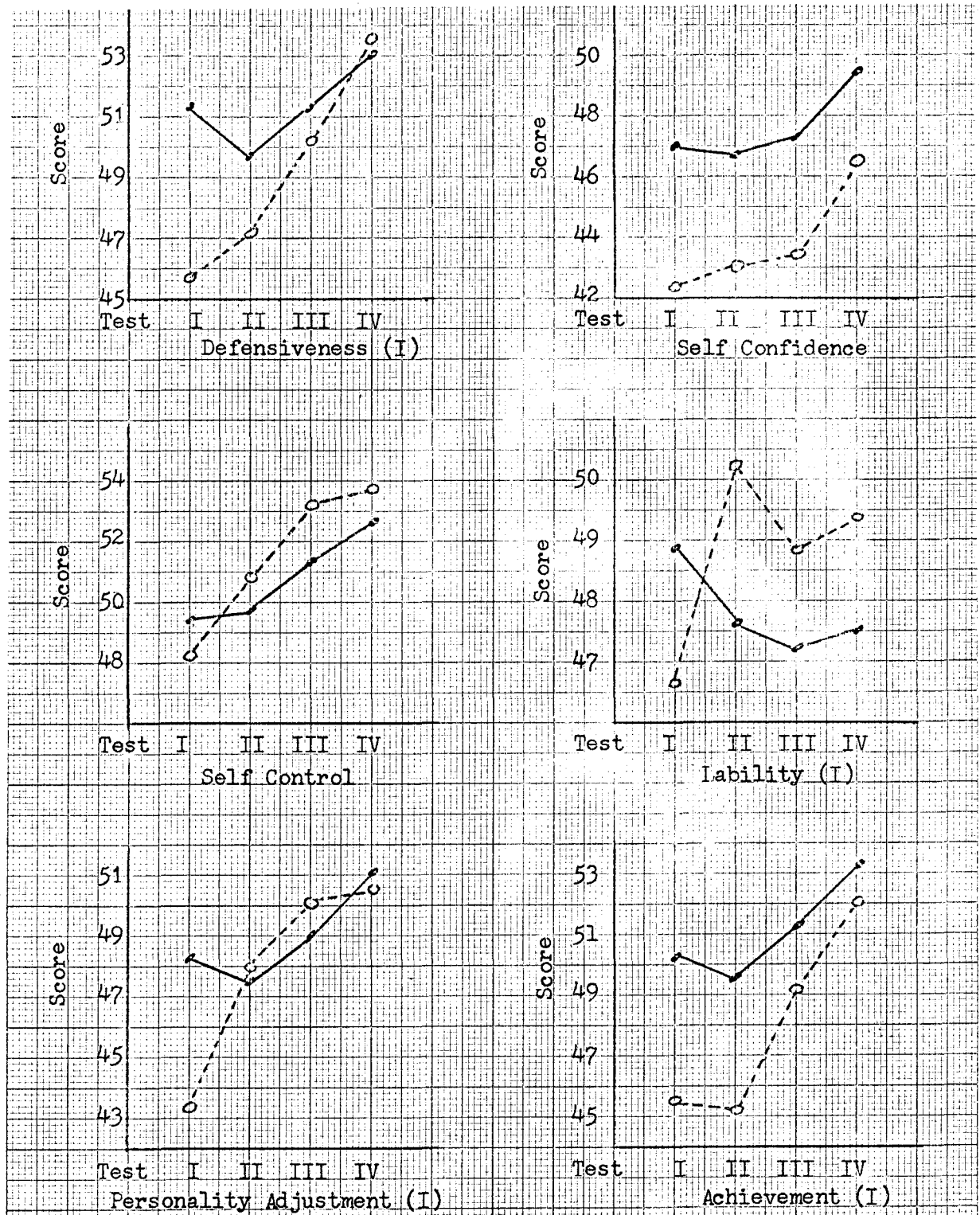


Fig. 3. Experimental group mean scores are represented by broken lines.  
(I) after a variable name indicates a statistically significant interaction.



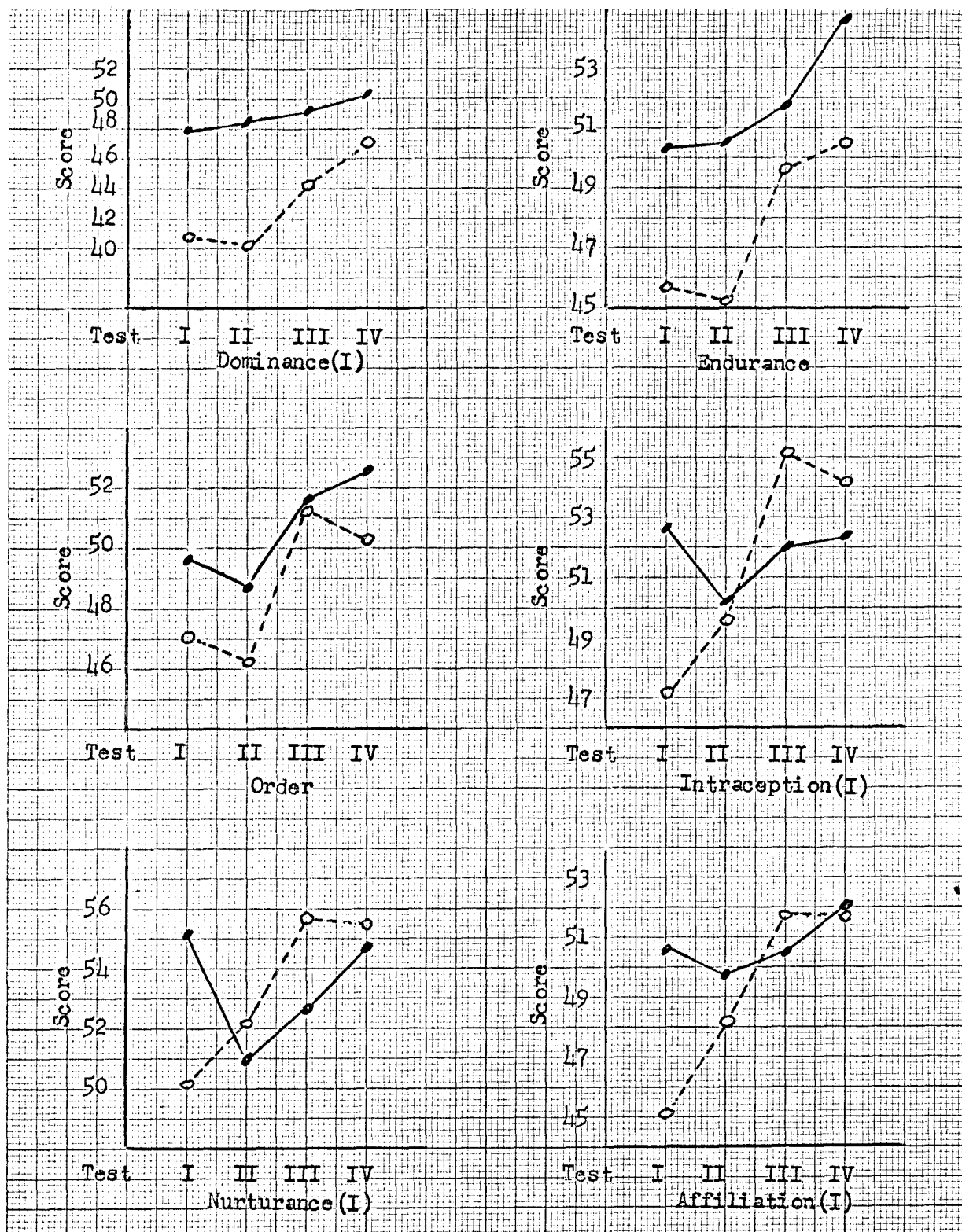


Fig. 4. Experimental group mean scores are represented by broken lines.  
(I) after a variable name indicates a statistically significant interaction.

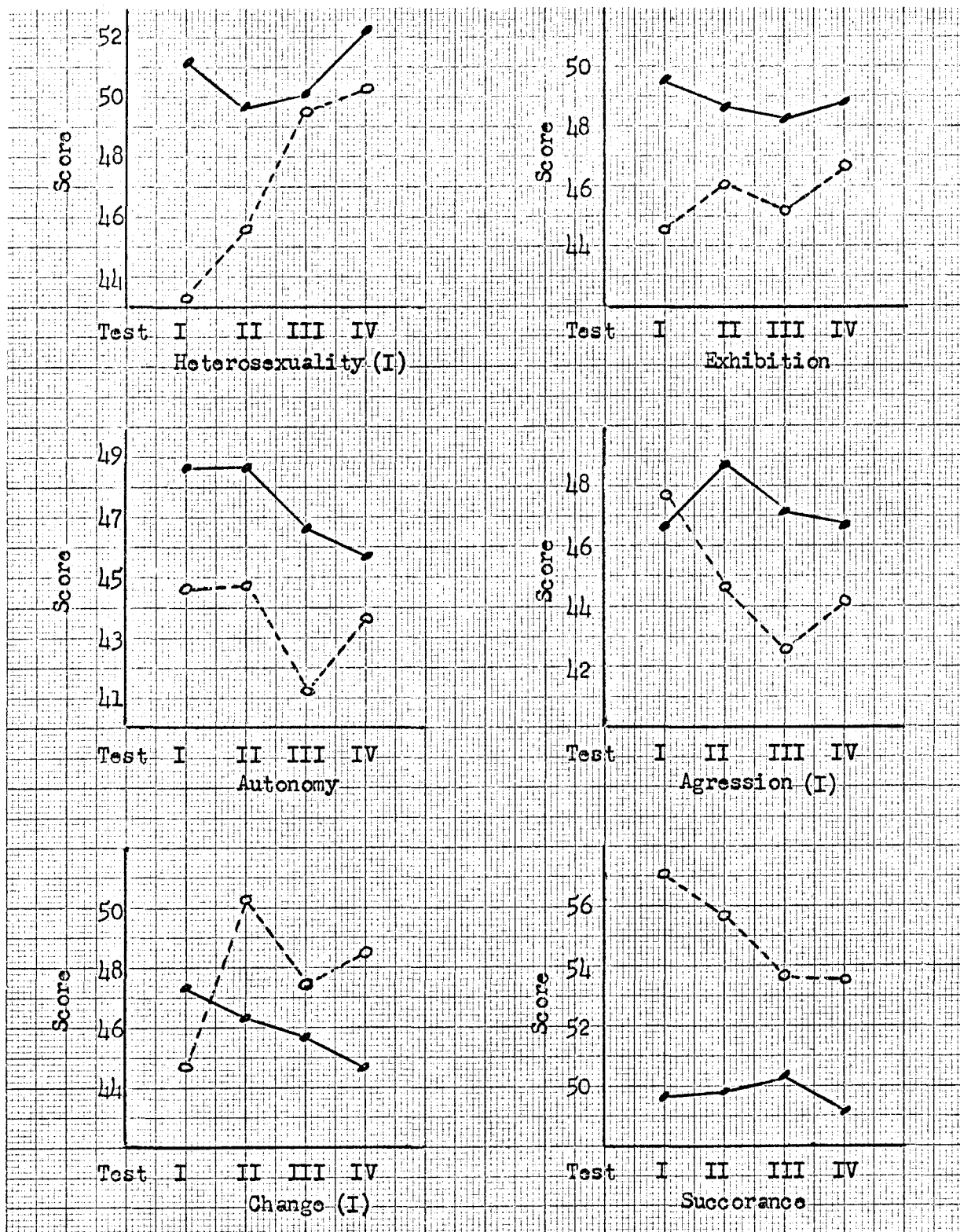


Fig. 5. Experimental group mean scores are represented by broken lines.  
 (I) after a variable name indicates a statistically significant interaction.

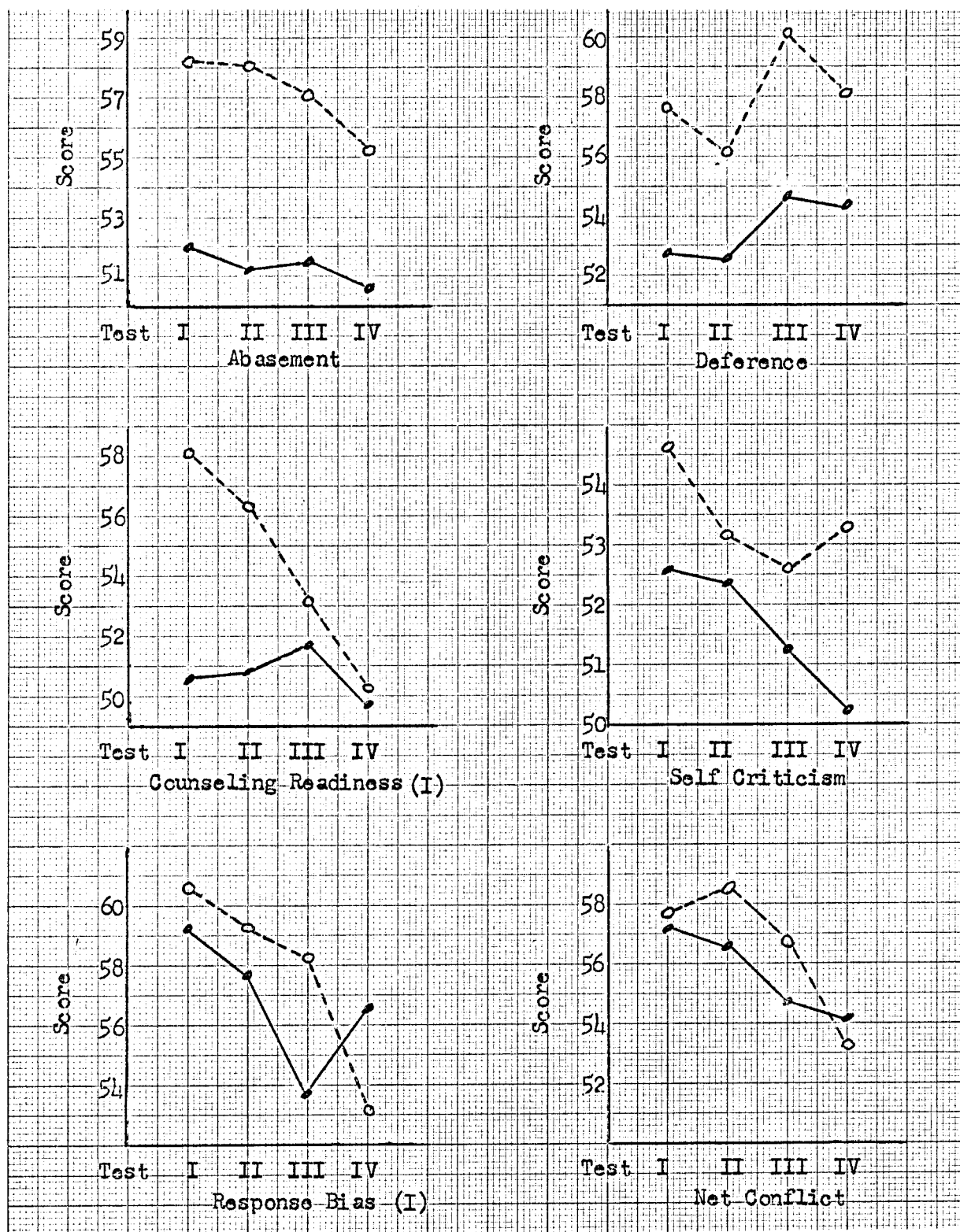


Fig. 6. Experimental group mean scores are represented by broken lines.  
(I) after a variable name indicates a statistically significant interaction.

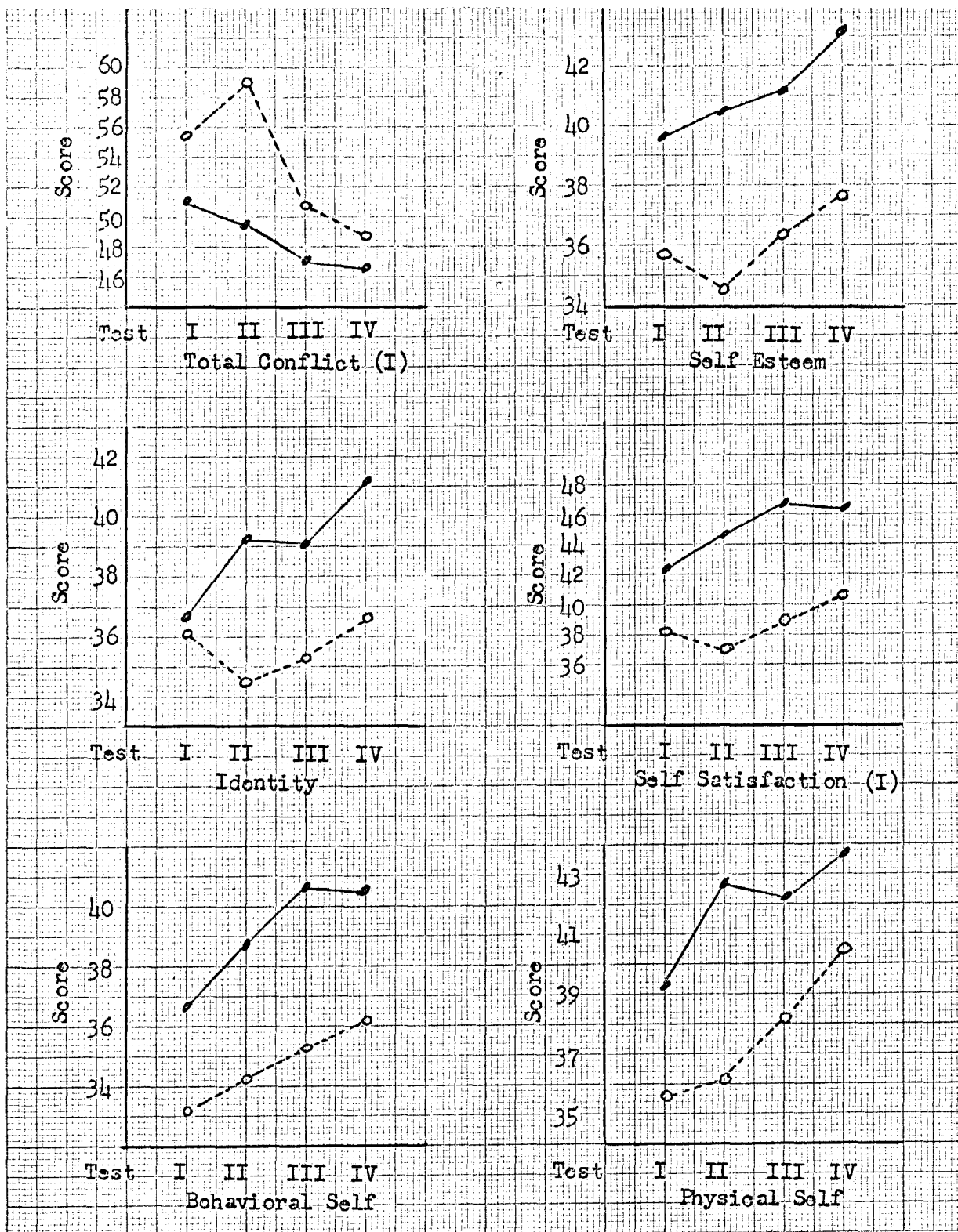


Fig. 7. Experimental group mean scores are represented by broken lines.  
 (I) after a variable name indicates a statistically significant interaction.

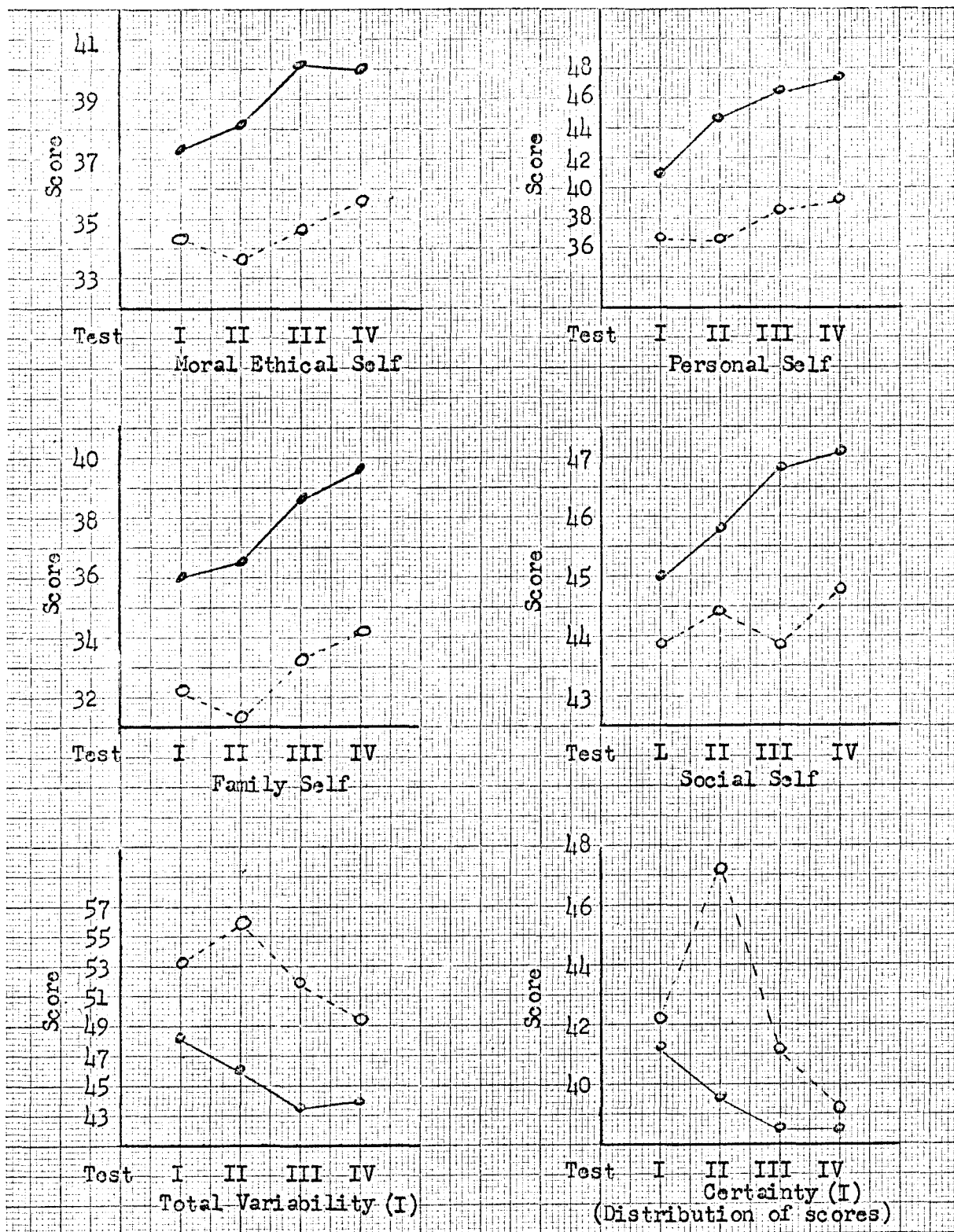
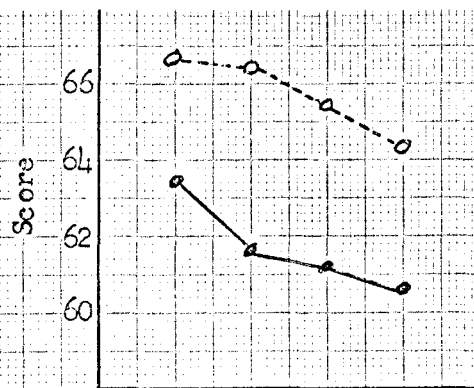
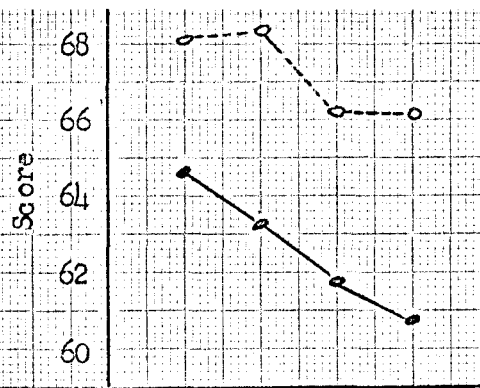


Fig. 8. Experimental group mean scores are represented by broken lines.  
 (I) after a variable name indicates a statistically significant interaction.

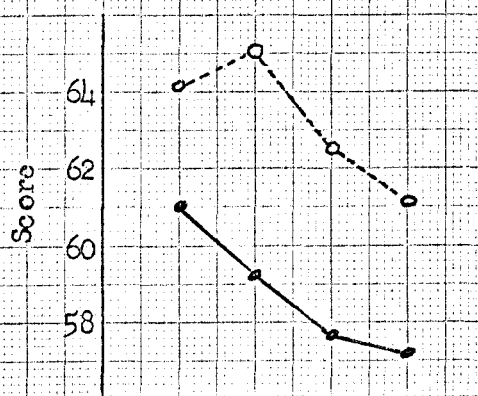




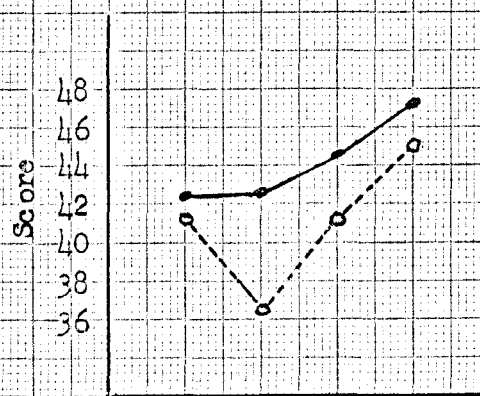
Test I II III IV  
General Maladjustment



Test I II III IV  
Pd (Sociopathology)



Test I II III IV  
Neurosis



Test I II III IV  
Personality Integration (I)

Fig. 9. Experimental group mean scores are represented by broken lines.

(I) after a variable name indicates a statistically significant interaction.

Table 3

Levels of Significant Differences for a 2 X 4 Analysis of Variance and  
1 X 4 Analysis of Variance for Repeated Measures - 35 Variables

	<u>2 X 4 Analysis</u>			<u>1 X 4 Analysis</u>	
	of			Experimental	
	Variance			Group Only	
	<u>Between<sup>a</sup></u>	<u>Between<sup>b</sup></u>	<u>Interaction<sup>c</sup></u>	<u>Between</u>	<u>Between</u>
	Groups	Tests		Trials	Subjects
Defensiveness		.01	.05	.001	.001
Self-Confidence	.05	.001		.01	.001
Self-Control		.01		.01	.001
Lability			.05		.001
Personal Adjustment		.01	.05	.001	.001
Achievement		.001	.10	.001	.001
Dominance	.01	.001	.05	.001	.001
Endurance	.05	.01		.001	.001
Order		.001		.001	.001
Intracception		.01	.01	.001	.001
Nurturance		.001	.01	.001	.001

<sup>a</sup> Two groups of alcoholics: experimental group = 50; control group = 50.

<sup>b</sup> Four testings of each group at same intervals.

<sup>c</sup> Test effect significant over and above effect of repeated measures.

(Table continued on next page.)

Table 3--Continued

	<u>2 X 4 Analysis</u>			<u>1 X 4 Analysis</u>	
	of			Experimental	
	Variance			Group Only	
	Between <sup>a</sup> Groups	Between <sup>b</sup> Tests	Interaction <sup>c</sup>	Between Trials	Between Subjects
Affiliation		.01	.01	.001	.001
Heterosexuality	.05	.001	.001	.001	.001
Exhibition	.05				.001
Autonomy	.05	.01		.05	.001
Aggression		.01	.01	.01	.001
Change		.05	.001	.001	.001
Succorance	.001			.05	.001
Abasement	.001	.05		.01	.001
Deference	.01	.001		.001	.001
Counseling Readiness	.05	.001	.001	.001	.001
Self Criticism		.05			.001
Response Bias		.01	.05	.01	.001

<sup>a</sup> Two groups of alcoholics: experimental group = 50; control group = 50.

<sup>b</sup> Four testings of each group at same intervals.

<sup>c</sup> Test effect significant over and above effect of repeated measures.

(Table continued on next page.)



Table 3--Continued

	<u>2 X 4 Analysis</u>			<u>1 X 4 Analysis</u>	
	of			Experimental	
	Variance			Group Only	
	Between <sup>a</sup> Groups	Between <sup>b</sup> Tests	Interaction <sup>c</sup>	Between Trials	Between Subjects
Net Conflict Scores		.001		.001	.001
Total Conflict Scores	.05	.001	.01	.001	.001
Self Esteem	.05	.01		.001	.001
Identity					.001
Self-Satisfaction	.01	.001	.05	.01	.001
Physical Self	.05	.001		.001	.001
Total Variability	.001	.001	.05	.001	.001
Distribution of Scores		.001	.001	.001	.001
General Maladjustment	.05	.01			.001
Sociopathology	.05	.001		.05	.001
Neurosis	.05	.001		.001	.001
Personality Integration	.05	.001	.10	.001	.001

<sup>a</sup> Two groups of alcoholics: experimental group = 50; control group = 50.

<sup>b</sup> Four testings of each group at same intervals.

<sup>c</sup> Test effect significant over and above effect of repeated measures.

Table 4

Levels of Significant Differences Between Four Tests of the Experimental Group  
For Variables with Interactions and Differences Between Trials

Variables	I - II	II - III	III - IV	II - IV	I - III	I - IV
Defensiveness		- .10		- .01	- .02	- .001
Personal Adjustment	- .05				- .01	- .01
Achievement		- .05		- .001	- .05	- .001
Dominance		- .10		- .01		- .01
Intracception		- .01		- .05	- .001	- .01
Nurturance		- .10			- .05	- .05
Affiliation		- .05		- .10	- .01	- .01
Heterosexuality		- .05		- .02	- .001	- .001
Aggression	- .10				.05	.10
Change	- .01					- .05
Counseling Readiness		.10		.01	.02	.001
Response Bias			.05	.02		.01
Total Conflict Scores		.01		.001	.10	.01
Self-Satisfaction				- .05		
Total Variability				.02		
Certainty (D of Scores)	- .05	.05		.001		
Personality Integration	.02	- .05	- .10	- .001		

Table 5

Levels of Significant Differences Between Trend Points on Four Tests of the Experimental Group for Variables with No Interactions but Differences Between Trials

Variables	I - II	II - III	III - IV	II - IV	I - III	I - IV
Self Confidence			- .05	- .05		- .01
Self Control					- .02	- .01
Endurance		- .05		- .02	- .10	- .05
Order		- .01		- .01	- .02	- .05
Autonomy		.10			.10	
Succorance					.10	.10
Abasement						
Deference		- .05				
Net Conflict			- .05	.01		.02
Self Esteem				- .10		
Physical Self				- .05		- .02
Sociopathology						
Neurosis				.05		.10

Table 6

## Orthogonal Polynomial Analysis of Variance

Levels of Significant Differences in Slope, Curvature and  
Inflection for Scores of 17 Variables for Four Trials

Variable Description	Overall <sup>a</sup>			Trials by Groups <sup>a</sup>		
	Linear <sup>b</sup>	Quadratic <sup>b</sup>	Cubic <sup>b</sup>	Linear <sup>b</sup>	Quadratic <sup>b</sup>	Cubic <sup>b</sup>
Defensiveness	.001			.001	.10	
Personal Adjustment	.001			.001	.05	
Achievement	.001	.05		.001	.05	
Dominance	.001	.10		.001	.05	.10
Intraception	.01		.05	.001	.05	.05
Nurturance	.001		.10	.001	.01	.10
Affiliation	.001			.001	.10	
Heterosexuality	.001			.001	.05	
Aggression	.01			.01	.01	
Change		.10	.10	.01	.05	.05
Counseling Readiness	.001			.001		
Response Bias	.01			.01	.05	.05
Total Conflict	.001		.01	.001	.05	.001
Self-Satisfaction	.001			.001	.01	
Total Variability	.001			.001	.01	
Certainty (D. of Scores)	.001	.10	.01	.001	.01	.001
Personality Integ.	.001	.001	.05	.001	.001	.05

<sup>a</sup> Trials by groups rather than Overall significant differences important to present study.

<sup>b</sup> Linear, Quadratic, and Cubic related to slope, curvature & inflection.

## Evaluation of the Second Hypothesis

Preliminary considerations--The second hypothesis of this study states: Assessment of certain dimensions of the self-concept of a group of alcoholics under controlled conditions of drinking and sobriety will reveal significantly more positive self-concepts--along at least some of these dimensions--when the alcoholic group is drinking optimally. The specific dimensions to be assessed were: (1) self-esteem, self-confidence, and self-acceptance, (2) adequacy in general including physical and sexual adequacy, (3) estrangement and feelings of social worth, (4) dependency, immaturity and insecurity, and, (5) tolerance to stress and strain.

The ACL and the TSCS, with 53 variables collectively, were administered under comparable conditions four times to the 50 control and the 50 experimental subjects. All conditions were equated insofar as possible for both groups for all tests with two exceptions. The experimental group was permitted to drink optimally, i.e., momentarily satisfied and able to function but not drunk, during Test II, and, to drink one-half the amount consumed during the second testing during Test III.

Prior to testing, the 53 variables on the two test instruments were classified by three judges as irrelevant to the study or as more relevant as a measure of one dimension of the self-concept than a measure of the other four dimensions being studied. After analysis of the test data involving eight steps and procedures, scores for 17 variables were judged to be statistically most significant for assessment of the concept dimensions, 13 other variables were considered less easy to interpret, and, the test scores for 23 variables were eliminated.

Six of the variables whose scores were considered statistically significant, had been classified as measures of self-esteem, self-confidence and self-acceptance. The variables were: (1) Self Satisfaction, (2) Certainty (Distribution of Scores), (3) Response Bias (T/F), (4) Total Conflict, (5) Defensiveness, and, (6) Counseling Readiness.

Similarly, scores on six of the variables were considered statistically significant for assessment of estrangement and social worth. The variables purport to measure: (1) Personal Adjustment, (2) Achievement, (3) Dominance, (4) Nurturance, (5) Affiliation, and, (6) Aggression.

Many of the variables already mentioned might have served to measure the self-concept dimension designated as adequacy in general since adequacy might be considered a generic and inclusive dimension for all facets of the self-concept being studied. Scores, however, on three additional variables which were considered statistically important relate to three specific areas of adequacy, namely, Intraception, Change, and Heterosexuality.

Unfortunately, no test scores on any variables were considered statistically significant as measures of dependency, immaturity and insecurity. However, scores for two variables were found to be significant as indirect measures of tolerance for stress and strain. The variables are designated Personality Integration and Total Variability by the authors of the tests.

The minor premise of the second hypothesis assumes that changes do occur along certain dimensions of the self-concept of the alcoholic when he is drinking. This premise is supported by the results on test scores for all 18 variables with interacting scores with the one exception of scores for the Lability variable. It is further suggested by test results for at least 4 of 13 other less statistically significant variables, namely, Self Esteem,

Self Control, Neurosis and Physical Self. As indicated in Tables 4 and 5, pages 94 and 95 respectively, significant differences existed between the scores on 21 variables for the experimental group between the two most important comparison trend points, namely, Test II and Test IV. On the other hand, only four pairs of these scores showed significant differences between Tests III and IV.

Support, however, for the major premise of the second hypothesis is dependent not only in showing that changes do occur in certain dimensions of the self-concept of the alcoholic when he is drinking but also in demonstrating that the directionality of these changes is such that the self-concept of the alcoholic improves when he is drinking. Evaluation and interpretation of the meaning of directional changes for the measures related to the five self-concept dimensions under study was based on the following considerations: (1) the predetermined classification of the variables as most appropriately a measure of one of the dimensions; (2) the statistical significance of the test results for each variable; and, (3) the test manuals' statements as to the meaning of high and low scores and directional changes in the scores (Gough & Heilbrun, 1965, and, Fitts, 1965). Relative to the second point, test results for 17 variables whose scores had indicated interactions on the 2 X 4 analysis of variance were considered the most important (Table 4, page 94); test results for 13 additional variables (Table 5, page 95) were assessed as support-data only for the interpretation of the results for the 17 principle variables.

No attempt was made to determine the content validity of any of the variables. Interpretation of high and low scores and changes in the scores were dependent, therefore, upon the declared meaning of the scores in the

test manuals. Only in those cases where more than one interpretation was possible were choices made which seemed to make the interpretation of the data clearer and more relevant.

(A) Self-esteem, self-confidence, and self-acceptance.--One of the most important implications relative to self-esteem was drawn from the test scores on the Total Conflict Scale. High scores indicate confusion, contradiction and general conflict in self-perception. The experimental group obtained significantly higher scores on this variable when they were drinking (Test II). This would imply, contrary to the major premise of the second hypothesis, that while he is drinking, the alcoholic does not enhance his self-esteem but undermines his already poor sober self-concept. He feels greater confusion and conflict in the self he perceives. Further, there is greater contradiction in the self-perception; this is supported not only by the results for the variable Total Conflict but also by the Net Conflict scores on Test II.

The conclusion regarding the lower self-concept of the alcoholic when he is drinking based on the scores for Total Conflict is further suggested by the scores on the Self Satisfaction Scale for Test II. These scores represent the way a person feels about the self he perceives. In view of the significant drop in the mean scores for the alcoholic group while they were drinking, it would seem that the collective self-concept of the experimental group did not improve when they were drinking. On the contrary, they felt less worthy of self-esteem and were less acceptable to themselves. Additional support for this conclusion is suggested by the test results for the variable Self-Esteem, which is considered by the author of the TSCS (Fitts, 1965) as the most important single scale for self-concept assessment.



The alcoholic group scored significantly higher on Test II on the Certainty Scale (Distribution of Scores) which would imply that the alcoholic is, however, more certain and definite in what he says about himself when he is drinking. He becomes less defensive, as indicated by test results for the Defensive Scale, which may be interpreted to indicate not only better self-control in the image he projects about himself but also a resoluteness in both attitude and behavior to the point not only of persistence but of stubbornness.

The results thus far would suggest that the major premise of the second hypothesis is not tenable. On the contrary, when drinking, the alcoholic feels less self-esteem, and is less acceptable to himself. Results from the scores on the Certainty and Defensive scales suggest, further, that the alcoholic who has a poor self-concept when he is not drinking, may drink to enable him on the one hand to project and affect a more positive self-image and on the other hand to escape his own negative feeling of self-esteem and self-acceptance. By drinking he may become less defensive and may be able to affect greater self-confidence and with greater obstinacy, tenacity and resoluteness project a more positive self-image, at least in terms of what he says about himself. In reality, however, he may actually feel less self-confidence within himself when he is drinking; this is suggested by the results on Test II for the Self-Confidence Scale. Drinking, therefore, may not serve as a positive escape mechanism, but when drinking the alcoholic tends to confirm and increase the negative self-concept he has when he is sober.

Low scores on the variable Response Bias (T/F) imply balance between tendencies to affirm what is self and tendencies to eliminate what is

not self. High scores, however, imply that individuals seek to achieve self-definition and self-description by focusing on what they are but are relatively unable to accomplish the same thing by eliminating or rejecting what they are not. Since the alcoholic group scored significantly high on Test II on this variable, high on the Certainty Scale and low on the Defensiveness Scale, the implication is that while drinking, the alcoholic seeks to project a self-image by calling attention to what he is, or would like to be, but, at the same time, he is less able to eliminate or reject what he is not, or feels he is not.

The alcoholic group scored significantly higher on Counseling Readiness on Test II than on the other tests. These scores suggest that when drinking the alcoholics tended to worry more about themselves, became more preoccupied with their problems, while, at the same time, became more pessimistic about their ability to resolve these problems constructively.

On the basis of the test results for six of the most important variables as well as the results on tests for four additional variables, the contention that the alcoholic improves his self-concept along the dimensions of self-esteem, self-acceptance and self-confidence, is not tenable for the group tested under the controlled conditions of drinking employed. On the contrary, the experimental group felt less self-esteem and were less acceptable to themselves when they were drinking. Dynamically, the results suggest that alcoholics may drink to escape their own negative feelings about themselves and to make it possible for them to project and affect a more positive self image. Unfortunately, however, when they are drinking they feel even less self-esteem and are less acceptable to themselves which would tend, therefore, to confirm and increase the negative self-concept that the

alcoholic had about himself when he was sober.

B. Adequacy.--Many of the variables classified under self-esteem, self-acceptance and self-confidence could have been categorized under the adequacy dimension. In a sense "adequacy" is a generic term which includes or overlaps most of the dimensions of the self-concept being considered. The conclusions drawn from the test results, therefore, on the former dimension are relevant to the discussion of adequacy in general. Three variables whose test results showed significant interactions on the 2 X 4 analysis of variance were classified specifically under the adequacy dimensions. These variables are Intraception, Change and Heterosexuality.

By definition Intraception means: "to engage in attempts to understand one's own behavior or the behavior of others" (Gough & Heilbrun, 1965, pg. 8). Since the experimental group had a higher mean score on Test II rather than Test I, it would appear that the alcoholic becomes somewhat more intraceptive when he is drinking. The results for tests on this variable and that on the less significant variable Autonomy are more interesting in relation to Test III than Test II. The test results for Intraception and Autonomy were, respectively, significantly high and low on Test III. These scores would suggest that when he was drinking below his optimal level the alcoholic subject tended to engage more seriously in attempts to understand his own behavior and, at the same time, recognized more clearly that he could not act independently of others or of the social values and expectations of society. These results are particularly interesting in view of the fact that many of the subjects felt Test III had a great deal of therapeutic value. They suggested, repeatedly, that it "gave them a chance to take a good look at themselves", implying that they had consumed enough alcohol to see how they would

become if allowed to continue to drink according to their usual pattern, while, at the same time, they were sober enough to think clearly and make rational self-evaluations.

On the variable Change, the experimental group test results were significantly high. This would suggest that among the reasons the alcoholic drinks may be to avoid the routine, to escape the responsibilities of normal everyday life which he feels inadequate to handle, and to seek through alcohol novelty and variety of experience. In self-concept terms, however, these high scores on the variable Change while drinking do not suggest that the self-concept is improved. On the whole, it implies that drinking provides only a temporary escape from responsibilities and problems that he feels inadequate to solve.

One of the most interesting test results was obtained on the Heterosexuality Scale. Test I results suggest that both the control and the experimental groups were significantly lower on scores for this variable. In turn, the test results suggest that the experimental group were significantly lower in heterosexual feelings than the control group. Results on Test II imply that heterosexual feelings are somewhat higher when the alcoholic is drinking; however, the results for the variable Aggression suggest that he is significantly less aggressive. It is possible, therefore, that the alcoholic feels more adequate heterosexually but becomes less forceful in his sexual demands. Many of the alcoholics tested admitted that they flirted and talked sex more when they were drinking than when sober and yet were relatively impotent and uninterested in sexual relations when they were drinking. Feelings of heterosexuality continued to increase for Tests II and III. In all probability this is an artifact of the therapeutic treatment

being given the subjects rather than any effect due to drinking or sobriety. An analogous conclusion might be drawn for the elevation, progressively, of scores on the Physical Self Scale since the physical health of the men tended to improve the longer they were sober.

C. Estrangement and social worth.--Six variables which had significant interactions on the 2 X 4 analysis of variance were classified under this dimension of the self-concept. Progressive elevations of scores on the Personal Adjustment Scale would seem to have been due to the therapeutic program rather than the effects of drinking.

Results on the Nurturance scale would seem to imply that the alcoholic tended to engage more in behavior which extended material or emotional help to others when he was drinking sub-optimally rather than when he was drinking at optimal capacity. The further implication is that the alcoholic is selfishly less concerned about the needs of others when he is drinking than when he is sober.

The test results for three variables, namely, Achievement, Dominance and Aggression, would suggest that the major premise of the second hypothesis is not tenable relative to feelings of social worth. On the contrary, while drinking the alcoholics tested felt even less social worth than they had felt when sober. Although less aggressive, he felt he had less ability to be outstanding in pursuits of socially recognized significance (Achievement Scale) and less able to seek and sustain leadership roles in groups or to be influential and controlling in individual relationships (Dominance Scale). Recalling that the alcoholics tested were less defensive (Defensive Scale) and were able to affect a better self-image by what they said about themselves (Certainty Scale) when drinking, in reality they actually felt

less social worth and social adequacy when drinking. In effect, drinking would seem to be a mechanism to affect a positive self-image, and to give the impression that the alcoholic is friendly, outgoing, a capable leader and socially adequate, but in reality, drinking serves both to disguise feelings of social inadequacy, and, at the same time to increase and confirm the alcoholic's sober feeling that he is socially unworthy. Even the test results for the variable Affiliation during Test I suggest that the alcoholic is basically a lonely person who feels estranged, unworthy and unable to sustain close intimate interpersonal relationships. As indicated earlier, the alcoholic is dissatisfied with himself as he perceives himself (Self-Satisfaction scale). This dissatisfaction includes not only feelings of inadequacy and lack of personal worth (Personal Self Scale) but also feelings of inadequacy, lack of worth and value as a family member and for intimate personal relationships in general.

From the results of the four testings on the variable Affiliation, which indicated an interaction on the 2 X 4 analysis of variance, it would appear that the alcohol may drink to escape his loneliness and feelings of estrangement. The experimental group mean score was significantly higher on Test II than Test I; it was significantly higher on Test III than on any other test. These high scores suggest that the lonely alcoholic seeks, through alcohol to become more adaptable and pleasing to others. The high scores, however, suggest that when drinking, optimally and sub-optimally, the alcoholic becomes more "adaptable and anxious to please, but not necessarily because of altruistic motives; i.e., he is ambitious and concerned with position, and may tend to exploit others and his relationships with them in order to gain his ends"(Gough & Heilbrun, 1965, pg. 8).

In self-concept terms, the test results on the variables related to estrangement and social worth, suggest that the major premise of the second hypothesis is untenable. It would appear that the sober alcoholic feels lonely, estranged and lacking in social worth in both intimate and general social relationships. Through drinking, he not only seeks to escape his loneliness and feelings of estrangement but to affect a more friendly and outgoing personality that he hopes may attract persons to him. Since, however, he does not feel basically that he is worthy of intimate personal communication, even when he drinks he recognizes that he is projecting a self-image he does not feel and thus within himself feels more lonely and estranged. His positive self-concept, therefore, is not enhanced by the drinking but, on the contrary, further undermined.

D. Dependency, Immaturity, and Insecurity.--No test scores for any variables for the four testing were considered significant, statistically, as measurements of changes in dependency, immaturity and insecurity. In assessing the first hypothesis, it was indicated that the two tests provided fewer measures for this dimension of the self-concept than for the other four under consideration. The initial test results, however, suggested that the alcoholic was significantly more dependent than the nonalcoholic. Considering the results for all four tests, it would appear that his feelings of dependency, immaturity and insecurity are not improved when he drinks.

E. Tolerance to stress and strain.--It is surprising in view of the fact that most alcoholics tested claimed that alcohol helped "steady their nerves" and made it possible for them to function better at least in motor areas, that the results for the scores on the variables Personality

Integration and Total Variability suggest that they have less, not more, tolerance to stress and strain when they are drinking. The alcoholic becomes more variable and inconsistent from one area of self-perception to another (Total Variability) and shows significantly greater personality disintegration when he is drinking (Personality Integration Scale). The elevated scores on the variable Self-Control when the alcoholic drinks suggests that when drinking he becomes more "the inadequately socialized person, headstrong, irresponsible, complaining, disorderly, narcissistic, and impulsive" (Gough and Heilbrun, 1965, pg. 6). Further, he sees himself as more neurotic (Neurotic). Finally, he is less orderly (Order) and shows less endurance (Endurance).

Tenability of the second hypothesis.--On the basis of the test results for the alcoholic experimental group under the prescribed conditions of drinking and sobriety, the major premise of the second hypothesis is not tenable. The test results would seem to support the minor premise, namely, that changes occur along certain dimensions of the self-concept of the alcoholic when he is drinking. However, the results do not support the assertion that the self-concept of the alcoholic improves when he is drinking. On the contrary, the collective self-concept of the experimental group did not improve on any of the five dimensions of the self-concept measured when the group was drinking.

Although the second hypothesis is not tenable, the test results may have provided empirical data of greater importance for understanding some of the dynamics of the alcoholic personality and the effects that drinking has on the self-concept of the alcoholic. The test results suggest that, from a psychological point of view, the alcoholic seeks through drinking (1) to escape his feelings of inadequacy, loneliness, and feelings of



personal and social unworthiness, and, (2) to assist him to overcome inhibitory forces within his personality structure so that he can affect and project a more positive self-image to others. Drinking, however, provides a temporary escape only, and serves not to improve the negative self-concept the alcoholic had when he was sober but instead tends to confirm and to increase his negative self-evaluation. In a sense, it would seem that the alcoholic says when he is sober: "I am worthless and no good"; then, when he drinks he says: "You see I was right. In fact I'm even more worthless than I thought."

### Conclusions

Within the limits of the experimental design and test validity, the test results for both the control and experimental group and for the combined group support the first hypothesis, namely, that the alcoholic has a poorer self-concept than the nonalcoholic as indicated by significantly lower scores on measures which purported to assess five dimensions of the self-concept.

The test results support the minor premise of the second hypothesis, namely, that changes occur along the dimensions of the self-concept when the alcoholic drinks. The results do not support the major premise of this hypothesis, i.e., that the alcoholic self-concept improves when he drinks. On the contrary, along at least four of the five dimensions of the self-concept--self-esteem, self-confidence and self-acceptance, adequacy, social worth, and tolerance to stress and strain--the alcoholic has a more negative self-concept when he is drinking. Further, on the fifth dimension, immaturity and insecurity, the alcoholic does not improve his self-concept along this dimension when he is drinking, and his dependency needs do not change.

Since the second hypothesis is not tenable in its major premise, the hypothesis is rejected. The test results, however, were possibly more valuable as aids in understanding certain dynamics of the alcoholic personality. The collective results of all the testings would seem to suggest the following: (1) The alcoholic has a poor self-concept when he is sober. (2) Two factors, among others, prompt him to drink, namely, (a) to escape from his own feelings of loneliness, inadequacy and lack of personal and social worth, and, (b) to help him overcome certain psychological inhibitory forces within his personality structure so that he can affect and project a more positive self-image to others. (3) Even when he is drinking, however, the alcoholic does not feel more positive about himself. On the contrary, when he drinks he tends to confirm and aggravate within himself his already low evaluation of himself.

If the conclusions suggested above are correct, it would seem that therapy for the alcoholic should include efforts to assist the patient to an understanding of his personal worth and value with emphasis on who he is rather than on what he has done, or not done, in the past. Of necessity the testing procedures obscured the unique personality structure and self-concept of the individual alcoholic. However, the test results, particularly those obtained from the analyses of variance, suggest uniqueness existed between test performance of individual subjects. It would seem, therefore, that any therapeutic program for treatment of an alcoholic should seek to help the patient not only toward a feeling of personal worth but also toward the acceptance and understanding of his worth and value as a unique human person.

## CHAPTER V

### SUMMARY

The purpose of the present study was two-fold: (1) to investigate certain dimensions of the self-concept of alcoholics, and, (2) to assess changes in these self-concept dimensions under controlled conditions of drinking and sobriety.

It was hypothesized: (1) alcoholics, in general, have a poorer and more negative self-concept than nonalcoholics; and, (2) alcoholics drink to improve their self-concepts. Specifically, it was hypothesized that appropriate psychological and statistical assessments of certain dimensions of the self-concept of a group of alcoholics would indicate significant differences from a normative group along sufficient dimensions of the self-concept to conclude that alcoholics have a poorer self-concept than nonalcoholics. Secondly, it was hypothesized that assessment of these dimensions of the self-concept under controlled conditions of drinking and sobriety, would indicate significantly more positive self-concepts when the alcoholics were drinking "optimally"--that is, momentarily satisfied and able to function but not drunk--than when they were sober or only partially satisfied.

The underlying assumptions of this study were as follows: The self-concept--the self as the individual who is known to himself--is a major determinant of overt behavior and an important concept in understanding unique human persons. Self-concept studies focus on what a person is, or thinks he is, rather than on what he does; and, methodologically, depends upon conscious self-evaluation and personal self-report by the individual. Further, the self-concept is an ever changing facet of the human personality.

The self-concept, therefore, may become more or less positive or negative depending on life experiences which affect the individual's evaluation of himself.

The self-concept is not a unitary dimension of personality. Certain factors emerge as critically important in the formation of the self-concept. Analysis of these factors, or dimensions, is necessary for understanding individual differences. Certain dimensions, however, considered individually and collectively, seem important in understanding both the individual and certain groups of individuals with similar problems.

Although there is no specific "alcoholic personality" as such, alcoholics, individually and collectively, feel inadequate. Specifically, in terms of self-concept dimensions, they may (1) lack self-esteem, self-confidence and self-acceptance, (2) feel dependent, immature and insecure, (3) feel estranged and lack a feeling of social worth, (4) feel sexually and physically inadequate, and, (5) have low tolerance for stress and strain.

The experimental design involved the following procedures: (1) Fifty alcoholics admitted for treatment to the Alcoholic Rehabilitation Unit of Downey Veterans Administration Hospital, Downey, Illinois, served as experimental subjects. Fifty alcoholics drawn from three populations served as the control group. The control subjects were patients either at Downey V. A. Hospital, or, patients at the Chicago Alcoholic Treatment Center, Chicago, Illinois. Neither group of subjects was systematically biased; all alcoholics present in either institution on specified dates were considered potential subjects. Test results for alcoholics who did not complete all the tests or for patients who were mentally retarded, seriously brain damaged,

or psychotic were eliminated. Test results indicated, however, that the two groups did not differ significantly in age, IQ and education. (2) All subjects were tested four times with the Adjective Check List (Gough and Heilbrun, 1965) and the Tennessee Self Concept Scale (Fitts, 1965). Collectively, there were 53 variables on the two tests which were classified as irrelevant or more relevant as measures of one of the five dimensions of the self-concept under study. After an initial testing (Test I) each group was tested again four days later (Test II), three days after Test II (Test III), and, finally, a week after Test III (Test IV). Insofar as possible the two groups were tested in the same way and under the same conditions with two exceptions. During Test II, the experimental group were permitted to drink optimally, and during Test III suboptimally, i.e., one-half the amount of alcohol consumed during Test II. Blood level alcohol assessments were made on random samples in the control group when they were sober; assessments of blood alcohol levels were made three times on each subject in the experimental group, i.e., during Tests I, II, and III respectively.

(3) The raw scores from all the tests were transformed into standard scores with a mean of 50 based on normative samples with a mean of 50 ( $SD = 10$ ). To test the first hypothesis, the data from Test I was analyzed in four ways: (a) the means and standard deviations for each group and a combination of both groups were determined; (b) the mean scores for all variables of the two tests were graphically presented; (c) a 60 X 60 correlation matrix including not only the variables of the two principle tests but also the constants, blood level alcohol assessments, and the results from administering three Ferguson Form Boards; and (d)  $t$  tests for significant differences between the control and experimental groups as well as  $t$  tests for

significant differences between each of these groups and a combination of both groups with normative samples.

(4) Eight procedures involving all the data for the four testings were utilized to test the second hypothesis. These procedures were as follows:

(1) Levels of significant differences of ACL and TSCS scores between the experimental and control group on four testings were determined; (2) irrelevant, unreliable and some of the overlapping variables were eliminated; (3) the test results for 40 of the variables were graphically analyzed; (4) a 2 X 4 analysis of variance was performed on test scores for 35 of the variables and for the four testings; (5) a 1 X 4 analysis of variance for the 35 variables for the four testings for the experimental group only was the next procedure; (6) Hartley tests were performed for scores on 8 variables; (7) the levels of significant differences between the four tests for the experimental group was determined by t tests, and, finally, (8) an orthogonal polynomial analysis of variance to determine slope, curvature and inflection was performed for scores of 17 variables which had shown interactions on the 2 X 4 analysis of variance.

Within the limits of the experimental design and the reliability and validity of the test measures, the test results for the two groups of alcoholics, support the first hypothesis and the study, however, these results suggested that the major premise of the second hypothesis was untenable, therefore, the hypothesis was rejected.

Insofar as the alcoholics tested are representative of alcoholics and groups of alcoholics, the test results support the hypothesis that states that the alcoholic has a more negative, hence poorer, self-concept than the nonalcoholic. On all five dimensions of the self-concept studied,

namely, self-esteem, self-acceptance, self-confidence, adequacy, estrangement and social worth, dependency, immaturity and insecurity, and, low tolerance to stress and strain, both the control and experimental groups as well as a combined group of all 100 subjects, were significantly lower on all scores for 28 variables which purported to measure certain aspects of the five dimensions. These results suggest, therefore, that the alcoholics tested have lower self-concepts than nonalcoholics who formed the normative populations for the test instruments.

The minor premise of the second hypothesis was supported by the test results, namely, that the self-concept of the alcoholic changes when he is drinking, however, the major premise was not supported. Drinking did not improve the self-concept of the alcoholic. On the contrary, his self-concept was significantly poorer for at least four dimensions and did not improve for the fifth dimension.

Although the second hypothesis was rejected, the implications of the test results for understanding the alcoholic personality and the implications for therapy were considered more important than the affirmation of the hypothesis.

The test results, collectively, suggest that alcoholics, insofar as the group tested are representative, even when they are sober, have more negative self-concepts than nonalcoholics. Two of the reasons, psychologically speaking, the alcoholic drinks may be in order to escape his own feelings of inadequacy and lack of personal and social worth, and, in order to assist himself in overcoming certain inhibitory forces within him so that he can affect and project a more positive self-image to others. However, even when he is drinking, the alcoholic does not feel more positively about himself;

on the contrary, he feels even more negatively than he does when he is sober. Drinking, therefore, tends to confirm and aggravate the feelings of inadequacy and lack of personal and social worth which he had when he was sober. Hence, as he continues to drink, he feels less and less adequate and worthy. If these conclusions are correct, therapy should include efforts to assist the alcoholic to a more positive evaluation of himself with emphasis on who he is and not on what he has done, or not done. Since the personality structure and self-concept of every individual alcoholic is unique, therapy should include efforts not only to helping the alcoholic toward a feeling of personal worth but also toward the acceptance and understanding of his worth and value as a unique human person.



## APPENDIX

### A. Interview Form Sheet for Determination of Drinking Habits and Optimal Drinking

#### I. General Information:

Subject Number \_\_\_\_\_ Date of Interview \_\_\_\_\_  
Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_ Race: \_\_\_\_\_ Date of Admission \_\_\_\_\_  
Marital Status \_\_\_\_\_ Children \_\_\_\_\_ Occupation \_\_\_\_\_ Education \_\_\_\_\_  
With Whom Living \_\_\_\_\_ Father \_\_\_\_\_ Mother \_\_\_\_\_ Other Siblings \_\_\_\_\_  
Who brought you in? \_\_\_\_\_ Who was interviewed regarding your drinking? \_\_\_\_\_  
Are you entering the unit voluntarily? \_\_\_\_\_ Do you understand the program  
and accept it? \_\_\_\_\_ (If subject does not understand, both the psycholo-  
gist and psychiatrist explain program.) Previous hospitalizations \_\_\_\_\_  
Hospitalizations for alcoholism \_\_\_\_\_ Explain any previous treatment  
for alcoholism \_\_\_\_\_  
Were you sober when you came to this hospital? \_\_\_\_\_ If so, for how long? \_\_\_\_\_  
When did you have your last drink? \_\_\_\_\_ Explain in detail your last  
drinking episode, including what you drank, how much, how long did it  
last, etc. \_\_\_\_\_

#### II. Drinking Pattern:

When did you have your first drink? \_\_\_\_\_ What did you drink? \_\_\_\_\_  
When did you become a heavy drinker? \_\_\_\_\_ Why do you think you became  
a heavy drinker? \_\_\_\_\_  
When did you recognize that alcohol was a problem for you? \_\_\_\_\_  
When did your family or spouse suggest you might be alcoholic? \_\_\_\_\_  
Do you consider yourself an alcoholic? \_\_\_\_\_ If so, for how long? \_\_\_\_\_  
Ordinarily what do you drink? \_\_\_\_\_ How much do you drink and at what

intervals?\_\_\_\_\_ Do you feel that drinking makes you function better?\_\_\_\_\_

What, how much and at what intervals do you drink when you feel you are functioning at your best?\_\_\_\_\_

What kind of work do you do?\_\_\_\_\_ Are you able to work under the drinking conditions you have just described?\_\_\_\_\_

Do you feel that you function better when drinking as you have described your drinking pattern?\_\_\_\_\_ Explain in detail the drinking pattern you follow to feel that you can function at your best, including what you drink, how much you drink and at what intervals you drink\_\_\_\_\_

---

### III. Optimal Drinking Assessment:

Do you ever get drunk?\_\_\_\_\_ If so, how often?\_\_\_\_\_ How long do you stay drunk?\_\_\_\_\_ Do you end up drunk every time you start drinking?\_\_\_\_\_

How much more than the amount you claim makes you function at your best, is necessary to make you drunk?\_\_\_\_\_

Do you eat when you drink?\_\_\_\_\_ Do you drink in the morning?\_\_\_\_\_

Do you drink on the job?\_\_\_\_\_ Do you drink alone or with others?\_\_\_\_\_

Have you ever had the "D.T.s"?\_\_\_\_\_ If so, explain\_\_\_\_\_

Have you ever had blackouts?\_\_\_\_\_ If so, explain\_\_\_\_\_

Have you ever been fired for drinking?\_\_\_\_\_ How much time have you lost from work each year for the past 5 years because of drinking?\_\_\_\_\_

Has your drinking pattern changed in the past five years?\_\_\_\_\_

Explain again what you drink, how much and at what intervals, to feel that you function at your best\_\_\_\_\_

---

Psychiatrists judgment of optimal drinking pattern\_\_\_\_\_

Psychologists judgment of optimal drinking pattern\_\_\_\_\_

Prescription for optimal drinking\_\_\_\_\_

IV. Other Pertinent Informations:\_\_\_\_\_

## B. Statistical Data Relevant to the Initial Testing

The first statistical procedures were performed on the data from the initial testing of 50 control subjects, 50 experimental subjects, and, of the combined group of 100 alcoholics.

A 60 X 60 correlation matrix was prepared comparing the initial testing of the experimental and control group which included not only correlations of the scores on the 24 variables of the ACL and the 29 variables of the TSCS but also the test results on the scores from administration of three Ferguson Form boards, and, correlations with blood alcohol and the constants age, IQ and education.

Statistical evaluation of the constants age, IQ, and education as well as a discussion of the statistical analysis of the Ferguson Form Boards, and, a report of assessment of blood alcohol levels may be found in Chapter IV, pages 53-60.

Subsequent to the preparation of the 60 X 60 correlation matrix for the initial testing, only the results on scores from the 53 variables on the ACL and TSCS were used in statistical analyses.

The means and standard deviations for the scores on these 53 variables for both the control and experimental groups and for the combined group are tabularly presented in this appendix along with the 60 X 60 correlation matrix.

60 X 60 Correlation Matrix for Combined Group Test I

[illegible]

$r = 2.63$ , sig. at .01     $r = 3.43$ , sig. at .001.

Table 8

Means and Standard Deviations on Initial Testing With the Tennessee Self  
Concept Scale and The Adjective Check List

Variable Number	Description of Variable	Control Group N = 50		Experimental Group N = 50		Combined Group N = 100	
		Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD
<u>I. Adjective Check List:</u>							
1	Number Adjectives Checked	51.50	9.882	48.58	9.882	50.04	10.189
2	Defensiveness	51.66	10.264	45.98	10.264	48.82	10.714
3	Favorable Adjectives	48.10	10.316	39.86	10.316	43.99	12.367
4	Unfavorable Adjectives	50.20	8.736	54.22	8.736	52.21	11.090
5	Self Confidence	47.16	9.445	42.24	9.445	44.70	9.013
6	Self Control	49.40	9.820	48.30	9.820	48.85	10.000
7	Lability	48.76	8.096	46.42	8.096	47.59	8.619
8	Personal Adjustment	48.38	8.820	43.50	8.820	45.94	10.630
9	Achievement	50.26	9.662	45.58	9.662	47.92	9.790
10	Dominance	48.22	9.240	41.12	9.240	44.67	10.820
11	Endurance	50.20	10.513	45.76	10.513	47.98	10.925
12	Order	49.80	10.623	47.02	10.623	48.41	10.800
13	Intraception	52.98	8.912	47.26	8.912	50.12	12.067

<sup>a</sup> Raw scores converted to standard scores similar to normative data.

(Table continued on next page).

Table 8--Continued

Variable Number	Description of Variable	Control Group		Experimental Group		Combined Group	
		N = 50		N = 50		N = 100	
		Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD
14	Nurturance	53.30	10.995	50.20	10.995	51.75	11.881
15	Affiliation	50.56	9.780	45.30	9.780	47.93	10.775
16	Heterosexuality	51.28	10.668	43.20	10.668	47.24	10.744
17	Exhibition	49.50	8.707	44.76	8.707	47.13	9.363
18	Autonomy	48.52	8.312	44.88	8.312	46.70	10.563
19	Aggression	46.96	9.585	44.72	9.585	47.34	10.761
20	Change	47.40	7.663	44.96	7.663	46.18	7.573
21	Succorance	49.76	9.017	57.10	9.017	53.43	10.567
22	Abasement	52.06	8.664	58.54	8.664	55.30	10.469
23	Deference	52.94	7.867	57.96	7.867	55.45	9.890
24	Counseling Readiness	50.72	9.428	58.18	9.428	54.45	10.280
II. <u>Tenn. Self Concept Scale:</u>							
25	Self-Criticism	52.68	9.116	54.80	9.962	53.74	9.606
26	Response Bias (T/F)	59.34	16.899	60.60	15.431	59.97	16.194
27	Net Conflict Scores	57.56	11.190	57.92	10.254	57.74	10.775
28	Total Conflict Scores	51.02	13.090	55.54	12.630	53.28	13.059

<sup>a</sup> Raw scores converted to standard scores similar to normative data.

(Table continued on next page).

Table 8--Continued

Variable Number	Description of Variable	Control Group N = 50		Experimental Group N = 50		Combined Group N = 100	
		Mean <sup>a</sup>		Mean <sup>a</sup>		Mean <sup>a</sup>	
		SD		SD		SD	
29	Self Esteem (Total P)	39.64	11.708	35.98	9.848	37.81	10.971
30	Identity	36.94	11.813	36.18	12.716	36.56	12.279
31	Self Satisfaction	42.48	10.962	38.46	8.346	40.47	9.947
32	Behavioral Self	36.80	11.136	33.10	8.798	34.95	10.205
33	Physical Self	39.26	10.442	35.66	9.435	37.46	11.113
34	Moral-Ethical Self	37.36	12.569	34.52	10.014	35.94	10.587
35	Personal Self	41.16	11.462	36.68	9.731	38.92	10.865
36	Family Self	36.00	11.152	32.36	11.039	34.18	11.244
37	Social Self	45.02	10.888	43.88	8.867	44.45	9.941
38	Total Variability	48.76	10.974	53.10	9.655	50.93	10.561
39	Column Variability	47.76	11.427	51.92	10.444	49.84	11.142
40	Row Variability	48.90	11.399	52.28	10.113	50.59	10.907
41	Certainty (Dist.of Scores)	41.06	12.998	42.22	10.214	41.64	11.703
42	Answered Completely True	41.64	17.164	43.78	15.745	42.71	16.505
43	Answered Mostly True	55.56	12.891	55.46	11.289	55.51	12.117

<sup>a</sup> Raw scores converted to standard scores similar to normative data.

(Table continued on next page).



Table 8--Continued

Variable Number	Description of Variable	Control Group N = 50		Experimental Group N = 50		Combined Group N = 100	
		Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD	Mean <sup>a</sup>	SD
44	Answered True & False	57.84	13.001	56.80	11.980	57.32	12.512
45	Answered Mostly False	49.18	13.139	49.16	10.456	49.17	11.873
46	Answered Completely False	38.08	13.997	39.94	8.670	39.01	11.744
47	Defense Positive	47.08	10.006	43.78	8.227	45.43	9.319
48	General Maladjustment	63.46	10.578	66.84	10.128	65.15	10.492
49	Psychosis	59.94	10.265	57.00	9.558	58.47	22.619
50	Sociopathology	64.84	11.170	68.12	9.260	66.48	10.390
51	Neurosis	61.18	9.722	64.14	7.283	62.66	8.716
52	Personality Integration	42.36	10.825	41.76	9.251	42.06	10.074
53	Number of Deviant Scores	65.88	7.016	67.46	10.126	66.67	8.746

<sup>a</sup> Raw scores converted to standard scores similar to normative data.

# C. Ferguson Form Boards Results

Table 9

Means, Standard Deviations, Medians and Ranges for Three Form Boards

Test	Group	<u>Form Board #2<sup>a</sup></u>		<u>Form Board #4<sup>a</sup></u>		<u>Form Board #5<sup>a</sup></u>	
		Means	SD	Means	SD	Means	SD
I	Control	62.62	30.13	118.26	84.39	115.46	109.20
I	Experimental	65.10	39.59	124.04	74.83	142.68	81.73
II	Control	46.94	23.92	93.06	63.35	107.62	63.56
II	Experimental	76.02	56.93	139.66	83.88	168.42	91.33
III	Control	39.18	22.27	74.46	48.10	91.78	47.53
III	Experimental	51.66	29.96	91.82	62.34	107.56	55.33
IV	Control	33.50	17.20	66.16	45.08	78.26	43.77
IV	Experimental	38.14	24.90	69.82	51.12	89.20	48.78
Test	Group	<u>Form Board #2<sup>a</sup></u>		<u>Form Board #4<sup>a</sup></u>		<u>Form Board #5<sup>a</sup></u>	
		Median	Range	Median	Range	Median	Range
I	Control	58	25-149	95	32-426	125	48-650
I	Experimental	52	26-240	100	28-340	113	48-390
II	Control	38	15-105	68	25-305	91	39-315
II	Experimental	62	25-300	110	19-322	143	54-441
III	Control	31	12-110	56	29-244	78	35-252
III	Experimental	41	14-175	74	36-300	94	43-300
IV	Control	27	11- 88	49	18-240	64	30-221
IV	Experimental	31	15-169	51	22-300	74	35-259

<sup>a</sup> Results reported in means and median seconds to complete the task.

#### D. Alcohol Blood Levels for the Experimental Group

Alcohol was consumed by the experimental group during Test II and Test III. One-half the amount consumed during Test II was ingested during Test III by the 50 subjects.

Alcohol was given, according to the tastes of the men, according to four different drinking patterns. Twenty-five men who were not beer or wine drinkers were given 95 proof alcohol prepared by diluting pure ethanol with water. To the seven men who were beer drinkers, exclusively, ten ounce bottles, or cans, of commercially processed beer were prescribed.

Sixteen of the subjects consumed what is commonly called "boiler-makers" which consists of a combination of both 95 proof alcohol and beer. Two men drank only wine; they were given white port wine which contained 20% alcohol by volume.

Alcohol blood level assessments were made on the subjects not only when they were sober during Test I, but also, precisely 45 minutes after beginning to drink during Test II and Test III.

The United States Safety Council standards (1951) were used to evaluate alcohol blood levels. These standards suggest that 0.00% - 0.05% is the normal level of blood alcohol when not drinking; 0.05% - 0.10% is somewhat above normal; 0.10% - 0.15% is considered evidence of drinking but an individual with this alcohol blood level is not, necessarily, drunk; and, 0.15% and over are considered levels constituting intoxication for legal purposes.

The dosages of alcohol were regulated, careful, by the Ward Nurse under the direction of the Unit Chief; the assessment of the blood alcohol levels were made by the staff of the Research-in-Aging Laboratory.

Table 10

## Comparison of Alcohol Consumption with Alcohol Blood Levels

Alcohol Consumption	Number	Mean %	Mean %
Per Hour	of	Blood Alcohol	Blood Alcohol
Test II <sup>a</sup>	Subjects <sup>b</sup>	Test II	Test III
I. 95 proof alcohol			
3 oz.	1	.081	.043
4 oz.	5	.079	.031
5 oz.	1	.044	.033
6 oz.	9	.111	.056
8 oz.	7	.166	.092
9 oz.	1	.095	.091
10 oz.	1	.107	.100
Total subjects	25	.115	.063
II. 10 oz. beers			
3	1	.051	.043
4	1	.081	.031
5	1	.103	.033
6	4	.111	.056
Total subjects	7	.097	.091

<sup>a</sup> Consumption Test III equals one-half amount recorded for Test II.

<sup>b</sup> Total number of experimental subjects equals 50.

(Table continued on next page).

Table 10--Continued

Alcohol Consumption Per Hour Test II <sup>a</sup>	Number of Subjects <sup>b</sup>	Mean % Blood Alcohol Test II	Mean % Blood Alcohol Test III
III. 95 proof alcohol plus 10 oz. beers			
5 oz. + 2 beers	1	.073	.029
3 oz. + 2 beers	1	.089	.044
3 oz. + 3 beers	2	.124	.066
3 oz. + 4 beers	1	.118	.064
4 oz. + 2 beers	1	.150	.082
4 oz. + 3 beers	3	.140	.082
4 oz. + 4 beers	4	.122	.053
5 oz. + 4 beers	1	.230	.097
6 oz. + 3.5 beers	1	.153	.100
10 oz. + 4 beers	1	.155	.081
Total subjects	16	.133	.068
IV. Wine - alcohol 20%			
20 oz.	1	.139	.054
34 oz.	1	.113	.133
Total subjects	2	.126	.094

<sup>a</sup> Consumption Test III equals one-half amount recorded for Test II.

<sup>b</sup> Total number of experimental subjects equals 50.

## E. Classification of Fifty-three Variables

### According to Self-concept Dimensions

Prior to statistical analysis of any data regarding the 24 variables on the ACL and the 29 variables on the TSOS, three judges, independently and collectively, classified these 53 variables in the following manner:

- (1) The definitions, descriptions and meaning of the variables were determined by examination of the manuals for the two tests.

No attempts were made to assess content validity of any of the variables over and above the claims made by the authors of the test and delineated in the test manuals.

- (2) The second step in classifying the variables was a division of the 53 variables into two classes, namely, (a) clearly irrelevant, unreliable or overlapping variables, based only on the description in the manuals, and (b) variables which had definite relevance or any possible value in studying the self-concept dimensions of the alcoholic. A minimum of 13 variables were agreed upon, unanimously by the judges, as irrelevant, unreliable or overlapping. These were: (1) Number of Adjectives Checked, Number of Favorable Adjectives Checked and Unfavorable Adjectives on the ACL which were irrelevant by definition to the present study; (2) Column Variability and Row Variability on the TSOS which were simply two subdivisions of the variable Total Variability which was retained, and, similarly, the five Distribution of Scores which were only subcategories of the general variable Distribution of Scores which was retained; (3) the Defense Positive Scale of the TSOS was eliminated on the basis of the author's statement that this variable was introduced for research purpose and served only as a subtle measure of

Self Criticism; (d) the number of Deviant Scores is considered by the author of the TSCS as a research and experimental scale and "with the exception of the NDS Score, the other scores yield raw score distributions that conform fairly closely to the normal curve" (Fitts, 1965, p. 13), and, finally; (e) the Psychosis scale on the TSCS was dropped because all profiles of men who were considered psychotic, as a result of psychiatric and psychological evaluation, were eliminated.

- (3) The next step in classification of the variables was the most difficult. Attempts were made by all three judges, independently, to classify the 40 variables that remained as specifically or exclusively relevant to one of the five dimensions of the self-concept of stated interest in the present study. Certain facts were evident to the three judges: (a) no single variable on either test uniquely and exclusively measured any one of the dimensions; (b) many variables could be classified under more than one dimension since both the variables and the dimensions as defined were overlapping; (c) very few variables were found relevant to the assessment of the dimension designated "dependency, immaturity and insecurity", and, (d) the dimension "low tolerance to stress and strain" could not be measured directly, however, a number of variables would make possible an indirect assessment of this dimension. Each judge, independently, drew up a list of the variables and the classification he felt most appropriate for the variables. Where there was unanimous agreement, the variable was classified as designated; on 15 variables it was necessary for the judges to consult with one another and decide on the best classification for them.

The final classification of the 40 variables according to the

five dimensions of the self-concept considered relevant to the study was as follows:

(1) The Self-Esteem, Self-Acceptance and Self-Confidence dimension.--

Fourteen variables, namely, Self Criticism, Self Esteem (Total Positive Scores), Identity, Self Satisfaction, Behavioral Self, Moral Ethical Self, Certainty (Distribution of Scores), Response Bias (T/F Score), Net Conflict Scores, Total Conflict Scores on the TSCS, and, Defensiveness, Self Confidence, Abasement, and Counseling Readiness on the ACL were relevant.

(2) The Physical, Sexual and General Adequacy dimension.--Seven

variables, namely, Physical Self and Personal Self on the TSCS, and, Lability, Intraception, Heterosexuality, Autonomy, and, Change on the ACL were classified as measures of this dimension.

(3) Estrangement and Social Worth dimension.--Nine variables, namely,

Family Self and Social Self on the TSCS, and, Personal Adjustment, Achievement, Dominance, Nurturance, Affiliation, Exhibition, and Aggression on the ACL were related to this dimension.

(4) The Dependency, Immaturity and Insecurity dimension.--Only two

variables on the ACL seemed relevant to this dimension, namely, Succorance and Deference.

(5) The Tolerance to Stress and Strain dimension.--This dimension

was assessed indirectly on the basis of scores for 8 variables, namely, Total Variability, General Maladjustment, Sociopathic Scale, Neurotic Scale, Personality Integration on the TSCS, and, Self Control, Endurance and Order on the ACL.



## F. Procedures for Retention and Evaluation of Forty Variables on the

### ACL & TSCS

Appendix E noted that 13 of the 53 variables on the ACL and TSCS were eliminated prior to statistical analysis. Statistical analysis suggested that tests results for 10 of the 40 relevant variables should be eliminated for interpretive purposes. The results for the scores on 17 of the remaining 30 variables were considered more easily interpreted statistically, and the scores on the remaining 13 variables less easily interpreted statistically. The evaluation of the scores for the 40 variables were as follows:

(1) Elimination of 5 variables because of high correlation with other variable scores.--Many variables might have been eliminated because of high correlations as indicated in the 60 X 60 correlation matrix for Test I in Appendix B, Table 7, page 121. A minimum number, however, were excluded because overlapping is to be expected, as the authors of both manuals point out for variables which purport to measure dimensions of the self-concept. Nevertheless, a minimum of 5 variables were so highly correlated with the Self Satisfaction variable on the TSCS that evaluation of these variables would furnish no information that had not already been obtained by analysis of the Self Satisfaction Scale scores. These variables, and their correlations with the Self Satisfaction Scale were: Behavioral Self ( $r = .75$ ), Moral Ethical Self ( $r = .79$ ), Personal Self ( $r = .83$ ), Family Self ( $r = .81$ ), and, Social Self ( $r = .73$ ). When it was found that the Self Satisfaction Scale scores on the 2 X 4 analysis of variance showed an interaction between trials, the scores of the excluded 5 variables were analyzed but no similar interaction was found, therefore, they remained excluded for the balance of the analyses.

(2) Elimination of 5 variables after a 2 X 4 and a 1 X 4 Analysis of Variance.--After the 1 X 4 analysis of variance for repeated measures for the experimental group 5 of the remaining variables were eliminated as not significant because there were no significant trial effects. These were Lability, Exhibition, Self Criticism, Identity, and, General Maladjustment. Lability was one of the variables eliminated even though it showed an interaction on the 2 X 4 analysis of variance for repeated measures. Since the scores on the variable showed no difference between trials on the 1 X 4 analysis of variance for the experimental group, it was concluded after analysis of the scores of the control group on this variable that the interaction was due to changes in the control group between trials rather than changes in the experimental group.

(3) Evaluation of variables whose scores showed significant trials effects but no interaction on the 2 X 4 analysis of variance.--Thirteen variables and their scores were found to have significant trials effects, but no interaction on the 2 X 4 analysis of variance. The variables were: Self Confidence, Self Control, Endurance, Order, Autonomy, Succorance, Abasement, Deference, Net Conflict, Self Esteem, Physical Self, the Sociopathology Scale, and, the Neurotic Scale. Statistically, the test results for these variables are not easy to interpret for it is possible that the significant trials effects may be due to the effects of repeated measures rather than changes in the experimental group. However, it is possible that the effects are, in reality, due to changes in the experimental group. Test results, therefore, for these thirteen variables were not eliminated entirely but were interpreted cautiously.

(4) The 17 variables whose scores were considered statistically most significant.--Scores for 17 variables not only indicated significant trials effects for the experimental group on the 1 X 4 analysis of variance, but also produced interactions on the 2 X 4 analysis of variance. The scores for these variables were considered statistically the most important and more easily interpreted. Six of the variables were related to the self-concept dimension involving self-esteem, self-confidence and self-acceptance. These were Self Satisfaction, Certainty (Distribution of Scores), Response Bias (T/F), Total Conflict, Defensiveness, and, Counseling Readiness. Three variables were retained which had been classified as measurements of certain aspects of inadequacy; these were Intraception, Heterosexuality, and, Change. Six variables which had been categorized as relevant to assessment of estrangement and lack of social worth, remained. These were Personal Adjustment, Achievement, Dominance, Nurturance, Affiliation, and Aggression. Indirect measurements of tolerance for stress and strain were represented in the scores for the variables Personality Integration and Total Variability. Unfortunately, there were no variables which served as statistically significant measures for dependency or immaturity.

#### G. Basic Data for Three Analyses of Variance and a Hartley Test

Four tables are to be found in this section of the Appendix. Table 11 contains essential data and results of a  $2 \times 4$  analysis of variance for test scores for 38 variables. Table 12 presents necessary data and results of a  $1 \times 4$  analysis of variance for the scores on the 38 variables for the experimental group only. Both analyses were for repeated measures applied to the test results for four administrations of the same tests to both the control and experimental groups.

Table 13 presents the results of Hartley tests for significance for test results on 8 variables where the levels of significant interaction on the  $2 \times 4$  analyses of variance did not reach the .01 level.

Table 14 contains the basic data needed to perform an orthogonal polynomial analysis of variance on the scores for 17 variables to ascertain slope, curvature and inflection for each set of scores and for four trials. The method of analysis used was an adaptation of a method described by Grant (1956). Essentially, the method involved breaking down the sources SS within subjects, namely between trials, the interaction, and trials between subjects within groups, into three components. The number of components is determined by  $n-1$  the number of trials. Since the number of trials were four, it was possible to extract three components. These were designated the linear, quadratic and cubic components, respectively. The linear component is related to slope and best fitting straight line. The quadratic component assesses curvature without regard to slope while the cubic component evaluates, statistically, the inflection of the curves.

The basic formula for the orthogonal polynomial analysis is as follows:

$$SS = \frac{(\sum \phi T)^2}{n \sum \phi^2}$$
 . " $\phi$ " are constants for the linear, quadratic and cubic components and vary according to the four tests respectively. Sum  $\phi^2$  is always constant and equal to 20, 4, and 20 respectively for the three score transformations. "T" varies depending upon the source being generated; likewise, "n" varies for different levels of analysis, e.g. linear, quadratic and cubic. The constant  $\phi$ s used in the present study were as follows:

<u>Linear Constants</u>	<u>Quadratic Constants</u>	<u>Cubic Constants</u>	
$\phi_{11} = -3$	$\phi_{21} = -1$	$\phi_{31} = 1$	
$\phi_{12} = -1$	$\phi_{22} = 1$	$\phi_{32} = -3$	
$\phi_{13} = 1$	$\phi_{23} = 1$	$\phi_{33} = 3$	
$\phi_{14} = 3$	$\phi_{24} = -1$	$\phi_{34} = -1$	. For

each of the three components for each set of scores for each variable, three sources are generated, namely SS Overall, SS Trials, by Groups, and SS Trials by Subjects. As a check the SS Overalls for the linear, quadratic and cubic components, collectively, must equal the SS Within Subjects between Trials generated in the 2 X 4 analysis of variance; similarly, the collective SS Trials by Groups remainders after subtracting each SS Trials by Groups from its respective SS Overall, must equal SS Within Subjects Interaction in the 2 X 4 analysis; finally, the sum of the three SS Trials by Subjects after subtracting the respective SS Trials by Groups and SS Within Subjects Interaction components must equal the SS Within Subjects Trials by Subjects within Groups.

Table 11

Results of a 2 X 4 Analysis of Variance for Repeated Measures

	<u>Source</u>		<u>F Ratio</u> <sup>a</sup>	<u>Source</u>		<u>F Ratios</u> <sup>b</sup>		
	<u>SS Between Subjects</u>			<u>SS Within Subjects</u>				
	Exp. vs			Between		Trials X		
Variable	<u>Control</u>	<u>Ss/Groups</u>		<u>Trials</u>	<u>Interaction</u>	<u>Ss/Groups</u>		
Description	df = 1	df = 98		df = 3	df = 3	df = 294		
	MS-1	MS-2	F (1-2)	MS-3	MS-4	MS-5	F (3-5)	F (4-5)
Defensiveness	490.63	265.78	1.84	470.23	163.82	42.81	10.98	3.82
Self-Confidence	1486.10	212.94	6.97	243.64	18.38	31.57	7.72	.58
Self Control	64.80	273.76	.23	396.90	43.81	43.18	9.19	1.01
Lability	107.12	223.11	.48	35.80	130.65	45.83	.78	2.85
Personal Adjustment	157.50	273.34	.57	400.33	171.00	45.49	8.80	3.75
Achievement	891.70	258.70	3.37	555.66	89.66	35.65	15.58	2.51
Dominance	3254.70	279.72	11.64	408.39	113.49	36.87	11.08	3.08
Endurance	1505.44	305.75	4.92	573.09	35.71	44.27	12.94	.76

<sup>a</sup> Df = 1/98, therefore, F's for .10, .05, .01, .001, are 2.77, 3.95, 6.93, and 11.67, respectively.

<sup>b</sup> Df = 3/294, therefore, F's for .10, .05, .01, .001 are 2.08, 2.65, 3.88, and 5.42, respectively.

(Table continued on next page.)

Table 11--Continued

Variable	<u>Source</u>			<u>F Ratio</u> <sup>a</sup>		<u>Source</u>			<u>F Ratios</u> <sup>b</sup>	
	<u>SS Between Subjects</u>					<u>SS Within Subjects</u>				
	Exp. vs					Between			Trials X	
	<u>Control</u>	<u>Ss/Groups</u>				<u>Trials</u>	<u>Interaction</u>		<u>Ss/Groups</u>	
	df = 1	df = 98				df = 3	df = 3		df = 294	
Description	MS-1	MS-2		F (1-2)		MS-3	MS-4		MS-5	F (3-5) F (4-5)
Order	268.96	260.83		1.03		527.89	38.38		43.67	12.08 .87
Intracception	19.80	285.32		.07		359.15	400.55		52.66	6.82 7.60
Nurturance	24.50	450.26		.05		310.93	176.15		38.41	8.09 4.58
Affiliation	182.25	280.57		.64		344.34	202.83		45.43	7.57 4.44
Heterosexuality	1475.00	299.21		4.92		366.81	250.79		38.81	9.45 6.46
Exhibition	957.90	223.70		4.28		26.37	34.82		27.31	.96 1.28
Autonomy	1350.56	263.45		5.13		196.91	38.52		45.71	4.31 .84
Aggression	578.40	311.83		1.85		143.65	146.59		32.83	4.37 4.47
Change	328.00	211.46		1.55		102.82	226.87		37.94	2.71 5.98

<sup>a</sup> Df = 1/98, therefore, F's for .10, .05, .01, .001, are 2.77, 3.95, 6.93, and 11.67, respectively.

<sup>b</sup> Df = 3/294, therefore, F's for .10, .05, .01, .001 are 2.08, 2.65, 3.88, and 5.42, respectively.

(Table continued on next page.)

Table 11--Continued

Variable Description	<u>Source</u>		<u>F Ratio</u> <sup>a</sup>	<u>Source</u>		<u>F Ratios</u> <sup>b</sup>		
	<u>SS Between Subjects</u>		F (1-2)	<u>SS Within Subjects</u>				
	Exp. vs			Between		Trials X		
	<u>Control</u>	<u>Ss/Groups</u>		<u>Trials</u>	<u>Interaction</u>	<u>Ss/Groups</u>		
	df = 1	df = 98		df = 3	df = 3	df = 294		
	MS-1	MS-2		MS-3	MS-4	MS-5	F (3-5)	F (4-5)
Succorance	2840.89	228.18	12.45	86.68	77.67	38.85	2.23	1.99
Abasement	3546.00	269.50	13.11	88.66	22.33	30.74	2.88	.72
Deference	2227.84	267.21	8.34	177.99	29.33	26.48	6.72	1.11
Counsel. Readiness	1501.56	246.71	6.08	384.79	243.09	35.01	10.99	6.94
Self Criticism	414.12	296.58	1.39	77.66	24.89	27.39	2.82	.91
Response Bias	116.64	686.73	.16	542.78	298.41	102.98	5.27	2.89
Net Conf. Scores	58.52	303.51	.19	380.38	46.33	48.87	7.78	.94
Total Conf. Scores	2591.00	489.84	5.28	1055.30	270.54	64.31	16.40	4.20
Self Esteem	2440.00	347.20	7.02	165.00	24.19	33.47	4.92	.72

<sup>a</sup> Df = 1/98, therefore, F's for .10, .05, .01, .001, are 2.77, 3.95, 6.93, and 11.67, respectively.

<sup>b</sup> Df = 3/294, therefore, F's for .10, .05, .01, .001 are 2.08, 2.65, 3.88, and 5.42, respectively.

(Table continued on next page.)



Table 11--Continued

Variable Description	<u>Source</u>		<u>F Ratio</u> <sup>a</sup>	<u>Source</u>		<u>F Ratios</u> <sup>b</sup>		
	<u>SS Between Subjects</u>		F (1-2)	<u>SS Within Subjects</u>				
	Exp. vs			Between		Trials X		
	<u>Control</u>	<u>Ss/Groups</u>		<u>Trials</u>	<u>Interaction</u>	<u>Ss/Groups</u>		
	df = 1	df = 98		df = 3	df = 3	df = 294		
	MS-1	MS-2		MS-3	MS-4	MS-5	F (3-5)	F (4-5)
Identity	1169.64	500.95	2.33	102.25	82.67	47.99	2.13	1.72
Self Satisfaction	3582.02	307.20	11.66	212.34	58.23	19.52	10.88	2.98
Physical Self	1780.84	388.01	4.58	366.91	50.00	31.99	11.46	1.56
Total Variability	5062.00	396.19	12.77	454.00	148.00	53.37	8.50	2.77
Distrib. of Scores	861.00	624.09	1.38	399.00	261.51	45.74	8.72	5.71
Gen. Maladjustment	1685.00	367.47	4.58	130.67	11.00	23.80	5.49	.46
Sociopathology	2129.00	340.54	6.25	188.00	26.00	19.08	9.85	1.36
Neurosis	1949.00	284.58	6.84	256.00	35.00	17.55	14.58	1.99
Pers. Integration	909.00	181.31	5.01	746.00	129.00	51.51	14.48	2.50

<sup>a</sup> Df = 1/98, therefore, F's for .10, .05, .01, .001, are 2.77, 3.95, 6.93, and 11.67, respectively.

<sup>b</sup> Df = 3/294, therefore, F's for .10, .05, .01, .001 are 2.08, 2.65, 3.88, and 5.42, respectively.

Table 12

Results of a 1 X 4 Analysis of Variance for Repeated Measures

Variable	<u>Sources</u>			<u>F Ratios</u>	
	SS Between <u>Trials</u>	SS Between <u>Subjects</u>	SS <u>Residual</u>		
Description	df = 3	df = 49	df = 147		
	MS-1	MS-2	MS-3	F (1-3)	F (2-3)
Defensiveness	545.23	201.15	55.07	9.90 <sup>d</sup>	3.65 <sup>d</sup>
Self Confidence	190.00	163.95	39.29	4.83 <sup>c</sup>	4.17 <sup>d</sup>
Self Control	328.00	193.08	58.08	5.64 <sup>c</sup>	3.32 <sup>d</sup>
Lability	143.21	242.11	59.19	2.42	4.09 <sup>d</sup>
Personal Adjustment	458.00	242.73	58.00	7.89 <sup>d</sup>	4.18 <sup>d</sup>
Achievement	569.00	248.53	45.86	12.41 <sup>d</sup>	5.42 <sup>d</sup>
Dominance	454.20	307.77	53.95	8.27 <sup>d</sup>	5.71 <sup>d</sup>
Endurance	395.66	297.42	62.49	6.33 <sup>d</sup>	4.75 <sup>d</sup>
Order	416.66	201.95	58.34	7.14 <sup>d</sup>	3.46 <sup>d</sup>
Intraception	728.07	254.37	69.80	10.42 <sup>d</sup>	3.64 <sup>d</sup>
Nurturance	369.33	365.08	52.32	7.05 <sup>d</sup>	6.97 <sup>d</sup>

<sup>a</sup> p less than .05<sup>b</sup> p less than .02<sup>c</sup> p less than .01<sup>d</sup> p less than .001

(Table Continued on next page.)

Table 12--Continued

Variable Description	<u>Sources</u>		<u>F Ratios</u>		
	SS Between	SS Between	SS		
	<u>Trials</u>	<u>Subjects</u>	<u>Residual</u>		
	df = 3	df = 49	df = 147		
	MS-1	MS-2	MS-3	F (1-3)	F (2-3)
Affiliation	502.66	182.28	58.66	8.56 <sup>d</sup>	3.10 <sup>d</sup>
Heterosexuality	536.51	191.94	46.80	11.46 <sup>d</sup>	4.10 <sup>d</sup>
Exhibition	46.33	225.80	36.14	1.27	6.24 <sup>d</sup>
Autonomy	134.66	309.18	44.20	3.04 <sup>a</sup>	6.99 <sup>d</sup>
Aggression	213.00	261.59	44.90	4.74 <sup>c</sup>	5.82 <sup>d</sup>
Change	260.00	240.78	43.01	6.05 <sup>d</sup>	5.60 <sup>d</sup>
Succorance	148.00	195.00	48.73	3.04 <sup>a</sup>	4.00 <sup>d</sup>
Abasement	172.67	296.02	36.27	4.76 <sup>c</sup>	8.16 <sup>d</sup>
Deference	197.33	307.12	28.69	6.88 <sup>d</sup>	10.71 <sup>d</sup>
Counsel. Readiness	597.33	229.82	48.84	12.23 <sup>d</sup>	4.71 <sup>d</sup>
Self Criticism	42.33	279.53	35.26	1.20	7.92 <sup>d</sup>
Response Bias	551.67	483.83	106.45	5.17 <sup>c</sup>	4.54 <sup>d</sup>

<sup>a</sup> p less than .05<sup>b</sup> p less than .02<sup>c</sup> p less than .01<sup>d</sup> p less than .001

(Table continued on next page.)

Table 12--Continued

Variable Description	<u>Sources</u>			<u>F Ratios</u>	
	SS Between	SS Between	SS		
	<u>Trials</u>	<u>Subjects</u>	<u>Residual</u>		
	df = 3	df = 49	df = 147		
	MS-1	MS-2	MS-3	F (1-3)	F (2-3)
Net Conflict Scores	297.00	228.20	48.46	6.12 <sup>d</sup>	4.70 <sup>d</sup>
Total Conf. Scores	1108.33	403.34	84.57	13.10 <sup>d</sup>	4.76 <sup>d</sup>
Self Esteem	346.00	223.76	30.94	11.18 <sup>d</sup>	7.23 <sup>d</sup>
Identity	64.67	416.97	52.61	1.22	7.92 <sup>d</sup>
Self-Satisfaction	99.67	209.18	19.44	5.13 <sup>c</sup>	10.76 <sup>d</sup>
Physical Self	239.67	289.83	43.52	5.50 <sup>d</sup>	6.65 <sup>d</sup>
Total Variability	332.67	331.02	59.78	5.56 <sup>d</sup>	5.53 <sup>d</sup>
Distrib. of Scores	626.33	379.53	64.40	9.73 <sup>d</sup>	5.89 <sup>d</sup>
Gen. Maladjustment	64.67	269.80	29.69	2.18	9.09 <sup>d</sup>
Sociopathology	66.00	244.76	24.09	2.74 <sup>a</sup>	10.20 <sup>d</sup>
Neurosis	134.67	194.38	20.12	6.69 <sup>d</sup>	9.66 <sup>d</sup>
Pers. Integration	645.00	283.00	58.73	10.98 <sup>d</sup>	4.81 <sup>d</sup>

<sup>a</sup> p less than .05

<sup>b</sup> p less than .02

<sup>c</sup> p less than .01

<sup>d</sup> p less than .001

Table 13

F<sub>max</sub> by Hartley Tests on 8 Variables

Variable	SD	SD	SD
Description	Max <sup>2</sup>	Min <sup>2</sup>	F <sub>max</sub> <sup>a</sup>
Defensiveness	112.148	74.996	1.50
Achievement	105.556	81.414	1.30
Personal Adjustment	136.376	77.792	1.75
Dominance	126.630	66.308	1.91
Response Bias	324.108	158.231	2.05
Self Satisfaction	120.648	59.259	2.04
Total Variability	155.478	93.221	1.68
Personality Integration	162.767	85.581	1.90

<sup>a</sup> No F<sub>max</sub> was significant, therefore all 8 variables retained.

Table 14

Basic Data for the Orthogonal Polynomial Analysis of Variance for Slope, Curvature and Inflection

Variable Description	Sources <sup>a</sup>								
	Ss Overall			SS Trials X Groups			SS Trials X Subjects		
	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>
	df = 1	df = 1	df = 98	df = 1	df = 1	df = 98	df = 1	df = 1	df = 98
	MS	MS	MS	MS	MS	MS	MS	MS	MS
Defensiveness	1230.88	135.72	44.10	1692.64	164.35	45.21	6419.85	4875.25	3235.85
Personal Adjustment	1168.92	22.56	9.38	1327.57	374.13	10.90	6098.50	5652.25	3385.50
Achievement	1422.98	186.32	58.14	1667.29	187.43	81.69	5872.15	4026.75	3574.15
Dominance	1023.88	186.32	14.96	1270.99	195.63	98.61	4692.40	4787.00	3299.50
Intraception	864.61	11.22	201.51	1790.77	237.73	250.60	8002.75	5720.00	3570.75
Nurturance	825.61	33.06	74.11	1065.74	310.03	85.21	5523.95	4188.75	2232.80
Affiliation	1013.88	2.56	16.56	1433.42	176.80	29.04	6901.60	5129.00	2922.00
Heterosexuality	1054.15	32.49	13.78	1578.44	231.30	43.06	5958.15	4618.50	4171.90

<sup>a</sup> Six F's are generated. The six F's are given in Table 6, page 96. The three F's generated by dividing the MS Trials X Groups by MS Trials X Subjects are relevant.

(Table continued on next page.)

Table 14--Continued

Variable  Description	Sources <sup>a</sup>								
	SS Overall			SS Trials X Groups			SS Trials X Subjects		
	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>	<u>Linear</u>	<u>Quadratic</u>	<u>Cubic</u>
	df = 1	df = 1	df = 98	df = 1	df = 1	df = 98	df = 1	df = 1	df = 98
	MS	MS	MS	MS	MS	MS	MS	MS	MS
Aggression	381.06	8.12	41.76	454.41	367.23	49.08	4371.95	3864.75	1904.55
Change	2.18	139.24	167.04	358.35	263.30	376.99	4698.85	3844.00	5669.80
Counseling Readiness	1095.20	57.00	1.10	1794.06	63.01	25.55	5597.70	3122.50	3587.75
Response Bias	1594.89	.16	33.28	1748.36	484.16	291.04	15834.20	11707.50	5762.70
Total Conflict	2508.80	176.89	480.20	2721.35	490.18	765.97	10565.20	7605.00	5314.80
Self Satisfaction	599.51	2.40	35.11	628.07	147.61	36.04	2905.25	1694.25	2905.25
Total Variability	1138.54	83.72	138.86	1156.03	489.74	158.67	7511.85	5915.50	6563.65
Certainty (D. of Scores)	687.96	214.62	295.68	754.58	683.35	544.19	5092.15	6315.00	3387.35
Personality Integ.	1221.48	843.80	173.46	1226.39	1117.81	280.64	7223.45	6757.00	3958.45

<sup>a</sup> Six F's are generated. The six F's are given in Table 6, page 96. The three F's generated by dividing the MS Trials X Groups by MS Trials X Subjects are relevant.

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## APPROVAL SHEET

The dissertation submitted by Reverend James A. Vanderpool has been read and approved by five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

December 19, 1966  
Date

Frederick Koller  
Signature of Adviser