CHANGES IN THE MMPI PROFILES OF FIRST PRISON OFFENDERS DURING THEIR FIRST YEAR OF IMPRISONMENT

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Edward Henry Steininger

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in First Prison Offenders
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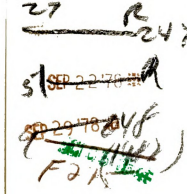

CHANGES IN THE MMPI PROFILES OF FIRST PRISON OFFENDERS DURING THEIR FIRST YEAR OF IMPRISONMENT

By

Edward Henry Steininger

AN ABSTRACT

Submitted to the School of Advanced Graduate Studies of
Michigan State University of Agriculture and
Applied Science in partial fulfillment of
the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Administrative and Educational Services

Year 1957

Approved Walter F. Johnson

EDWARD HENRY STEININGER ABSTRACT

The Problem: The purposes of this study were to investigate what changes in MMPI Profiles took place in first prison offenders during their first year of imprisonment, and when during this year these changes occurred.

Methodology and Procedure: The study sample was composed of 185 first prison offenders admitted to the State Prison of Southern Michigan between February 1, 1956 and January 31, 1957. Within the first week after their admission to the institution, the men were administered the group form of the MMPI. During February, 1957, this test was readministered. The sample was then divided into 12 staggered monthly groups, so that each group in the sample represented a different length of incarceration at the time of retesting. The number of men in the groups varied between 10 and 22.

The Major Findings

1. Initial test findings:

Analysis of variance of the scores for the 12 groups for each of the 13 MMPI scales indicated that the groups were comparable initially.

2. Retest findings:

a. Analysis of variance of the scores for

the 12 groups for each of the 13 MMPI scales revealed that the Mf and Si scores varied significantly among the groups.

b. Comparison of the initial and the retest means revealed significant decreases on the D, F, Mf, Pa, Pt, Ma, and Si scales, and significant increases on the L and K scales.

c. Analysis of variance for the change scores (retest minus initial scores) indicated significant variations among the 12 groups on the K and D scales.

3. Test-retest reliability:

a. Test-retest correlations for the 12 groups for each of the 13 scales were calculated. Ninety-three of the 156 correlations were significant.

b. The test-retest correlations for the total sample for the 13 scales were all significant.

4. Inter-scale correlations:

a. Correlations were calculated for both the initial test and the retest between each scale and every other one. Fifty-six of the 78 correlations were significant on the initial test, 54 on the retest.

b. Generally, the same pattern of intercorrelations existed on both testings.

5. The anxiety index:

Welsh's anxiety index was calculated for each

man. Both the initial and the retest means were significantly different from "normal," and the initial mean was significantly higher than the retest mean.

6. The internalization ratio:

Welsh's internalization ratio was calculated for each man. The initial mean was not significantly different from "normal"; the retest mean was significantly lower. The decrease between testings was significant, and varied in size among the 12 groups.

7. Abnormal and normal profiles:

Meehl's "normal" and "abnormal" categories were applied to both initial and retest profiles. Initially, 62% of the men had abnormal profiles; on the retest 71% did. The increase was significant.

Conclusions and Implications

1. Significant changes in personality adjustment as determined by the MMPI profiles were elicited during the first offender's first year in prison. Relating these changes to months imprisoned suggests that after a period of depression and anxiety, the prisoners became less depressed and less anxious during the middle of the year, but returned to their initial adjustment at the end of the year. This knowledge could be of value to the institution

counselor.

2. The present study only covered one year of imprisonment; this leaves unanswered many questions about the future adjustment of these men, and it would be instructive to trace the trends observed thus far.

3. Longitudinal research starting before imprisonment and continuing after release would appear fruitful, since it would permit greater focus on the individual case, and also cover a greater time span.

4. Because of its demonstrated significance, the time variable should be incorporated into future research.

5. Research designed to develop methods to predict prison adjustment would be invaluable and seems feasible. With such knowledge, institution personnel could tailor the rehabilitation program for individual inmates.

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A THESIS

Submitted to the School of Advanced Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Administrative and Educational Services

1957

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Edward Henry Steininger

candidate for the degree of

Doctor of Philosophy

Final Examination, July 26, 1957, 1:00 p.m.,
Room 20, Morrill Hall

Dissertation: Changes in the MMPI Profiles of First Prison Offenders During Their First Year of Imprisonment

Outline of Studies

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Minor Subjects: Educational Psychology, Higher Education

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CHAPTER I

THE NATURE OF THE PROBLEM

Introduction

Practically every day, men and women are being sentenced to prison. Shortly after being sentenced, they are whisked away to penal institutions to commence serving their sentences. The transition from the life of a free citizen to that of a prisoner involves not merely an environmental change, but also a period of adjustment to a radically different mode of living.

Many years ago, prisons were considered places of punishment; discipline was harsh, living conditions were unwholesome, privileges were few, and idle time was considerable. Modern penological theory no longer thinks strictly in terms of punishment, but rather, in terms of rehabilitation of prison inmates. Rehabilitation programs have been established in penal institutions throughout the country. The purpose of these programs is to promote the reformation of the criminal so that when he again becomes a free citizen, he will continue in this reformed role for the rest of his life.

One of the main reasons for this change in the penological viewpoint is the observation that people incarcerated

in prisons did not appear to "profit" from their prison experience and frequently incurred several additional prison terms. Currently, in the State of Michigan, the total recidivist rate is approximately 45 to 50 per cent. Approximately 95 per cent of the men incarcerated will be released from imprisonment, but almost 50 per cent of these will be returned to some prison. This suggests that while the rehabilitation programs may be more humane than "punishment," they are far from completely effective.

Penologists generally agree that incarceration usually has a detrimental effect on the personality adjustment of prisoners (2, 15). It would be important to ascertain empirically what changes, if any, do occur to prison inmates. Knowledge about personality changes which might be attributed, in part, to the environmental influence of the prison would be of considerable aid in the development of rehabilitation programs that could, conceivably, reduce the recidivistic rate.

Statement of the Problem

The purpose of this study is to investigate the nature of psychological changes occurring in the first prison offender during his first year in the State Prison of Southern Michigan. The type and extent of change, if any, is to be measured by the Minnesota Multiphasic Personality Inventory. The study is designed to measure the psychological

effect of the first year of imprisonment.

All newly received inmates at the State Prison of Southern Michigan were administered the Minnesota Multiphasic Personality Inventory (MMPI). This testing procedure was continued for one full year and, at the end of that time, all the men who had been selected for this study were re-administered the same inventory. In this fashion, at the end of one year, data were collected for a staggered group of men whose incarceration varied from one to twelve months. It is thus possible to note what changes take place in the sample population as a function of length of incarceration from a minimum of one month to a maximum of one year.

Justification for the Study

A review of the literature indicates that there have been very few studies conducted which clearly define what changes in personality take place during a period of incarceration, let alone demonstrate their actual occurrence. Most of the literature on this topic is based on observations made by workers in the field of penology or related fields, such as psychology, sociology, and education. This study is a systematic attempt at making use of a reportedly reliable and valid psychological test to note what changes, if any, of a psychological nature occur during imprisonment. A review of the literature suggests that this is the first

systematic endeavor in this area.

This study, then, is of theoretical and practical value. In penological literature, there is general agreement that confinement in prison engenders considerable change in the personality of the individual offender. It is generally felt that many of the changes that do develop are undesirable. This suggests that if a prisoner is to be aided in making a satisfactory adjustment to institutional life as well as a satisfactory adjustment as a free citizen, it is important that we understand the salient features of the psychological reorganization occasioned by the imposed way of life that is found in a prison setting. With an understanding of what changes in personality take place during a man's period of confinement, one can determine, through theoretical inference, which type of change is apt to be of the most benefit to the man; it may also be possible to deduce what factors in the prison environment encourage detrimental changes and, accordingly, modify the prison environment in such a fashion as to diminish the influence of these factors.

Definition of Terms

Every field of specialization has some unique terms which require definition in order to avoid misunderstanding. The field of penology is no exception, and therefore those terms which may be unfamiliar are defined. The

definitions used in connection with this study stem from reference texts (2, 15) and prison personnel.

First Prison Offender - An inmate who is experiencing his first period of incarceration within a prison.

Maximum Custody - Generally a walled institution with the inmates occupying cells at all times. Armed guards are posted on the walls.

Medium Custody - Generally an institution with no walls but perhaps a fence. Inmates are confined in cells at night and are under constant supervision on work assignments during the day.

Minimum Custody - Generally an open institution, like a camp, with no fences, walls, or armed guards. Little direct supervision is maintained on work assignments.

Parole - The serving of a sentence in the outside community, usually after a portion of the sentence has been served in prison.

Probation - A court action whereby an offender is placed under supervision in the community without ever entering a prison. The offender need not enter prison as long as he observes the conditions laid down by the court. Probation is frequently used for first offenders and juveniles.

Maximum Term - The maximum term to which a person can be sentenced for a particular crime.

Minimum Term - The minimum number of years a prisoner must be confined before he can be considered for release on parole. All prison inmates except those sentenced for life are assigned a minimum term. In Michigan, judges have some leeway in determining minimum terms.

Trusty - A prisoner who is permitted to serve his prison sentence in a setting relatively free of guards who are armed and prison walls.

Organization of the Study

Chapter II contains a review of the literature pertinent to the study, with further justification for the study. The methodology and procedure used in the conduct of the study are discussed in Chapter III, with an explanation of the method of sampling, a description of the psychological test used, and pertinent information regarding the sample population. The results of the study, as arrived at through various statistical analyses, are presented in Chapter IV. Discussion of the findings, comparison of present findings with other pertinent research in the field, critique of the study, and implications for further research are presented in Chapter V. The Summary and Conclusions are presented in Chapter VI.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter contains a review of only that literature in the field of penology which is directly related to this study. The chapter is divided into three sections. The first section contains a review of general observations made by people prominent in the field of penology about the influences of imprisonment. The second section deals with research projects set up to evaluate what changes, if any, take place in the personality adjustment of individuals as a result of incarceration. The third section is a concluding statement.

Observations on Changes in Personality as a result of Imprisonment

There is available a considerable amount of literature criticizing our penal system. These criticisms range from the actual physical facilities of the prison itself to the rehabilitation programs which are currently being used.

Even in the early 1930's, Patterson (14) deplored our penal system. He pointed out that society is to be served best if during a man's period of incarceration he is helped to become a better adjusted individual and, upon his

eventual release, he can take his place in the community. He emphasized that most penal institutions actually have the opposite effect, and that all too frequently, a man is more hardened and antisocial once he is released than when he was first imprisoned. He ascribed these changes that develop to the unnatural environment into which a man is placed: where physical movement is grossly restricted, where life is one monotonous routine, where all initiative and self-reliance are drained from a man.

In the late 1930's, Clemmer studied what he calls a typical American state penitentiary of about 2,300 inmates, and concluded:

> The prisoners' world is an atomized world. Its people are atoms acting in confusion. (5:24)

He goes on further to explain that:

> Prisonerization or the process of taking on in greater or less degree of the folkways, mores, customs, and general culture of the penitentiary may so disrupt the prisoner's personality that a happy adjustment in any community becomes next to impossible. (5:25)

Though Clemmer's study is of a sociological nature and is concerned primarily with the social structure of a penitentiary, his observations relative to personality change are certainly in agreement with those of other observers in the field.

Price Chenault and George Jennings (4) described in

considerable detail the pot pourri of inmates to be found in a typical state penitentiary. They suggest that because of the variety of different types of people cramped together in close confinement, the individuals have to make a multitude of adjustments, far more than are required by the man in the street, and as a consequence, many prisoners are likely to develop mental disturbances.

Barnes and Teeters (2) deplore our present penal institutions, and question whether the contemporary prison is really any improvement over the whipping post, stocks, and deportation that were common over a century ago. They state that, on a theoretical level, a prison is intended to promote the reformation of its inhabitants, but that, in actual operation, prisons are grossly ineffective in this endeavor, and make an inmate more of a menace to society than he was before incarceration. They suggest that the prison regime brings into play a large number of disastrous influences that would put a severe strain on a relatively normal person, and, since they consider most prison inmates emotionally unstable persons to begin with, they feel that prison life is apt to be quite devastating. Among the disastrous influences that they perceive are the following: curtailment of normal sociability, denial of self-assertion, rare opportunity for interesting work, inadequate play and recreation facilities, and deprivation

of a normal sex life with limited opportunities for the sublimation of the sex drive. The authors furthermore contend that the monotonous prison routine, intensified regimentation, intense monotony, lack of freedom, inadequate and obsolete physical facilities, lack of sufficient contact with the outside world, the usually monotonous and inferior prison food, the multiplicity of rules, many of a repressive nature, all serve to make prison an unforgettable experience. Lack of privacy and the monotony in the prison routine tend to put the inmates on edge and on occasion, a man may develop a serious mental disorder which may scar him for life.

John Bartlow Martin (12) reiterates some of the observations of Barnes and Teeters, and adds this additional material:

> Men go to prison, but they don't cease to exist there; they have to live there, and they live according to the conditions imposed upon them, they do what they have to do....Everything makes it hard...the guards, the other convicts, the walls and locks themselves. A prison psychologist has said, '...The unnatural environment, the discipline, the endless confinement, being cut off from all normal contacts, the shock of sudden imprisonment...when you come to prison you're a close man to psychosis. Then all the time you are here you're under a constant tension, constant strife' .... (12:46)

Walter Reckless (15) again reiterates many of the inadequacies of our penal system, and also mentions that strong discipline and severe authoritative handling of the

prison inmates may well develp anti-social grudges toward society and authority which will undoubtedly lead to the development of hostile feelings; these may eventually be consummated in further aggressive acts, in part as revenge for the treatment received while incarcerated. He also comments about the general tendency in various penal institutions to grant the inmates privileges, such as free tobacco, commissary privileges, payment of small wages for services rendered, visiting and writing privileges, radio, sports, and schooling, which are not in themselves a rehabilitation program, as some prison administrators seem to think. Reckless suggests that these things are good, but are simply pressure-reducing devices, and that actually, a program is needed to reconstruct the habits, points of view, and attitudes of the inmates if rehabilitation is to take place.

Several observational studies have been conducted on prisoners of war. They are not strictly applicable to the present problem, since the individuals studied were prisoners of war and the prisons in which they were confined were chiefly a means of detention, rather than of rehabilitation. Nonetheless, these studies will be described very briefly.

Jacobson (11) describes the psychiatric effects of imprisonment on female political prisoners in Nazi Germany.

She was herself a prisoner during the two-year period in which she made her observations, and accordingly, was quite restricted in regard to the extent of her work. She noted an increase in anxiety, a repression of libidinal urges, a regression to pleasanter periods of the individual's life, and an increased interest in literature and other forms of creative work.

Cazeneuve (3), who also was a prisoner of war during World War II, reports his observations of the effects of captivity. He indicates that at first, prisoners are quite dejected and have feelings of depersonalization, but that eventually, new habits and interests geared to prison camp life are evolved that fit in to make a more comfortable adjustment to prison life. He also observed that the men spent considerable time doting on memories, generally of a pleasant nature and also, contemplating their future lives upon release from the prison camps.

Arntzen (1), a German psychologist who was a prisoner of war interned in a Canadian prison camp, observed the reactions of the ten to twelve thousand men in this camp over a two-year period of time. They were between 18 and 60 years old, and most of them had been imprisoned four to five years. He concludes that no abnormal mental reactions took place which might be attributed to the type of

confinement afforded by this prison camp. He noted that the inmates tended to pick up rumors quite easily and believe them, and also, that frequently, when there was a break in the routine, for example if mail delivery was late or tobacco was limited or curtailed, the men tended to act more depressed and were also more irritable.

Studies on Psychological Changes During Imprisonment

The preceding section covered some of the literature concerning observations of the possible effects of incarceration on personality. The present section reviews the few existing studies in this area.

In 1952, Ian Gordon Gill (8) conducted a study on the psychological effects of incarceration on ten inmates of the North Carolina prison system over a three-month period of time. These ten men were tested immediately upon commitment to prison with a test battery composed of the following: the Wechsler-Bellevue Intelligence Scale, the Rorschach Test, the Thematic Apperception Test, and the Minnesota Multiphasic Personality Inventory. Three months following commitment, the men were retested with the same battery of tests. Gill's sample of subjects consisted of nine white inmates and one Negro, who ranged in age from 16 years and 1 month to 19 years and 10 months at the time of commitment. Range in educational level was from fifth

grade to high school graduation. The types of crimes committed by the subjects ranged from "Breaking and Entering" to "Assault with a Deadly Weapon with Intent to Kill." Sentences to be served by the subjects ranged from 1 to 13 years. Eight of the subjects had records of prior arrest, and had either served short sentences in road camps or in training schools for delinquents, or had been placed on probation.

Interestingly enough, Gill reports that of all the tests he used, particularly the personality tests, the MMPI was apparently the most sensitive to the elicitation of changes in psychological adjustment. By and large, the changes on the Rorschach and the Thematic Apperception tests were negligible.

The conclusions he draws from his studies are, as follows:

1) Measurable psychological changes occur during the first three months of imprisonment, which appears to affect the intellectual and over-all functioning of the first offender.

2) Depression appears immediately following commitment, accompanied by constriction and reduced intellectual efficiency; these effects of imprisonment would tend to

make psychological testing for classification purposes unreliable.

3) The depression gradually diminishes during the ensuing months and is supplanted by feelings of dissatisfaction, boredom, and self-pity, which feelings are likely to heighten tendencies toward an unwholesome mode of thinking.

4) "The prison environment appears to foster, in the first offender, tendencies toward sluggishness and apathy, rationalization and self-pity, atypical and anti-social thinking, and an increased indulgence in fantasy as a substitute for active pursuits." (8:53)

5) "Personality disturbances present on commitment are prone to exaggeration under the stress conditions of prison life." (8:53)

Harrison Gough and Grant Mann (9) conducted a study (unpublished) at a military rehabilitation center where military offenders are under treatment. Thirty-four military offenders were administered the MMPI upon their reception at this installation, and three months later, at the completion of the treatment program, the test was readministered. Because of the small size of the sample, the unsystematic nature of sample selection, and the lack of a control group, the authors do not consider the present

study an evaluation of the therapeutical effectiveness of the rehabilitation program, but present the data primarily because of its possible interest for psychologists working in similar installations.

The initial group profile is described as being generally of the psychopathic type (elevated Pd and Ma Scales) with a somewhat greater elevation on the neurotic scales than is normal. Retesting revealed a considerable drop in over-all elevation of all the scales, but a persistence of pattern. They found statistically significant changes on five of the clinical scales; the largest drop was on the depression scale, and averaged 10.09 T-scale units.

They also applied Welsh's anxiety index and internalization ration, and found a non-significant drop in the former and a significant drop in the latter, which finding is interpreted by them as an increased tendency toward acting-out behavior of an impulsive and uncontrolled nature.

The authors interpret the study as follows:

> The general conclusions which appear to be justified by the present data are first, that the MMPI diagnostic conventions for the behavior disorder profile are substantiated, and second, that the rehabilitation program is related to MMPI profile changes suggestive of loss of tension and anxiety, improved sense of well-being, and a greater tendency to externalize and act out emotional stress. (9:4)

Concluding Statement

The general conclusion to be drawn from a review of the literature is that there is agreement that imprisonment is not yielding the anticipated results, but all too frequently, the opposite effects. This conclusion, however, is based on very little scientific evidence. Clemmer has aptly summarized this situation in the following statement:

> No scientific evidence exists to show in what precise manner or to what degree the influences of the prison culture mold the lives of those subjected to its culture. (6:319)

This statement would appear to be almost as appropriate today as it was seven years ago.

CHAPTER III

METHODOLOGY AND PROCEDURES

Site of the Study

Because this study is concerned with changes that take place in men during a period of incarceration in a penal institution, description of the prison environment and some of the activities the men might engage in appears essential. It is hoped that from this description the reader can develop a "feel" for the prison environment.

This study was conducted at the State Prison of Southern Michigan, located at Jackson. It is the largest prison within the Michigan Department of Corrections, and contains within its walls almost one-half of the prison population of the state. The average number of men confined inside the walls is 4,300; an additional 1,650 men are maintained in the Trusty Division of the prison under medium custody conditions. The remainder of the state's penal population is maintained at the following penal institutions: the Marquette Prison Branch, the Michigan Reformatory, the Youth Division, which maintains two camps, and the Camp Program proper, which accommodates nearly 1,000 men in various camps scattered throughout the state.

At the State Prison of Southern Michigan, there are

four major divisions controlling the inmate population. The largest number of men is confined within the walls of the institution proper under maximum custody supervision. The Trusty Division controls all men who live outside the walls of the institution, either in regular cell blocks or in barracks on the various prison farms close to the institution. The third division of the prison is the Michigan Parole Camp, where men about to be released on parole are housed in dormatories under minimum custody conditions. The fourth and final division of the prison is the Reception-Diagnostic Center which became operative in February of 1956. All men who are sentenced to prison are received at the Reception-Diagnostic Center for processing, except those sentenced in the Upper Peninsula of the state, who are received at the Marquette Prison Branch.

The Reception-Diagnostic Center is housed in a former cell block of the prison proper. Although the cell block is physically related to other cell blocks of the prison, alterations in construction have sealed the building off from the rest of the institution. The regular prison cell blocks contain five tiers of cells facing each other, though separated by a wide expanse of open space. A railing serves as a guard on each tier. The various galleries are accessible by staircases located at each end of the cell blocks. The Reception-Diagnostic Center block has, in

addition to the iron railings, a heavy, one-inch, wire mesh from floor to ceiling which completely encloses each tier. This wire guard was put in place primarily to prevent any man from committing suicide by jumping off any of the galleries. The Reception-Diagnostic Center cell block is also different from other cell blocks by having small offices and several large rooms, which are used by the professional staff of the Reception-Diagnostic Center during their processing of the newly arrived inmates. This cell block also differs from other cell blocks in that part of the floor space at one end of the building is used as a dining room. All men in the Reception-Diagnostic Center eat, sleep, and carry on all other activities within this single cell block.

Each new prisoner, as he enters the Center, is "dressed in." His personal clothing and other personal belongings which he had when he first entered prison are replaced with prison-issue items and clothing. He takes a shower, is given a hair cut if this is indicated, is finger printed and photographed, is assigned a five-digit number which for all practical purposes replaces his name during his confinement and, finally, is assigned to a cell. All men incarcerated at this institution are assigned individual cells. Each cell measures 10 by 6 feet, with a 7½-foot ceiling. Each cell contains a washbasin, a toilet stool, an iron cot and bedding, an iron locker in which he may store some

personal effects, and a set of earphones through which he may listen to one of the radio stations.

Processing at the Reception-Diagnostic Center takes about thirty days. The first week of processing is rather hectic for a newly arrived prisoner. During this time, he undergoes a physical examination, receives various inoculations, and is rendered whatever medical services are indicated. The man also undergoes a battery of psychological tests, generally administered in group form. The men are also seen individually by counselors, who obtain a complete social history and gather together all the pertinent data about the man into one main record folder, which will follow him through his institutional life. If it seems indicated, a man may be referred to the Center psychiatrist for evaluation and/or treatment. During this time, the men are also required to attend a series of orientation lectures given by various institutional personnel, who describe the activities of the institution, and what facilities are available; the inmates are also given an indication of what is expected from them.

The remaining three to four weeks a man spends in the Reception-Diagnostic Center are relatively idle. Most of his time is spent alone in his cell reading books and magazines which are made available, or perhaps listening to the radio through earphones. A few men are kept busy doing

house-cleaning chores about the cell block. In good weather, the men are permitted to exercise in an outdoor yard for a few hours a day. In general, a man's first experience with prison life after the initial processing is not stimulating and, basically, involves a very sterile existence with little to do except think about the past and worry about the future.

Occasionally, disciplinary measures are taken when a man does not abide by the prison rules as outlined in a handbook he receives during his first day at the institution. The Reception-Diagnostic Center maintains its own disciplinary board before which an inmate appears for an infraction of the rules. A sentence is meted out, usually a loss of privileges; for example, a man may lose his earphones for a specified period of time, if he has been found guilty of an infraction of the rules.

Since only men who were transferred from the Reception-Diagnostic Center to the State Prison of Southern Michigan were considered in this study, only this institution will be described.

The State Prison of Southern Michigan was chosen as the site of this study primarily because the writer has been employed at the institution for the past three years and is quite familiar with it, in terms of the inmate

population as well as the prison program. At this institution, there is also a rather heterogenous group of men serving sentences for a wide variety of offenses.

The State Prison of Southern Michigan is big. Ten cell blocks, each approximately 350 feet long and 5 stories high, form the front wall of the prison and part of the two side walls. A 34-foot-high, steel-reinforced, concrete wall completes the enclosure of the prison yard, which approximates an area of 57 acres.

The institution has been described as a self-contained city (12) and indeed it is. Within the walls, there is a power plant which provides all the electricity, hot water, and steam used within the institution. A tour of the institution would disclose the presence of various types of factories, notably a metal stamping plant where license plates for the State of Michigan are produced, as well as other sheet metal products, such as metal lockers and cabinets. In addition to the stamp plant, there is a cannery where various fruits and vegetables, which are grown on prison farms, are processed and canned and, later, used at the institution. A shoe factory manufactures all the shoes worn by the inmates at all of the penal institutions in the state. A textile plant is in operation the year around. There the raw fiber is woven into material which, in turn, is later sent to the tailor shop and made into blue denim

trousers and jackets, and other items of clothing, worn by the prison inmates. In addition to the various prison industries, one also finds the institution laundry, general maintenance shops, and the main institution kitchen where all the food is prepared.

Within the walls, there is also a fully equipped hospital with a staff of four full-time physicians and two dentists who care for the physical needs of the men incarcerated at this prison. Representatives from the three major religious groups are also in attendance at the institution; they hold regular religious services, and frequently see many of the inmates in private consultations. Any time an inmate requests to see a member of the clergy, he is permitted to do so. In addition to the aforementioned industries, which offer employment to some of the inmates, there are other facilities which offer recreational opportunities. A gymnasium offers opportunities for physical recreation, and in good weather, intramural activities are maintained in the recreation yard, where softball, football, and other outdoor sports activities can be carried on. Motion pictures are shown to the general prison population on the weekends and, on occasion, a stage production by inmate showmen, or perhaps by outside talent, is featured. A music department is maintained, which gives some of the men an opportunity to learn to play musical instruments and gives

those who already have obtained some proficiency in this area an opportunity to continue to practice and develop their skills.

There are also educational opportunities at the institution to acquire various vocational skills at the vocational school, and academic education in the academic school. The academic school maintains a curriculum starting with the first grade and going through a complete course of study at the high school level. Also available are courses in commercial high school subjects, such as bookkeeping, accounting, and business machine operation. In addition to these general courses offered in the academic school, there is also a series of cell study courses, wherein a man does not attend classes regularly, but rather, studies in his cell and progresses in his studies at his own pace; he sees instructors in the academic school at regular intervals who note his progress and help him with any difficult problems he has encountered. Arrangements have also been made for men to take correspondence school courses, under the supervision of the academic school instructors.

The vocational school offers courses of study designed to equip a man with the necessary vocational skills which will enable him to secure employment at a skilled or semi-skilled level in such areas as arc welding, acetylene welding, carpentry, engineering drawing, machine shop, masonry,

sign painting, and typewriter repair.

For the man in the institution who, for one reason or another, is not employed in one of the various prison industries or does not aid in the maintenance of the institution proper, there are hobbycrafts. A hobbycraft shop is maintained at the institution, where a man can make use of various types of power tools, and is given the necessary instructions for the successful completion of a particular hobbycraft project. If his product is reasonably well made, and he wishes to sell it to the general public, it is put on display at the hobbycraft store located outside of the walls of the institution, where visitors to the institution have an opportunity to inspect the various hobbycraft products and purchase any they would like.

For the inmate who may be a chronic alcoholic and who may have committed his crime while under the influence of alcohol, a local Alcoholics Anonymous unit is maintained within the walls of the institution. Any inmate who wishes to enter this group may do so, and is permitted to attend the regular meetings of the group, which frequently feature outside community members of Alcoholics Anonymous.

As is common practice in many other penal institutions, the inmates are permitted to publish a weekly newspaper which contains institution news, editorials, book reviews, sports reviews, and general chit-chat.

Thus far, various facilities of the institution have been described, primarily to give the reader a feel for the institution as a whole, and also to permit him to visualize in what manner an inmate may spend his time. It would appear that an inmate could run from one activity to another at his own leisure; however, this is not the case, and in no large institution, particularly a penal institution, is this permitted. There must be some core of organization, and at this institution this organization stems from two major sources, primarily from the custodial department and secondly from the department of individual treatment. The custodial department's primary responsibility is maintaining custody and control over the inmate body; it is charged with seeing that a man remains in custody and does not have an opportunity to re-enter the free community at his own leisure. Custodial officers are in charge of the various cell blocks, maintain discipline in the blocks, and see that the various activities carried on in the institution are carried on in an orderly fashion. The custodial department is very much interested in maintaining a routine for the inmates. Through this means, a constant check is kept on the activities of all the men, and it makes the general operation of the prison considerably easier. When inmates deviate from the routine or violate institutional rules, a disciplinary board hears the cases and determines what punishment if any is indicated. Punishment may take the form

of loss of privileges for a specified length of time or detention in solitary confinement for anywhere from one to thirty days.

The department of individual treatment was created primarily to develop a rehabilitation program for each man incarcerated. The total inmate population is split up among ten institution counselors, and it is their responsibility to help the men assigned to them in whatever way possible. This may involve seeing that a man spends his time in prison profitably, perhaps in one of the industries or in one of the schools. The counselors also offer both group and individual counseling for a select number of men who appear most amenable to this type of treatment. Each inmate, as he is received at this institution, is met by his counselor, who, on the basis of the information available to him from the man's record-folder and his personal contacts with the inmate, recommends that the man appear before the classification committee. The counselor and the inmate work out a program which is deemed most practical for the inmate and the institution. The inmate next appears before the classification committee, which consists of his counselor, the director of classification, a representative from the custodial department, and perhaps some representatives from the various prison industries and other interested parties. The classification committee arrives at a decision with

reference to a particular inmate. The inmate is told what the program is, and, depending on the type of program, may within a matter of a few weeks or sometimes a few months find himself actively engaged in the program which has been set up for him. Any problems the inmate may encounter during his period of incarceration are generally handled by his counselor, except disciplinary problems. If the inmate wishes to change his program, he must first discuss it with his counselor, who can make the necessary changes. Most men sentenced to prison in Michigan receive a minimum and maximum sentence for the offense. By law, he cannot be released from prison any earlier than his minimum date; however, he could be released on "parole" status earlier than his maximum sentence release date. When a man is nearing the completion of his minimum sentence, his counselor writes a pre-parole report which, in essence, describes the inmate's background, his program in the institution, and what progress he has made toward rehabilitating himself; the counselor also makes whatever recommendations he feels are in order with respect to parole. Generally, when an inmate has completed his minimum sentence, he is given a hearing before members of the Parole Board, who determine if he should be released under a parole officer's supervision, or whether he should continue his term of imprisonment.

Experimental Design of the Study

The purpose of the present study is to determine what significant changes are apt to occur to a man experiencing his first year or less of incarceration in a penal institution, as measured by a psychological inventory. The study depends on the reliability and validity of the psychological instrument used; specifically, it assumes its sensitivity to changes in personality which develop through exposure to a particular type of environment. Because it was felt that the number of men used in the sample population would be relatively large, it was felt necessary to apply an instrument that could be used in a group setting. This consideration immediately eliminated many instruments that might otherwise have been used. The Minnesota Multiphasic Personality Inventory (MMPI) was chosen on several counts. First, it was noted that the MMPI was being administered routinely to all new arrivals at the Reception-Diagnostic Center as part of the psychological workup. Also, the MMPI had been used in prior research in the correctional field (8, 16). Lastly, a wealth of information about the test has been accumulated in the literature, much of it bearing on the crucial issues of reliability and validity (17).

The Minnesota Multiphasic Personality Inventory is a psychometric instrument designed to provide scores on all the more important phases of personality. This is achieved

by having the testee respond to a series of 566 questions with one of the following categories: "true," "false," and "cannot say." Since this test was administered in a group setting, the booklet rather than the card sorting form of the test was used. The subject records his responses on an IBM Answer Sheet which can then be scored through the use of stencils. Through this procedure, personality characteristics may be assessed on the basis of scores a subject attains on nine clinical scales, four validity scales, and one additional scale.

The current study was limited to the selection of a sample population of those men who entered the Reception-Diagnostic Center between February 1st, 1956, and January 31st, 1957. February, 1956, was chosen primarily because this is the first time that the MMPI was being given routinely to all newly arrived inmates at the Reception-Diagnostic Center.

The total sample was divided into twelve monthly groups; each group consists of all the available men who went through the Reception-Diagnostic Center during one of the months between February 1st, 1956, and January 31, 1957. Between February 26th and March 1st, all the men in the experimental sample were given the MMPI a second time. Thus, the sample contained men who had been in prison one month at the time of retesting and other men who had been

incarcerated a period of one year at that time, as well as men ranging between these two extreme groups in terms of length of incarceration. The February, 1956 group had been in prison more than 12 but less than 13 months at the time of retesting, the March, 1956 group more than 11 but less than 12 months, and so on, to the January, 1957 group, who had been in more than one month but less than two months.

A brief description of the MMPI scales as reported in the manual (10) is as follows:

? -- Question Scale. A validating scale consisting simply of the total number of items put in the "cannot say" category. The size of this score affects the significance of all other scores; a large number of "cannot say" answers invalidates all others.

L -- Lie score. A measure of the degree to which the subject may be attempting to falsify his scores by always choosing the response that places him in the most acceptable light socially.

F -- Validity score. Not a personality scale but a check on the validity of the record. Usually indicates that the subject was careless or unable to comprehend the items. Occasionally indicates a highly individual and independent person or a person who is rather badly neurotic or psychotic.

K -- Correction score. Also not a personality scale. Essentially a correction factor which has been found to be of value in sharpening the discriminatory power of the clinical variables now measured by the inventory.

Hs - The Hypochondriasis Scale. Measures the amount of concern about bodily functions. It is characteristic of the hypochondriac that he is immature in his approach to adult problems, tending to fail to respond with adequate insight.

D -- The Depression Scale. Measures the depth of the clinically recognized symptom, depression. A high score suggests a characteristic personality background, in that the person who reacts to stress with depression is characterized by lack of self-confidence, tendency to worry, narrowness of interests, and introversion.

Hy - The Hysteria Scale. Measures the degree to which the subject is like patients who have developed conversion-type hysteria symptoms.

Pd - The Psychopathic Deviate Scale. Measures the similarity of the subject to a group of persons whose main difficulty lies in their absence of deep emotional response and their disregard of social mores. Although sometimes dangerous to themselves or others, these persons are commonly likable and intelligent. Except by the use of an objective instrument of this sort, their trend toward the abnormal is

frequently not detected until they are in serious trouble. They may often go on behaving like perfectly normal people for several years between one outbreak and another. Their most frequent digressions from the social mores are lying, stealing, alcohol or drug addiction, and sexual immorality. They may have short periods of true psychopathic excitement or depression following the discovery of a series of their asocial or antisocial deeds.

Mf - The Interest Scale. Measures the tendency toward masculinity or femininity of interest pattern. A high score indicates a deviation of the basic interest pattern in the direction of the opposite sex.

Pt - The Psychasthenia Scale. Measures the tendency toward phobias or compulsive behavior. The compulsive behavior may be either explicit, as expressed by excessive handwashing, vacillation, or other ineffectual activity, or implicit, as in the inability to escape useless thinking or obsessive ideas. The phobias include all types of unreasonable fear of things or situations, as well as overreaction to more reasonable stimuli.

Pa - The Paranoia Scale. Measures the tendency toward suspiciousness, over-sensitivity, and delusions of persecution, with or without expansive egotism.

Sc - The Schizophrenia Scale. Measures the tendency toward bizarre and unusual thoughts or behavior. There is a splitting of the subjective life of the schizophrenic person from reality, so that the observer cannot follow rationally the shifts in mood or behavior.

Ma - The Hypomania Scale. Measures the personality factor characteristic of persons with marked overproductivity in thought and action. The word "hypomania" refers to a lesser state of mania. Although the real manic patient is the lay person's prototype for the "insane," the hypomanic person seems justslightly off normal. The hypomanic patient has usually gotten into trouble because of undertaking too many things. He is active and enthusiastic. Contrary to common expectations, he may also be somewhat depressed at times. His activities may interfere with other people through his attempts to reform social practice, his enthusiastic stirring up of projects in which he then may lose interest, or his disregard of social conventions. In the latter connection he may get into trouble with the law.

Si - The Social Interest Scale. Aims to measure the tendency to withdraw from social contact with others.

Method of Sampling

The Reception-Diagnostic Center at the State Prison of Southern Michigan formally began operating on February 1,

1956. One phase of the operations of the psychology section of the Reception-Diagnostic Center is the administration of the Minnesota Multiphasic Personality Inventory to all inmates entering the institution. The test is administered and scored by inmates trained and supervised by the civilian psychologists. To date, for the most part, the MMPI has been used as a screening device to ferret out those cases which may require a more thorough psychological evaluation, and also, to briefly describe a man's current psychological adjustment. For the purposes of this study, a select group of men were readministered the MMPI some time during their first year of incarceration within the walls of the institution. In this section will be described the method of selecting the men chosen for this study.

In February of 1957, a review of the intake log of the Reception-Diagnostic Center indicated that 4,086 men were processed between February 1, 1956 and January 13, 1957. This group of 4,086 consisted of a wide variety of individuals. Some were experiencing their first term of imprisonment, some had previously been incarcerated in other state or federal penal institutions, some were found to be "graduates" from boys' training schools where they were incarcerated as juveniles, and some had served sentences in military stockades. Within this group of admissions, one also finds men whose only previous experience has been probation one

or more times and/or one or more short jail sentences. Then again, some men may never have had any contact with the police at all.

For a basic research project of this nature, it did not appear feasible to investigate so heterogeneous a group of men, some of whom have experienced prolonged incarceration before and some who have not. With this variable in mind, the sample was narrowed down to those men who have not experienced confinement in prison before.

Of the total of 4,086 men, it was noted that 1,970 were described on their initial intake reports as being first prison offenders. At this phase of the investigation, it was noted that only 632 of the 1,970 men who had passed through the Reception-Diagnostic Center during this period of one year were still incarcerated within the walls of the State Prison of Southern Michigan. It was felt advisable to eliminate as many uncontrollable variables as possible from the study, and accordingly, it was decided that the group still residing at the State Prison of Southern Michigan would constitute the sample. By limiting the study in this fashion, it was felt that the men would be exposed to the same type of prison environment, and thus by and large have similar types of experiences during their period of incarceration. Had the sample been broadened to the total 1,970 men, there was the danger that the

environmental differences among various penal institutions, camps, and prison farms would have affected the results, perhaps in such a fashion that no valid conclusions could have been drawn from the data collected.

Having compiled a listing of 632 inmates who were reportedly first prison offenders and still incarcerated at the State Prison of Southern Michigan, it was next necessary to examine each man's record folder in detail, and ascertain his suitability for remaining part of the sample. This thorough evaluation of each man's record folder revealed that many men were not suitable candidates for the current study. It was discovered that, of the 632 men, 102 had actually at some previous time experienced a period of incarceration in a penal institution, either in another state's penal system, or perhaps in the federal penal system, or in juvenile detention institutions, or perhaps sometimes in the armed services.* Further review of the inmates' records revealed that 41 of the 632 had been transferred in from other penal installations within the state, and were accordingly disqualified for the current study

*It is surprising that of the men who were thought to be first prison offenders on admission to the Reception-Diagnostic Center, one-sixth, after considerable data had been gathered in terms of probation officers' reports, military service reports and Federal Bureau of Investigation arrest records, were discovered to have served previous prison sentences.

because of experience in another type of institution within the state. Ten men were deemed untestable, on the basis that they were confined in the institution hospital and were likely to remain there for a prolonged period of time. Most of the men in the hospital were afflicted with tuberculosis, and it was felt from a psychological standpoint that this factor would undoubtedly color their test results appreciably. Also within the group of ten untestables were several confined as patients in the psychiatric clinic in the institution because of mental aberrations, and consequently, they were rejected from the sample. Examinations of the records further indicated that 66 men were unable to take the initial MMPI in the Reception-Diagnostic Center primarily because of illiteracy and a few because of severe visual defects. At the time retesting took place a total of 87 men, some of whom might have been suitable candidates for the study, had remained beyond the 30-day period in the Reception-Diagnostic Center. It was felt that the environment in the Reception-Diagnostic Center is quite different from the general prison, and, accordingly, they were eliminated. Twenty-seven men had to be eliminated from the study because it appeared most likely that they would be transferred out of the institution to another penal installation, or perhaps even released on parole or discharged before they had completed one full year of service within the prison walls. A total of 57 men were eliminated from the study

primarily because of invalid scores on the Minnesota Multiphasic Personality Inventory. Fifty of the 57 presented invalid scores on the initial testing; the remaining seven had initially had valid profiles, but turned in invalid retest profiles. The invalidating criteria were as follows: A T-score greater than 70 on the "Question" scale, A T-score greater than 70 on the "L" scale, and a T-score greater than 80 on the "F" scale.

In all, careful scrutiny of the initial sample of 632 men reduced the final acceptable sample to 185. These 185 men, as far as could be determined, met the criteria of being first prison offenders, producing valid initial and retest MMPI profiles, and being likely to remain incarcerated within the walls of the institution for a minimum period of one year.

Testing Procedure

During the man's first week of incarceration in the Reception-Diagnostic Center, the Minnesota Multiphasic Personality Inventory is administered in group form as described in the test manual (10). The groups generally average 20-30 men, and take the test in a well-lighted quiet room, sitting in chairs with an armrest. The test is administered by inmates who have been especially trained for this task by the civilian psychologists in the

Reception-Diagnostic Center. The tests are also scored by the inmates, and the resultant profiles recorded.

For the purposes of this study, the retesting of the selected sample of men was conducted in as similar a fashion as possible as the initial testing. The men were again gathered in groups of 20-30, and the test was again administered in accordance with the procedure described in the manual by inmates who had received training and were experienced in the administration of this test. The area used, for testing was well lighted, well ventilated, and quiet, and accordingly, quite similar in these respects to the facilities available in the Reception-Diagnostic Center. The total time spent in retesting was four days, with morning and afternoon sessions each day, the men being permitted to take as long as they needed to complete the test. Since the total sample for this study is made up of twelve monthly groups, it was felt advisable that a number of men from each monthly group should be present at any one particular testing session, in the event that any unforeseen situation arose which, in some fashion, would tend to invalidate or affect the test results for that particular testing session. In this fashion, the total sample for any particular month would not have been lost, but only a proportionate sample for all twelve months.

Composition and Characteristics of the Sample

The 185 men in the sample were divided into 12 groups, on the basis of the number of months already spent in prison. The question arises whether these 12 groups are comparable with respect to such basic variables as age, race, intelligence, minimum sentence, and maximum sentence.

There would appear to be no reason why the 185 first offenders of the present sample should resemble the prison population as a whole on these variables. Perhaps, first offenders are younger and brighter than a random sample of the total population would be, and it was, in fact, because the first offender was presumed to be in some ways "unique" that so much effort was given to achieving "purity" of sample. Whether the 12 groups are comparable, however, is an important question, and evidence will be presented in the next chapter to show that on their MMPI scores they are. The present section deals with the variables mentioned above.

Race. The sample of 185 men included 100 Caucasians, 81 Negroes, 3 Mexicans (possibly part Indian), and 1 Japanese. Table I presents the distribution of men of Caucasian and "minority" races in the 12 monthly groups, and shows that there is no statistically significant difference in race distribution among them.

TABLE I

RACE DISTRIBUTION IN THE 12 STAGGERED GROUPS SELECTED IN TERMS OF TIME OF INITIAL INCARCERATION

	Months of Imprisonment												
Race	1	2	3	4	5	6	7	8	9	10	11	12	Sum
C #	10	10	12	9	6	8	8	4	10	8	4	11	100
M ##	8	4	7	13	5	8	7	13	5	6	6	3	85
Sum	18	14	19	22	11	16	15	17	15	14	10	14	185

Chi-square= 13.54 ###

\# Caucasian

\## Minority (Negro, Mexican, Japanese)

If a statistic indicates that the results are significantly different from chance at between the 5% and 1% levels of confidence, it is followed by a single asterisk (*); if the 1% level is reached, a double asterisk (**) is used. This system of notation will be used for almost all tabular data presented. A special footnote of explanation is included whenever a different system is used. The chi-square in this table is 13.54, which is not significant; it is therefore not followed by an asterisk.

The twelve monthly groups were also compared in terms of distribution of I.Q. scores. As part of the battery of psychological tests administered to each man at the Reception-Diagnostic Center, one of four measures of intelligence is used: The Revised Army Alpha, the Army General Classification Test, the Wechsler-Bellevue Intelligence

Scale, Form I, and the California Mental Maturity Test.

Frequently, when time is at a premium, only the verbal scale of the Wechsler-Bellevue is administered. The Army Alpha and the Army General Classification tests are used alternately, although many more Army General Classification tests are administered than are Army Alpha tests. The reason for the alternation in use of these two tests is to guard against the effects of possible coaching of new inmates by men who had taken the test a week or two before. The California Mental Maturity Test is used mainly for testing illiterates, while the Wechsler-Bellevue, Form I, is used whenever an individual test seems indicated.

Because such different instruments were used, it was not possible to do an analysis of variance on intelligence for the 12 groups. Instead, chi-square was used, splitting the sample into "higher" and "lower" I.Q.'s, the cut-off point being an I.Q. of 93.5. The chi-square was found to equal 6.42 which, with 11 df, is not significant at the 5% level. It therefore seems likely that there is no statistically significant difference in intelligence among the twelve groups.

Table II presents the data.

TABLE II

I.Q. DISTRIBUTION IN THE 12 STAGGERED GROUPS SELECTED IN TERMS OF TIME OF INITIAL INCARCERATION

	Months of Imprisonment												
I.Q.	1	2	3	4	5	6	7	8	9	10	11	12	Sum
93 or below	11	9	10	9	6	6	7	7	8	6	3	7	89
94 or above	7	5	9	13	5	10	8	10	7	8	7	7	96
Sum	18	14	19	22	11	16	15	17	15	14	10	14	185

Chi-square= 6.42

A related background variable is average grade reading level. Because the Primary, Intermediate, and Advanced levels of the Stanford Achievement Test were used, it was again not possible to do an analysis of variance. Instead, the sample was split into a "low" group, consisting of those taking the Primary form and those scoring up to and including 7.9 on the Intermediate form, and a "high" group, consisting of those scoring 8.0 or more on the Intermediate form and those taking the Advanced form. Table III shows the distribution of the reading levels for 184 men; one man had no score available. Again, chi-square is not significant.

TABLE III

READING LEVEL DISTRIBUTION IN THE 12 STAGGERED GROUPS SELECTED IN TERMS OF TIME OF INITIAL INCARCERATION

	Months of Imprisonment												
R.L.	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Low #	7	5	10	12	5	12	7	9	6	8	4	8	93
High ##	11	9	9	10	6	3	8	8	9	6	6	6	91
Sum	18	14	19	22	11	15	15	17	15	14	10	14	184

Chi-square= 16.31

\# Reading Level (R.L.) was measured by the Stanford Achievement Test. The "low" group contains those men taking the Primary form and those scoring up to and including 7.9 on the Intermediate form.

\## The "high" group contains men scoring 8.0 and above on the Intermediate form and also those taking the Advanced form.

One of the variables which did lend itself to analysis of variance was age, taken to the nearest year. Table IV gives the mean age for each group, and the summary of the statistical analysis.

TABLE IV

MEAN AGES AND ANALYSIS OF VARIANCE
FOR THE 12 STAGGERED GROUPS

	Months of Imprisonment						
	1	2	3	4	5	6	
Mean Age	33.61	37.14	38.21	31.50	29.36	36.88	
	7	8	9	10	11	12	Total
Mean Age	32.53	30.18	34.60	38.00	34.20	29.57	33.92

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	1722.551	11	156.596	2.07 *
Within	13085.233	173	75.637	
Total	14807.784	184		

It will be noted that the middle groups are somewhat younger than the others. Thus, the mean age for groups 1-4 is 34.99, and that for groups 9-12, 34.09; for groups 5-8, it is 32.44. In line with this is the data for minimum and, to some extent, maximum sentences; these variables might well be considered together and are presented in Tables V and VI. (The 6 lifers in the sample were arbitrarily considered 20-50-year men.)

TABLE V

MEAN MINIMUM PRISON SENTENCES AND ANALYSIS OF VARIANCE FOR THE 12 STAGGERED GROUPS

	Months of Imprisonment						
	1	2	3	4	5	6	
Mean Min. Sent.	5.78	5.23	6.87	6.09	2.91	5.38	
	7	8	9	10	11	12	Total
Mean Min. Sent.	3.43	6.18	5.31	4.32	8.00	8.43	5.78

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	1103.757	11	100.342	4.818 **
Within	3603.324	173	20.828	
Total	4707.081	184		

TABLE VI

MEAN MAXIMUM PRISON SENTENCES AND ANALYSIS OF VARIANCE FOR THE 12 STAGGERED GROUPS

	Months of Imprisonment						
	1	2	3	4	5	6	
Mean Max. Sent.	15.22	14.36	15.68	15.77	10.46	12.31	
	7	8	9	10	11	12	Total
Mean Max. Sent.	10.00	19.41	14.37	12.29	19.90	17.54	14.38

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	1511.504	11	137.409	1.346
Within	17661.801	173	102.091	
Total	19173.305	184		

The F for the minimum sentences is significant, while that for the maximum sentences is not. For both, however, the middle months are again low, as was the case for the age variable. The mean minimum sentence for months 1-4 is 6.24, for months 9-12, 6.38; for the middle months it is 4.65. The figures for maximum sentences are 15.34, 15.73, and 13.42, respectively.

The above data suggest that the 5-8 months groups, who entered the prison between June and September, 1956, are somewhat younger and, presumably, committed somewhat less severe crimes than the other men in the sample. Whether this occurs every year during the summer months, or whether some obscure factor is involved, is not clear, and the writer cannot explain the above figures; however, the obtained differences do not appear to have influenced the MMPI scores, as the next chapter shows.

CHAPTER IV

ANALYSIS OF THE DATA

Initial Test Findings

Since this study deals with changes in test scores as a reflection of change in personality adjustment in 185 first prison offenders, it seems desirable to present the initial test findings first, to introduce this sample of men.

Presented in the first two columns of Table VII are the means and standard deviations of these 185 men on the 13 scales of the MMPI.# Plotting the obtained mean scores for the total sample of 185 men on the profile analysis blank for the MMPI shows that seven of the clinical scales have mean T-scores between 50 and 60. Two means are between 60 and 70, while the psychopathic deviate mean is just over 70. The most elevated scales are the psychopathic deviate and depression. These results are presented graphically in figure one.

#All the statistics in this study were computed using raw scores rather than T-scores, unless otherwise stated.

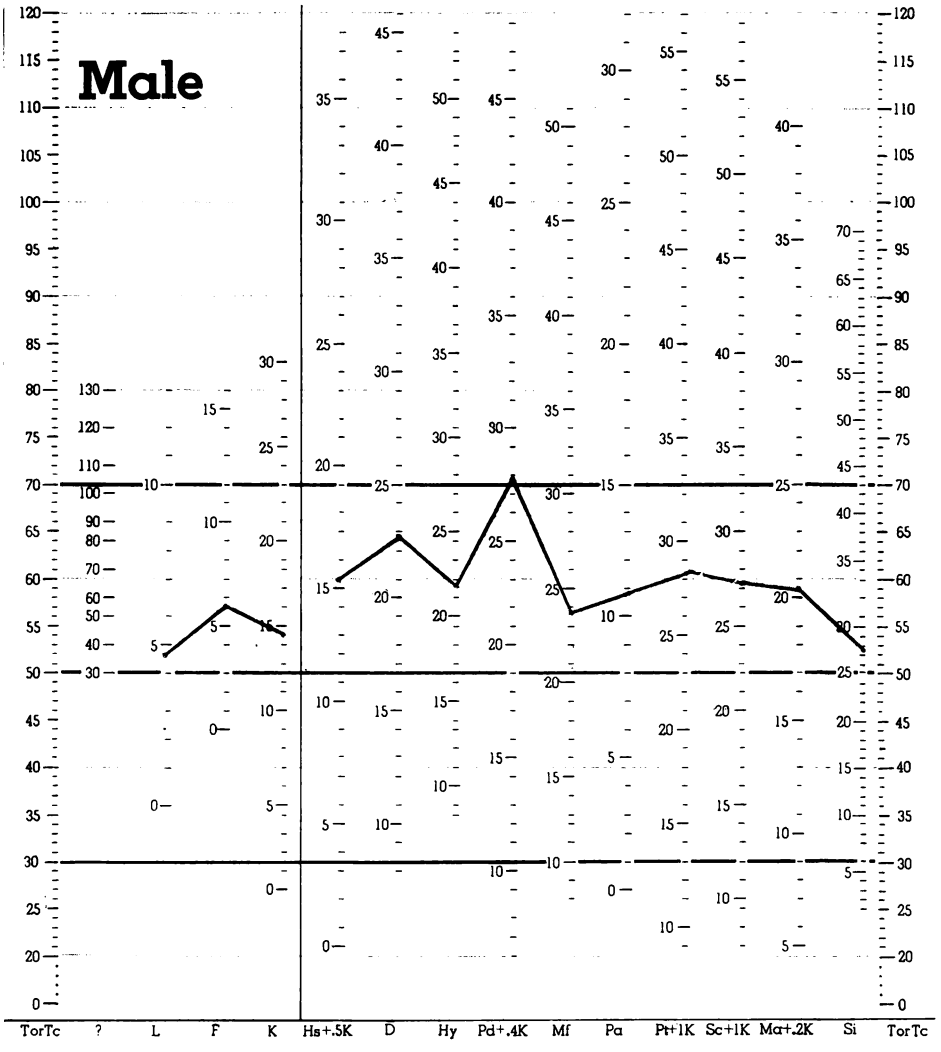
TABLE VII

COMPARISON BETWEEN INITIAL MMPI SCORES OF THE TOTAL STUDY SAMPLE AND MEAN INITIAL MMPI SCORES OF A RANDOM PRISON SAMPLE

	Total Study Sample#		Random Prison Sample##				
Scale	Mean	S.D.	Mean	S.D.	Mean Difference	S.E. of the difference	t
L	4.54	2.30	3.99	2.34	.55	.305	1.80
F	5.71	3.20	6.10	3.17	-.39	.395	.99
K	14.84	4.38	13.80	4.67	1.04	.569	1.83
Hs	15.23	5.10	13.39	5.00	1.84	.628	2.93**
D	22.69	5.15	22.04	5.07	.65	.636	1.02
Hy	21.83	5.20	20.98	5.63	.85	.684	1.24
Pd	27.60	4.43	30.44	4.40	-2.85	.554	5.14**
Mf	23.94	4.54	23.72	3.90	.12	.356	----
Pa	10.94	3.55	10.99	3.29	-.05	.419	----
Pt	28.11	5.73	28.10	4.73	.01	.636	----
Sc	27.34	6.46	27.01	5.80	.33	.753	----
Ma	20.37	4.42	21.37	4.08	-1.00	.524	1.91
Si	27.81	8.40	26.85	7.74	.96	.994	----

N = 185 for all scales except L, when N = 182

N = 100



4.54 14.84 22.69 27.60 10.94 27.34 27.81
5.71 15.23 21.83 23.94 28.11 20.37

Mean Raw Scores

FIGURE 1

THE MEAN INITIAL MMPI PROFILE FOR THE TOTAL SAMPLE

Comparison of Study Sample with a Random Sample of Prison Inmates

A great deal of attention had been given to sampling procedures in the present study, on the assumption that first prison offenders differed from the general prison population. Do they? Is the sample of 185 men different from a random sample of prison inmates?

Data were gathered on one-hundred men who were admitted to the Reception-Diagnostic Center during the months of February and March of 1956. This sample of one-hundred was composed of 50 white and 50 Negro offenders. Every tenth Negro and every tenth white inmate admitted were included in the sample until a total of 100 men was obtained. This group may be considered a random sample of prison inmates, some of whom have had considerable contact with penal institutions and others of whom have had little or no contact at all. In the third and fourth columns of Table VII are presented the means and standard deviations for this random sample of 100 prisoners.

When studying the obtained means one is immediately struck by the elevated Pd scale. Statistical analysis of the differences between the study sample and the general prison population sample is presented in the last three columns of Table VII. Mean differences were obtained by subtracting the random sample mean from the study sample

means; if the mean for the random sample was the larger one, the difference is negative.

The results obtained indicate that first prison offenders do indeed tend to score significantly lower on the Pd scale and almost significantly lower (6% level) on the Ma scale. First prison offenders also score significantly higher on the Hs scale, as a group, than do general prisoners. It may also be noted that the L and K scales show a tendency to be higher with first prison offenders; these findings approach significance at the seven per cent level. None of the other differences between the two groups approach significance.

Retest Findings

Table VII presented the initial test scores obtained by the men on admission to prison. In Table VIII the data obtained on retesting is presented. Means and standard deviations on each of the scales are presented.

TABLE VIII

MEAN RETEST SCORES AND STANDARD DEVIATIONS ON THE MMPI SCALES FOR THE TOTAL SAMPLE OF FIRST PRISON OFFENDERS#

Scale	Mean	S.D.
L	5.28	2.38
F	4.29	2.89
K	17.62	4.79
Hs	14.63	4.53
D	20.92	4.75
Hy	21.85	5.66
Pd	27.29	4.24
Mf	23.17	4.23
Pa	10.25	2.93
Pt	27.09	4.89
Sc	26.47	5.41
Ma	19.56	4.21
Si	25.81	8.58

N = 185 for all scales

This table suggests that considerable changes have occurred between the initial and the second test. For each man, a change score was obtained for each scale; in each case, the initial test score was subtracted from the retest score, so that a change score might be either a positive number or a negative number or zero. Mean change scores were then computed, as were standard deviations, standard errors, and t's. In Table IX these results are presented, which show that nine of the thirteen MMPI scales did change significantly, while the changes on two other scales approached significance.

TABLE IX

MEAN DIFFERENCES BETWEEN INITIAL AND RETEST SCORES ON THE MMPI SCALES FOR THE TOTAL SAMPLE OF FIRST PRISON OFFENDERS#

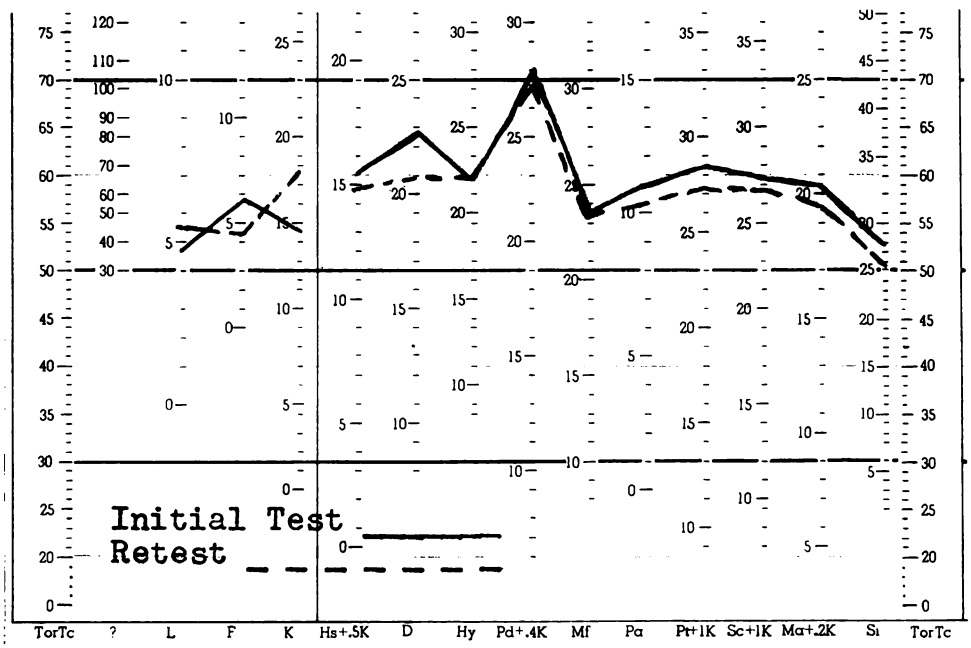
Scale	Mean Difference##	S.D.	S.E. of the difference	t
L	+.692	2.15	.158	4.38**
F	-1.422	2.78	.205	6.94**
K	+2.778	4.12	.304	9.14**
Hs	-.599	4.36	.321	1.87
D	-1.768	4.56	.336	5.26**
Hy	+.124	5.07	.374	----
Pd	-.303	4.54	.335	----
Mf	-.773	3.88	.286	2.70**
Pa	-.686	3.65	.269	2.55**
Pt	-1.016	5.67	.418	2.43*
Sc	-.870	6.54	.482	1.81
Ma	-.811	3.94	.290	2.80**
Si	-2.000	5.47	.403	4.96**

N = 185 for all scales except L, when N = 182.

Differences were obtained by subtracting initial scores from retest scores.

As far as the validity scales are concerned, the L and K scales increased significantly while the F scale decreased significantly. In other words, mean L and K scores went up after incarceration, while the mean F score went down. Of the clinical scales only the Hy and Pd scales showed changes which do not even approach significance; the other clinical scales all showed mean decreases. For the Sc scale the decrease approaches significance at the seven per cent level, for Hs at the six per cent level; for the other scales it is

significant at the five per cent level or less. This means that mean scale scores were higher on the initial test than on the retest; in other words, mean scores went down after incarceration. In Figure 2 are presented in graphic form the results of the retest. Initial test scores are included to facilitate comparison.



Initial	4.54	14.84	22.69	27.60	10.94	27.34	27.81
	5.71	15.23	21.83	23.94	28.11	20.37	
Retest	5.28	17.62	20.92	27.29	10.25	26.47	25.81
	4.29	14.63	21.85	23.17	27.09	19.56	

MMPI Raw Scores

FIGURE 2

COMPARISON OF THE MEAN INITIAL TEST MMPI PROFILE WITH THE MEAN RETEST PROFILE FOR THE TOTAL SAMPLE

Comparability of the Twelve Groups with Respect to MMPI Data

In the preceding section, it was demonstrated that significant changes occurred between the initial test and the retest. The study was designed to facilitate the determination of whether different time intervals in prison are related to different personality changes. It was for this reason that the total sample was divided into twelve groups, each group representing a different period of incarceration. Before one can proceed, then, one must first ascertain whether or not the twelve monthly groups were comparable initially as far as MMPI scores are concerned. In Table X are presented the means, standard deviations, and F's (analysis of variance) for the thirteen scales.

TABLE X

MEANS, STANDARD DEVIATIONS, AND ANALYSIS OF VARIANCE FOR EACH OF THE MMPI SCALES ON THE INITIAL TEST FOR THE TWELVE SELECTED GROUPS

TABLE X-A. The L Scale

Months in Prison	N	Mean	S.D.
1	18	4.11	2.33
2	14	4.21	1.74
3	19	4.79	2.26
4	22	5.36	2.51
5	11	3.00	1.48
6	16	5.31	2.76
7	15	5.00	1.93
8	17	4.12	1.59
9	15	4.00	2.07
10	14	5.14	2.56
11	10	5.00	2.57
12	11	3.55	1.57
Total	182	4.54	2.30

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	85.204	11	7.745	1.505
Within	876.027	170	5.153	
Total	961.231	181		

TABLE X-B. The F Scale

Months in Prison	N	Mean	S.D.
1	18	6.55	3.34
2	14	4.14	2.30
3	19	6.05	3.36
4	22	5.49	3.14
5	11	5.55	2.34
6	16	6.06	3.63
7	15	5.93	3.71
8	17	4.99	2.28
9	15	7.39	2.82
10	14	5.14	3.46
11	10	4.20	3.12
12	14	6.21	1.74
Total	185	5.71	3.20

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	135.763	11	12.3420	1.22
Within	1752.475	173	10.1299	
Total	1888.238	184		

TABLE X-C. The K Scale

Months in Prison	N	Mean	S.D.
1	18	13.28	4.49
2	14	16.33	4.47
3	19	15.37	4.58
4	22	16.81	3.49
5	11	13.64	4.12
6	16	15.19	3.64
7	15	14.60	5.00
8	17	14.18	4.30
9	15	12.60	3.72
10	14	16.36	3.15
11	10	15.30	5.12
12	14	14.21	4.21
Total	185	14.84	4.38

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	289.148	11	26.2861	1.39
Within	3255.987	173	18.8207	
Total	3545.135	184		

TABLE X-D. The Hs Scale

Months in Prison	N	Mean	S.D.
1	18	15.61	4.14
2	14	14.85	5.15
3	19	17.11	3.63
4	22	16.27	5.61
5	11	12.91	5.00
6	16	14.31	5.50
7	15	14.89	3.38
8	17	14.35	5.20
9	15	14.79	5.13
10	14	17.78	5.95
11	10	12.80	4.92
12	14	15.07	4.77
Total	185	15.23	5.10

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	340.435	11	30.9486	1.19
Within	4462.570	173	25.7950	
Total	4803.005	184		

TABLE X-E. The D Scale

Months in Prison	N	Mean	S.D.
1	18	22.17	6.20
2	14	21.57	3.16
3	19	22.99	4.75
4	22	24.05	5.00
5	11	23.73	5.24
6	16	24.63	5.54
7	15	22.27	6.08
8	17	21.41	3.70
9	15	23.59	5.50
10	14	24.14	4.58
11	10	19.90	2.51
12	14	20.43	5.00
Total	185	22.69	5.15

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	358.305	11	32.5731	1.24
Within	4551.511	173	26.3093	
Total	4909.816	184		

TABLE X-F. The Hy Scale

Months in Prison	N	Mean	S.D.
1	18	22.61	5.23
2	14	22.14	5.01
3	19	22.99	4.39
4	22	22.77	5.04
5	11	20.27	4.47
6	16	21.00	6.08
7	15	21.67	5.24
8	17	20.65	6.01
9	15	21.93	4.81
10	14	22.43	5.16
11	10	20.90	5.17
12	14	21.21	4.33
Total	185	21.83	5.20

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	138.931	11	12.6300	0.45
Within	4854.874	173	28.0628	
Total	4993.805	184		

TABLE X-G. The Pd Scale

Months in Prison	N	Mean	S.D.
1	18	27.22	4.20
2	14	25.99	4.14
3	19	28.05	4.16
4	22	28.36	4.31
5	11	30.36	5.65
6	16	26.13	4.70
7	15	28.13	3.18
8	17	26.88	3.92
9	15	28.33	3.96
10	14	27.21	4.06
11	10	26.60	5.22
12	14	27.93	4.45
Total	185	27.60	4.43

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	208.623	11	18.9657	0.96
Within	3427.972	173	19.8148	
Total	3636.595	184		

TABLE X-H. The Mf Scale

Months in Prison	N	Mean	S.D.
1	18	24.78	4.47
2	14	22.64	3.99
3	19	23.21	5.02
4	22	24.73	3.76
5	11	23.09	4.10
6	16	23.31	3.16
7	15	26.79	6.32
8	17	23.41	4.79
9	15	24.59	4.47
10	14	23.07	3.61
11	10	25.00	4.60
12	14	22.28	3.22
Total	185	23.94	4.54

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	268.248	11	24.3861	1.190
Within	3544.098	173	20.4861	
Total	3812.346	184		

TABLE X-I. The Pa Scale

Months in Prison	N	Mean	S.D.
1	18	11.33	3.38
2	14	9.21	1.78
3	19	11.32	3.95
4	22	11.09	4.00
5	11	10.82	3.21
6	16	10.50	2.57
7	15	11.53	3.81
8	17	9.65	3.27
9	15	12.47	3.93
10	14	11.43	2.97
11	10	10.90	3.18
12	14	10.86	4.14
Total	185	10.94	3.55

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	123.037	11	11.1851	0.87
Within	2213.309	173	12.7936	
Total	2336.346	184		

TABLE X-J. The Pt Scale

Months in Prison	N	Mean	S.D.
1	18	28.72	6.97
2	14	26.99	3.78
3	19	28.89	5.41
4	22	29.82	6.56
5	11	30.45	4.32
6	16	27.38	5.49
7	15	28.19	5.11
8	17	26.24	5.64
9	15	29.27	6.09
10	14	27.99	5.54
11	10	25.60	5.73
12	14	26.49	5.26
Total	185	28.11	5.73

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	168.394	11	15.3085	0.448
Within	5901.444	173	34.1124	
Total	6069.838	184		

TABLE X-K. The Sc Scale

Months in Prison	N	Mean	S.D.
1	18	27.11	5.65
2	14	24.99	5.11
3	19	28.58	5.99
4	22	28.36	7.46
5	11	27.27	5.14
6	16	26.38	6.00
7	15	28.27	5.73
8	17	25.99	5.41
9	15	29.07	7.66
10	14	28.99	6.92
11	10	25.80	7.78
12	14	25.99	6.26
Total	185	27.34	6.46

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	320.321	11	29.1200	0.680
Within	7406.901	173	42.8140	
Total	7727.222	184		

TABLE X-L. The Ma Scale

Months in Prison	N	Mean	S.D.
1	18	20.67	4.01
2	14	20.28	5.23
3	19	20.99	4.12
4	22	18.99	3.80
5	11	20.36	5.33
6	16	18.50	4.20
7	15	20.07	3.43
8	17	19.94	5.41
9	15	21.53	3.67
10	14	20.28	4.06
11	10	21.30	3.93
12	14	22.57	4.19
Total	185	20.37	4.42

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	207.867	11	18.8970	0.958
Within	3413.398	173	19.7306	
Total	3621.265	184		

TABLE X-M. The Si Scale

Months in Prison	N	Mean	S.D.
1	18	29.28	11.43
2	14	26.43	7.33
3	19	31.63	9.13
4	22	26.41	5.61
5	11	27.99	7.56
6	16	27.19	7.69
7	15	29.73	9.03
8	17	28.06	6.56
9	15	30.27	9.74
10	14	26.35	5.43
11	10	24.70	6.42
12	14	23.57	8.38
Total	185	27.81	8.40

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	917.609	11	83.4190	1.188
Within	12142.769	173	70.1894	
Total	13060.378	184		

Tables X-A through X-M show that none of the F's reach significance. This would seem to indicate that, for any given scale, variation among the months is no greater than would be expected by chance, and that the months are comparable on each of the 13 MMPI scales.

Retest Data for the Twelve Monthly Groups

Since the 12 samples are comparable as to initial MMPI scores, the retest scores and the change scores may be analyzed in like manner, again using the analysis of variance. Table XI presents means, standard deviations, and F's for all 13 scales.

TABLE XI

MEANS, STANDARD DEVIATIONS, AND ANALYSIS OF VARIANCE FOR EACH OF THE MMPI SCALES ON THE RETEST FOR THE TWELVE SELECTED GROUPS

TABLE XI-A. The L Scale

Months in Prison	N	Mean	S.D.
1	18	5.33	2.60
2	14	6.07	2.28
3	19	5.42	2.44
4	22	5.77	2.43
5	11	4.55	1.62
6	16	5.38	2.23
7	15	5.60	2.15
8	17	4.65	2.48
9	15	4.13	1.86
10	14	5.43	2.23
11	10	5.30	2.61
12	14	4.82	2.09
Total	185	5.28	2.34

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	49.081	11	4.462	.798
Within	967.860	173	5.595	
Total	1016.941	184		

TABLE XI-B. The F Scale

Months in Prison	N	Mean	S.D.
1	18	5.44	3.24
2	14	3.93	2.43
3	19	5.21	3.49
4	22	4.09	2.43
5	11	3.55	1.37
6	16	4.63	3.37
7	15	4.47	3.03
8	17	2.77	1.16
9	15	5.40	3.07
10	14	3.36	2.71
11	10	4.10	3.30
12	14	3.93	2.22
Total	185	4.29	2.89

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	123.554	11	11.232	1.369
Within	1418.262	173	8.198	
Total	1541.816	184		

TABLE XI-C. The K Scale

Months in Prison	N	Mean	S.D.
1	18	16.83	4.91
2	14	19.36	5.16
3	19	17.11	4.47
4	22	19.32	4.19
5	11	17.18	4.86
6	16	18.75	4.55
7	15	15.60	4.50
8	17	17.41	3.76
9	15	14.73	4.75
10	14	17.63	4.45
11	10	17.70	5.25
12	14	19.36	4.40
Total	185	17.62	4.79

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	373.660	11	33.969	1.518
Within	3870.091	173	22.370	
Total	4243.751	184		

TABLE XI-D. The Hs Scale

Months in Prison	N	Mean	S.D.
1	18	16.06	6.32
2	14	15.50	4.08
3	19	16.42	3.56
4	22	15.68	4.12
5	11	12.73	4.81
6	16	14.00	4.69
7	15	13.87	4.11
8	17	13.77	3.72
9	15	14.33	4.39
10	14	15.00	4.26
11	10	13.70	4.27
12	14	12.57	3.06
Total	185	14.63	4.53

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	271.317	11	24.665	1.213
Within	3517.688	173	20.333	
Total	3789.005	184		

TABLE XI-E. The D Scale

Months in Prison	N	Mean	S.D.
1	18	21.56	7.34
2	14	21.93	4.92
3	19	22.58	3.39
4	22	21.45	3.54
5	11	18.73	3.14
6	16	21.25	5.03
7	15	21.07	4.81
8	17	19.18	4.48
9	15	21.20	4.18
10	14	21.00	4.60
11	10	21.00	3.74
12	14	18.86	4.00
Total	185	20.92	4.75

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	247.623	11	22.511	.992
Within	3926.161	173	22.695	
Total	4173.784	184		

TABLE XI-F. The Hy Scale

Months in Prison	N	Mean	S.D.
1	18	22.67	7.60
2	14	23.14	5.96
3	19	24.11	5.86
4	22	22.55	5.29
5	11	18.91	4.30
6	16	22.13	4.15
7	15	22.33	4.29
8	17	18.18	6.81
9	15	21.40	4.62
10	14	22.43	5.60
11	10	21.70	4.65
12	14	21.28	3.01
Total	185	21.85	5.66

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	484.354	11	44.0321	1.398
Within	5449.408	173	31.4994	
Total	5933.762	184		

TABLE XI-G. The Pd Scale

Months in Prison	N	Mean	S.D.
1	18	28.00	4.66
2	14	27.07	5.06
3	19	27.47	3.53
4	22	27.45	3.33
5	11	28.27	4.22
6	16	27.31	4.52
7	15	28.73	4.37
8	17	26.41	3.09
9	15	26.40	4.36
10	14	27.21	4.34
11	10	26.50	4.32
12	14	26.43	4.59
Total	185	27.29	4.24

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	94.560	11	8.5963	0.459
Within	3233.678	173	18.6917	
Total	3328.238	184		

TABLE XI-H. The Mf Scale

Months in Prison	N	Mean	S.D.
1	18	23.94	3.93
2	14	22.28	4.06
3	19	23.26	4.30
4	22	23.95	4.50
5	11	23.00	4.05
6	16	22.75	2.70
7	15	26.53	4.53
8	17	21.00	3.74
9	15	23.13	4.18
10	14	22.57	4.14
11	10	24.20	4.33
12	14	21.21	2.81
Total	185	23.17	4.23

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	357.510	11	32.5009	1.903*
Within	2956.295	173	17.0884	
Total	3313.805	184		

TABLE XI-I. The Pa Scale

Months in Prison	N	Mean	S.D.
1	18	10.72	2.88
2	14	10.21	2.40
3	19	10.53	2.76
4	22	10.05	2.72
5	11	9.18	2.89
6	16	10.06	2.46
7	15	11.20	2.79
8	17	9.88	3.25
9	15	10.27	2.98
10	14	11.21	3.38
11	10	10.40	3.47
12	14	9.07	2.74
Total	185	10.25	8.58

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	68.040	11	6.1850	0.704
Within	1519.019	173	8.7804	
Total	1587.184	184		

TABLE XI-J. The Pt Scale

Months in Prison	N	Mean	S.D.
1	18	29.22	6.43
2	14	27.85	3.91
3	19	26.74	3.81
4	22	27.68	5.77
5	11	25.55	4.25
6	16	27.19	3.91
7	15	27.47	5.00
8	17	26.24	4.84
9	15	28.33	4.21
10	14	26.21	4.43
11	10	26.20	5.19
12	14	25.07	3.60
Total	185	27.09	4.89

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	239.978	11	21.8161	0.904
Within	4173.460	173	24.1240	
Total	4413.438	184		

TABLE XI-K. The Sc Scale

Months in Prison	N	Mean	S.D.
1	18	26.99	6.80
2	14	27.07	2.94
3	19	27.16	5.11
4	22	26.59	5.23
5	11	24.45	4.84
6	16	26.25	5.15
7	15	27.73	6.83
8	17	24.88	5.25
9	15	26.87	4.60
10	14	27.28	3.75
11	10	26.70	7.98
12	14	24.99	3.63
Total	185	26.46	5.41

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	174.132	11	15.8301	0.523
Within	5233.890	173	30.2536	
Total	5408.022	184		

TABLE XI-L. The Ma Scale

Months in Prison	N	Mean	S.D.
1	18	20.83	3.53
2	14	18.43	4.73
3	19	19.79	3.30
4	22	19.18	4.35
5	11	19.91	4.62
6	16	19.38	3.18
7	15	18.73	5.29
8	17	19.24	4.21
9	15	20.07	3.45
10	14	20.07	4.88
11	10	19.80	3.57
12	14	19.36	4.48
Total	185	19.56	4.21

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	73.846	11	6.7132	0.363
Within	3197.689	173	18.4837	
Total	3271.535	184		

TABLE XI-M. The Si Scale

Months in Prison	N	Mean	S.D.
1	18	27.61	10.89
2	14	25.71	9.87
3	19	28.16	8.94
4	22	23.95	7.12
5	11	24.64	8.05
6	16	24.88	7.87
7	15	29.87	6.25
8	17	25.99	8.55
9	15	29.87	8.91
10	14	26.21	7.13
11	10	22.20	4.49
12	14	18.57	4.10
Total	185	25.81	8.58

Analysis of Variance

Source of Variation		df	Mean Square	F	
Between	1628.613	11	148.0557	2.134	*
Within	12003.765	173	69.3859		
Total	13632.378	184			

Two of the F's attained significance on the retest, that for the Mf scale and that for the Si scale. Bartlett's test for homogeneity of variance was performed for these two scales (7). A chi-square of 7.77 was obtained for the Mf scale,and this is not significant; the chi-square of 19.81 obtained for the Si scale is significant, indicating that on this scale the variances were not homogeneous.

Because it seemed important to know which months were significantly different from which other months, and because Bartlett's test indicated heterogeneous variance along the Si scale, t's were calculated for these two scales, comparing each month to every other month. Of the 66 t's calculated for the Mf scale, 12 are significant.# The highest Mf scores were obtained by men incarcerated for 7 months. The mean score for these men is significantly different from that of men incarcerated 2, 3, 5, 6, 8, 9, 10, and 12 months. The lowest Mf scores were obtained among men incarcerated 8 months, and their mean score differed significantly from men incarcerated 1, 4, and 11 months. The second lowest mean scores were achieved by men incarcerated 12 months, and their scores differed significantly from those incarcerated 1 and 4 months. Generally speaking, then, the higher mean Mf scores differed significantly from the lower mean Mf scores; however, there does not seem to be a clear relationship between time imprisoned and Mf scores. Figure 3

By chance alone, 3 or 4 would have been significant.

demonstrates this graphically.

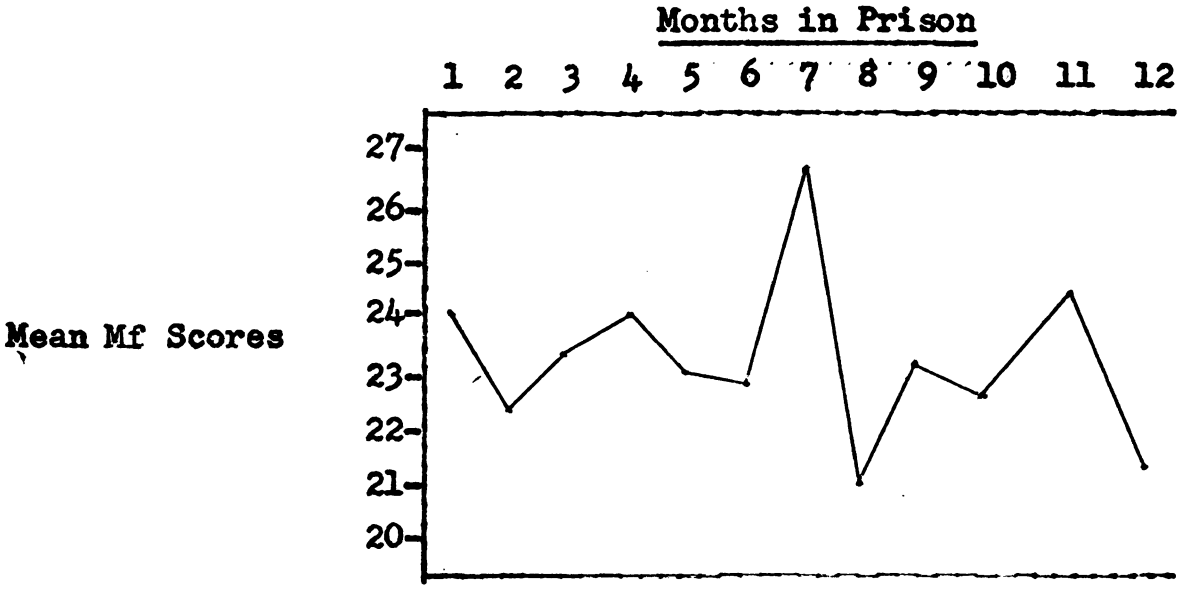


Figure 3

MEAN MF SCORES ON RETEST AMONG THE TWELVE GROUPS

A similar analysis was made for the Si scale. Fifteen of the 66 t's were significant. Ten of these t's involve the group of men who had been in the prison 12 months. They had by far the lowest Si scores, and differed significantly from men incarcerated 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 months. The next lowest mean Si score was obtained from the group of men incarcerated 11 months, and they differed significantly from men incarcerated 7 and 9 months. The four month group, with the third lowest mean, differed significantly from groups 7, 9, and 10. The 7-month and 9-month groups have identical means, which are the highest of all the Si means. Generally, these comparisons might be summarized by saying that the 11 and 12 months groups are strik-

ingly low in their Si scores, and that they tend to differ from the other months significantly. The two months with the highest Si scores differ significantly from the three months obtaining the lowest mean Si scores. Once again, however, there does not seem to be a clear relationship between months imprisoned and Si score. Figure 4 demonstrates this graphically.

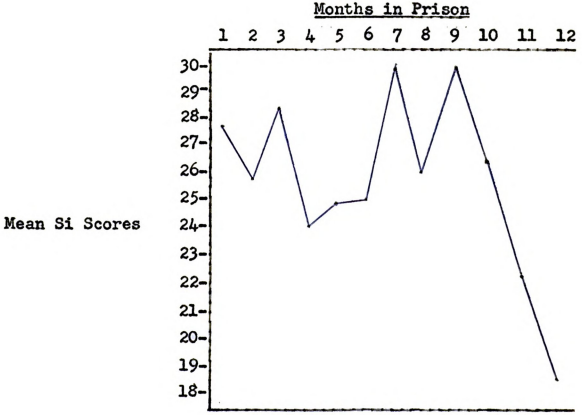


Figure 4

MEAN SI SCORES ON RETEST AMONG THE TWELVE GROUPS

Generally, then, it may be said that the MMPI retest scores do not show a clear relationship to months spent in prison. Eleven of the 13 scales show no differences among the 12 monthly groups, while the other 2 scales, the Mf and the Si scales, do show significant differences among these groups, but not in any way which would suggest a simple relationship between personality and time spent in prison.

Changes in MMPI Scores

Change scores were analyzed exactly as retest scores were. Table XII presents the data for change scores. Once again, a negative change score means that the initial score was higher than the retest score. So that the monthly means for all the scales might be considered together, this table is arranged somewhat differently from Tables X and XI. The mean changes are presented first. In Table XIII are presented, for each scale separately, the standard deviations and analyses of variance.

TABLE XII

MEAN CHANGES IN MMPI SCORES BETWEEN THE INITIAL TEST AND THE RETEST FOR THE TWELVE STAGGERED GROUPS#

	Months in Prison												
Scale	1	2	3	4	5	6	7	8	9	10	11	12	Total
L	+1.22	+1.86	+.63	+.41	+1.55	+.06	+.60	+.53	+.13	+.29	+.30	+1.27	+.692
F	-1.11	-.214	-.842	-1.41	-2.00	-1.44	-1.47	-2.24	-2.00	-1.79	-.10	-2.29	-.142
K	+3.56	+3.57	+1.74	+2.50	+3.55	+3.56	+1.00	+3.24	+2.13	+1.29	+2.40	+5.14	2.78
Hs	+.44	+.64	-.68	-.59	-.18	-.31	-1.00	-.47	-.47	-2.79	+.90	-2.50	-.60
D	-.61	+.36	-.42	-2.59	-5.00	-3.38	-1.20	-2.24	-2.40	-3.14	+1.10	-1.57	-1.77
Hy	+1.17	+1.00	+1.11	-2.27	-1.36	+1.13	+.67	-2.47	-.53	.00	+.80	+.07	+.12
Pd	+.78	+1.07	-.58	-.91	-2.09	+1.19	+.60	-.47	-1.93	.00	-.10	-1.50	-.30
Mf	-.83	-.36	+.53	-.77	-.91	-.56	-.27	-2.41	-1.47	-.50	-.80	-1.07	-.773
Pa	-.61	+1.00	-.79	-1.05	-1.64	-.44	-.33	+.235	-2.20	-.21	-.50	-1.79	-.686
Pt	+.50	+.86	-2.16	-2.14	-4.91	-.19	-.73	.00	-.93	-1.79	+.60	-1.43	-1.02
Sc	-.11	+2.07	-1.42	-1.77	-2.82	-.13	-.53	-1.12	-2.20	-1.71	+.90	-1.00	-.87
Ma	+.17	-1.86	-1.21	+.18	-.45	+.88	-1.33	-.71	-1.47	-.21	-1.50	-3.21	-.811
Si	-1.67	-.71	-3.47	-2.45	-3.36	-2.31	+.13	-2.06	-.40	-.14	-2.50	-5.00	-2.00
N	18	14	19	22	11	16	15	17	15	14	10	14##	185###

\# Changes significantly different from zero at the 5% level or less are underlined.
\## For Group 12, N=14 on all scales except L where N=11.
\### Total N=185 on all scales except L where N=182.

TABLE XIII

STANDARD DEVIATIONS AND ANALYSES OF VARIANCE OF THE MMPI CHANGE SCORES BETWEEN THE INITIAL TEST AND THE RETEST FOR THE TWELVE STAGGERED GROUPS

TABLE XIII-A. The L Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	2.25	1.17	2.16	1.58	1.97	2.19	
	7	8	9	10	11	12	Total
Standard Deviation	1.66	2.33	2.03	2.70	2.41	1.81	2.15

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	53.043	11	4.822	1.039
Within	788.935	170	4.641	
Total	841.978	181		

TABLE XIII-B. The F Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	2.83	2.48	3.07	3.23	2.41	2.03	
	7	8	9	10	11	12	Total
Standard Deviation	2.68	2.24	3.10	2.30	2.81	2.66	2.78

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	78.293	11	7.117	.907
Within	1356.821	173	7.843	
Total	1435.114	184		

TABLE XIII-C. The K Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	5.54	4.67	3.48	3.44	4.23	3.89	
	7	8	9	10	11	12	Total
Standard Deviation	3.63	3.67	3.34	3.73	2.58	4.44	4.12

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	742.272	11	67.479	4.861**
Within	2401.642	173	13.882	
Total	3143.914	184		

TABLE XIII-D. The Hs Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	4.38	4.01	1.75	5.52	3.33	3.72	
	7	8	9	10	11	12	Total
Standard Deviation	4.52	4.08	2.99	4.89	4.15	5.77	4.36

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	187.520	11	17.047	.884
Within	3334.880	173	19.277	
Total	3522.400	184		

TABLE XIII-E. The D Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	4.12	4.91	3.86	4.76	5.94	3.50	
	7	8	9	10	11	12	Total
Standard Deviation	4.18	4.01	3.42	4.31	3.59	4.72	4.56

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	416.711	11	37.883	1.916*
Within	3420.294	173	19.770	
Total	3837.005	184		

TABLE XIII-F. The Hy Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	5.42	4.58	3.75	5.16	4.23	4.83	
	7	8	9	10	11	12	Total
Standard Deviation	4.94	4.96	3.34	6.27	6.63	4.89	5.07

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	221.861	11	20.169	.769
Within	4536.280	173	26.221	
Total	4758.141	184		

TABLE XIII-G. The Pd Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	4.73	5.59	3.17	4.25	4.44	5.59	
	7	8	9	10	11	12	Total
Standard Deviation	4.77	4.82	3.28	3.87	3.83	3.85	4.54

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	16.951	11	1.5409	0.074
Within	3607.006	173	20.8497	
Total	3809.049	184		

TABLE XIII-H. The Mf Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	3.48	2.69	4.32	3.66	3.94	2.37	
	7	8	9	10	11	12	Total
Standard Deviation	3.96	4.70	4.69	3.04	4.87	3.58	3.88

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	80.279	11	7.2980	0.467
Within	2704.186	173	15.6311	
Total	2784.465	184		

TABLE XIII-I. The Pa Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	2.50	3.05	3.82	2.71	3.20	3.16	
	7	8	9	10	11	12	Total
Standard Deviation	3.30	4.45	4.97	3.03	4.67	3.47	3.65

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	124.936	11	11.3578	0.840
Within	2338.880	173	13.5195	
Total	2463.816	184		

TABLE XIII-J. The Pt Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	4.32	5.37	3.53	7.87	5.87	5.63	
	7	8	9	10	11	12	Total
Standard Deviation	3.75	6.79	4.82	5.35	4.86	4.30	5.67

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	376.226	11	34.2018	1.0631
Within	5564.731	173	32.1660	
Total	5940.951	184		

TABLE XIII-K. The Sc Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	5.82	5.44	4.95	7.36	6.28	7.73	
	7	8	9	10	11	12	Total
Standard Deviation	5.80	6.58	5.67	7.20	7.98	5.84	6.54

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	267.641	11	25.1491	0.5701
Within	7631.245	173	44.1112	
Total	7907.886	184		

TABLE XIII-L. The Ma Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	4.02	3.66	3.24	3.56	4.10	3.48	
	7	8	9	10	11	12	Total
Standard Deviation	4.19	4.65	3.65	4.13	3.29	3.28	3.94

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	205.446	11	18.6769	1.214
Within	2662.933	173	15.3926	
Total	2868.379	184		

TABLE XIII-M. The Si Scale

	Months in Prison						
	1	2	3	4	5	6	
Standard Deviation	5.73	5.24	4.65	4.82	5.96	3.67	
	7	8	9	10	11	12	Total
Standard Deviation	6.31	5.00	5.24	4.37	6.64	6.07	5.47

Analysis of Variance

Source of Variation		df	Mean Square	F
Between	376.480	11	34.2254	1.1471
Within	5161.520	173	29.8353	
Total	5538.000	184		

It is noteworthy that the F's for the Mf and Si scales are not significant for the change scores. Thus, while the retest scores are different among the 12 month group for these two scales, the changes from the initial test scores are not different among the 12 monthly groups; on two other scales, however, they are. These two are the K and D scales. Bartlett's test was calculated for both of these scales; for the K scale, the chi-square is 11.01, and for the D scale, it is 14.96; neither of these chi-squares is significant. Sixty-six t-scores were then computed for each of these variables, as for the Mf and Si scales above. For the K scale, only 3 of these t's were significant. By far the highest change in K score was obtained by the men incarcerated 12 months. These men changed

on K significantly more than did men incarcerated 7 months, 10 months, and 3 months; these three groups had the lowest mean changes on the K scale. None of the other comparisons yielded significant t's. While it may seem suggestive that the greatest increase in K is manifested by the men incarcerated a full year, the fact that the 3, 7, and 10 months groups show the least increase in K score would tend to rule out any clear-cut relationship between time imprisoned and increase in K score. Figure 5 presents these results graphically.

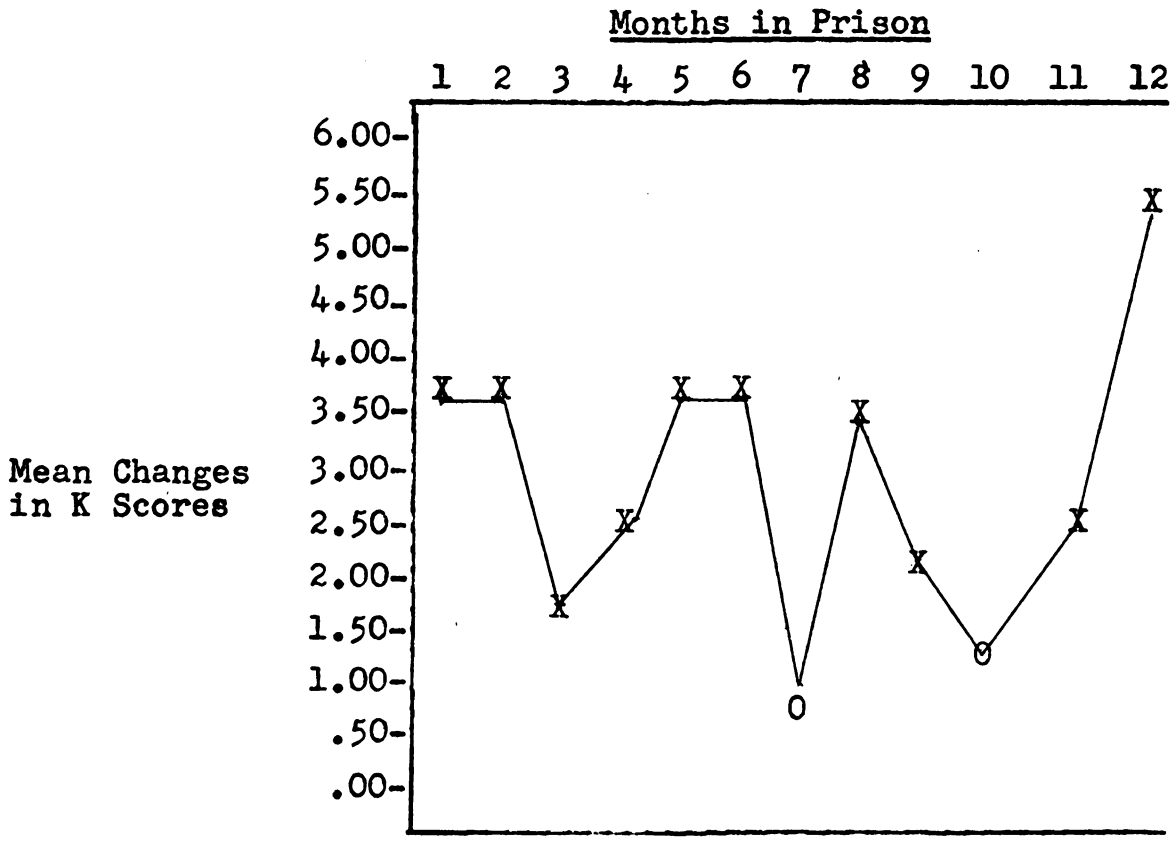


Figure 5

MEAN CHANGES IN K SCORES FOR THE TWELVE STAGGERED MONTHLY GROUPS#

Significant changes are indicated by X, non-significant changes by 0.

Changes in D scores also varied from month to month. The men incarcerated 2 months, and those incarcerated 11 months, showed increases in D scores, while the other groups showed decreases. Of the 66 t's computed, 12 were significant; eight of these involved the 2 and 11 months groups, which differed from the groups showing the greatest decreases in D scores, the 5 and 7 months groups. Very small negative changes were manifested by the 1 and 3 months groups, and these 2 groups differed from the 5 and 6 months groups.

The changes in depression scores do seem to have some relationship to months spent in prison. No significant changes were observable in men incarcerated 1 to 3 months, while in the next 7 months, significant change could be demonstrated in all but the 7 months group. No significant change was discernible in the 11 and 12 months groups. Since only the extremely changing and the extremely non-changing groups differed from each other, it would seem that the most conservative statement which could be made is that men remain approximately as depressed as they were in the Reception-Diagnostic Center for the first three months in prison. Thereafter, for a while, they feel significantly less depressed. Toward the end of the first year, they once again start to feel quite as depressed as they did when they first entered the prison. Figure 6 presents these results graphically.

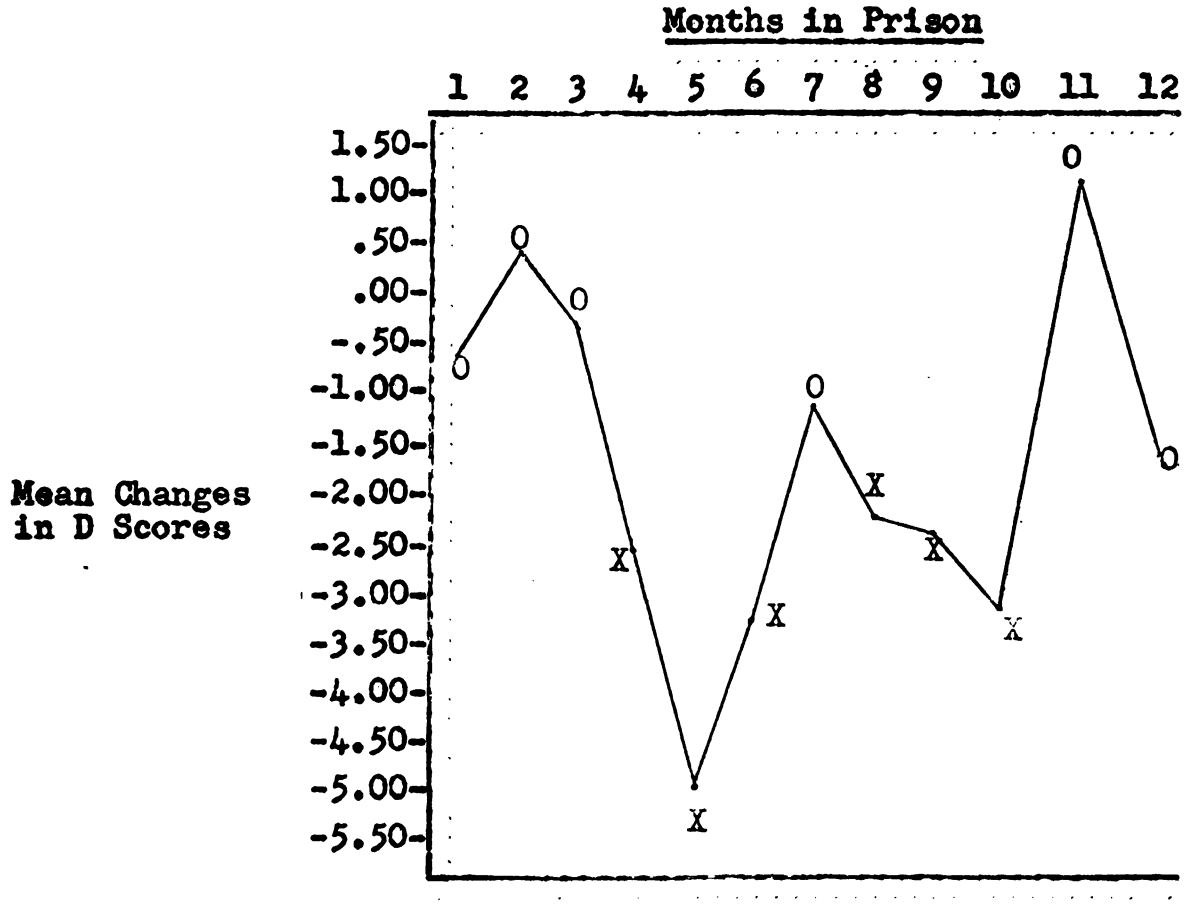


Figure 6

MEAN CHANGES IN D SCORES FOR THE TWELVE STAGGERED MONTHLY GROUPS#

#Significant changes are indicated by X, non-significant changes by O.

The Statistical Significance of Mean Changes In the Monthly Groups

Having established that change significantly different from zero occurred on 9 of the 13 scales of the MMPI and that on 2 scales the magnitude of the change varied among the 12 monthly groups, it seemed important to determine

whether these changes were significantly different from zero for each of the 12 monthly groups. On Table XII, which presents the mean changes on each scale for each of the monthly groups, significant changes are indicated by underlining.

Generally speaking, the monthly changes did not attain significance, in part, no doubt, because the N's in each month were so small. However, it was generally the case that the monthly changes went in the direction of the total mean change.

No single generalization can cover the relationship between significant changes and months spent in prison. It is not the case that all the significant changes are clustered in the first few months or the last few months, or something of this sort. For a few of the variables, however, certain trends appear. The increases in K scores, which, it will be recalled, vary significantly among the 12 groups, are apparent from the very first month, and remain significant throughout the year except in the case of the 7-months group where, however, there is also an increase rather than a decrease. In the case of the F scale, on the other hand, there is no significant change during the first 4 months in prison; the significant decreases which occur are clustered in the last 8 monthly groups.

As for the clinical scales, it will be recalled that the D scale first stayed at the initial level, decreased during the middle of the year, and then went back to the initial level. The Pt scale shows a comparable trend, though to a lesser degree. There is significant decrease in Pt scores after 2 months of insignificant increase, and then the Pt scores go back to their original level. The Ma scale manifests erratic, non-significant ups and downs for the first 11 months; for group 12, however, there is a significant decrease. Conceivably, this is the beginning of a trend, though, of course, there are no further groups representing longer periods of incarceration in the present study. The Si pattern is again somewhat similar to the Pt pattern, with one exception in group 12: first, there is no change, and then comes a period of decreased Si scores; in the second half of the year, the Si scores are not different from their initial level, with the exception of a decrease in the 12-months group.

While no smooth curves can be plotted, the data in Table XII nonetheless are suggestive of the following trend: For the first 2 months in prison, adjustment is comparable to that in the Reception-Diagnostic Center, except for increased L and K scores. Then seems to come a period of "settling down," with some loss of depression but also, of social interest. Psychasthenia, too, decreases, but at the end of the year, both the depression

and the psychasthenia scores are back to their original level. At the end of the year, too, Ma and Si have decreased significantly. The initial L and K increases are maintained throughout (though in the case of the L scale, they are not always significant), while the significantly decreased F scores tend to be maintained after they emerge in the second third of the year.

Test-Retest Reliability

The MMPI is generally accepted as a reliable instrument. It seemed well worthwhile, however, to evaluate test-retest reliability for the present sample. The fact that change was anticipated and, as a matter of fact, occurred, does not mean that the test-retest reliability must be low. Had everyone's score changed by the same amount, for example, there would be significant change and, also, perfect correlation between the initial and retest scores. Test-retest correlations were calculated for each scale for each month. Total correlations for the whole sample for each scale were also calculated. These results are presented in Table XIV.

TABLE XIV

TEST-RETEST CORRELATIONS ON THE MMPI SCALES FOR THE TWELVE STAGGERED MONTHLY GROUPS#

Months in Prison	N	MMPI Scales L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
1	18	.589	632	309	706	827	663	432	665	693	795	577	439	689
2	14	.644	599	538	645	324	664	276	777	-044	-218	171	734	855
3	19	.580	600	705	882	595	768	672	579	395	530	614	639	868
4	22	.795	351	612	389	420	501	404	622	739	191	369	625	737
5	11	.190	246	567	771	062	536	629	534	454	061	208	669	710
6	16	.631	834	569	744	785	611	839	683	212	320	045	585	889
7	15	.673	702	712	286	729	477	236	782	536	726	586	611	715
8	17	.423	289	592	627	533	707	072	417	008	168	238	556	813
9	15	.469	450	714	814	792	728	693	414	-016	628	676	476	846
10	14	.378	747	564	583	560	324	577	699	552	443	196	587	791
11	10	.567	638	877	603	394	094	692	431	013	608	487	618	301
12	14##	.470	-181	470	-047	468	149	638	302	556	584	399	716	734
Total	185###	.486	624	654	639	621	596	474	671	398	458	419	609	876

Correlations significant at the 5% level or less are underlined.
N=14 for all scales except L, where N=11.
N=185 for all scales except L, where N=182.

There is inevitably a relationship between the number of significant correlations in a given month and the number of cases in that month. Thus, groups 5 and 11, which have 11 and 10 men, respectively, yielded the smallest number of significant correlations. On the other hand, the group with the most men, the 4-months group with an N of 22, did not have the largest number of significant correlations. Thus, while the number of cases in a given monthly sample is a factor in determining the number of significant correlations obtained, it is by no means the only factor. The rank order correlation between N and the number of significant correlations for the 12 groups is .652.

As for the test-retest correlations, it should first and foremost be pointed out that they are highly significant for all of the scales. The Si scale, with a test-retest correlation of .876, is clearly more reliable than the Pa scale, with its test-retest correlation of .398, but even the latter, which is the lowest of the obtained correlations, is significant at far beyond the 1% level. Of the total 156 correlations computed, 93 are significant at the 5% level or less. This clearly exceeds the chance expectation of 7 to 8 correlations significant at the 5% level. It also seems worthy of comment that, in general, the correlations which do not achieve significance are in the same direction as those which do; only rarely does a correlation close to zero or a negative correlation turn

up.

The total correlations, while highly significant, are certainly not close to unity. This would suggest that the significant scale changes which have been discussed above were not of a consistent magnitude throughout the sample. Rather, it would seem that some individuals changed in their L, or D, or Pa scores more than other individuals did. This does not seem surprising, in view of the highly individualized reactions which are bound to occur to a strong stimulus such as the prison environment. It would therefore be anticipated that the test-retest correlations would be lower in this study than in a study concerned primarily with reliability, in which, of course, the examiner goes out of his way to assure as much as possible that there has been minimal change between test and retest; it would, in other words, be anticipated that the obtained test-retest correlations would be below the generally accepted reliability coefficients for the MMPI for all of the scales. This is taken up in detail in the Discussion Chapter.

Inspection of Table XIV leads to a consideration of the monthly differences among the correlation coefficients for any one given scale. These differences were analyzed by means of chi-square, and Table XV presents the results for the 13 MMPI scales.

TABLE XV

DIFFERENCE AMONG THE TEST-RETEST CORRELATIONS OF THE TWELVE STAGGERED GROUPS

Scale	Chi-Square
L	7.496
F	17.925
K	7.136
Hs	21.244*
D	14.362
Hy	7.633
Pd	14.843
Mf	7.293
Pa	18.206
Pt	19.619
Sc	8.800
Ma	2.517
Si	9.656

There would be no reason to expect the variations among the correlations for any given scale to be anything but random, and as a matter of fact, only one of the chi-square out of the 13 calculated achieved statistical significance. This might be considered one of those "significant" results that do happen by chance 1 in 20 times. However, 3 other chi-squares are quite close to significance at; with 11 degrees of freedom, a chi-square of 19.675 is significant at the 5% level. It seemed worthwhile to look into the 4 scales involved, the F, the Hs, the Pa, and the Pt, a little more in detail.

Because of the rather high rank order correlation between

the number of cases in a given month and the number of significant correlations which obtained in that month, it seemed worthwhile to calculate for these 4 scales rank order correlations between the number of cases in a given month and the size of the correlations obtained. However, none of these correlations is in any way impressive. For Hs, it is .18; for F, it is .033; for Pa, it is .24; and for Pt, it is .033. The number of cases in each month, then, seems to have little, if any, bearing on the size of the correlation coefficient for that month.

Just what significance to attach to the obtained significant and near significant chi-squares does not seem clear. All that can be said is that for 4 scales, the test-retest correlations tend to vary among the months. However, months which on one of these scales have high test-retest correlations are not necessarily the same ones with high correlations on the other scales.

Inter-Scale Correlations

Correlations were also obtained on both the initial test and the retest between each scale and every other one. In Tables XVI-A and XVI-B are presented the inter-scale correlations for the two testings.

TABLE XVI-A

INTER - SCALE CORRELATIONS ON THE INITIAL TEST FOR THE TOTAL SAMPLE

	MMPI SCALES												
	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
L		.018	.507 **	.289 **	.044 **	.182 *	.003 **	-.128 **	-.051 **	-.063 **	-.027 **	-.296 **	.098 **
F	.018		-.309	.273 **	.463 *	.132 **	.261 **	.155	.455 *	.475	.637	.227 **	.432 **
K	.507	-.309		.270	-.172 **	.269 **	.263 **	-.111	-.160 **	-.075 **	.009 **	-.368 *	-.283 **
Hs	.289	.273	.270		.456	.759 **	.298 **	.049	.299 **	.615 **	.495 **	-.179 **	.221 **
D	.044	.463	-.172	.456		.341	.220 **	.091 **	.209 **	.534 **	.363 **	-.219	.582
Hy	.182	.132	.269	.759	.341		.346	.201 *	.278 **	.495 **	.448 **	.079	.071
Pd	.003	.261	.263	.298	.220	.346		.144	.216 **	.437 **	.432 **	.128	-.017
Mf	-.128	.155	-.111	.049	.091	.201	.144		.311	.294 **	.205 **	.136	.036 **
Pa	-.051	.455	-.160	.299	.209	.278	.216	.311		.472	.514 **	.127	.256 **
Pt	-.063	.475	-.075	.615	.534	.495	.437	.294	.472		.734	.113 **	.493 **
Sc	-.027	.637	.009	.495	.363	.448	.432	.205	.514	.734		.365	.330 **
Ma	-.296	.227	-.368	-.179	-.219	.079	.128	.136	.127	.113	.365		-.306
Si	.098	.432	-.283	.221	.582	.071	-.017	.036	.256	.493	.330	-.306	

TABLE XVI-B

INTER - SCALE CORRELATIONS ON THE RETEST FOR THE TOTAL SAMPLE

MMPI SCALES

	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
L		-.013	.384**	.232**	.150	.087	.704**	-.058	.002	-.058	.154**	-.146*	-.032
F	-.013		-.285	.305**	.119**	.216**	.149**	.098	.365**	.282**	.442**	.074	.452**
K	.384**	-.285**		.288**	-.592**	-.202**	.359**	-.076	-.097**	.010	.117**	-.178*	-.478**
Hs	.232**	.305**	.288**		.726**	.774**	.231**	.124**	.291**	.416**	.459**	.013	.280**
D	.150**	.119**	-.592**	.726**		.549**	.025	.313**	.386**	.565**	.371**	-.142*	.671**
Hy	.087	.216**	-.202**	.774**	.549**		.482**	.259**	.447**	.418**	.451**	.119*	.116
Pd	.704**	.149**	.359**	.231**	.025	.482**		.125	.194**	.112**	.405**	.148*	.104
Mf	-.058	.098	-.076	.124**	.313**	.259**	.125**		.237**	.400**	.143**	-.030	.099**
Pa	.002	.365**	-.097**	.291**	.386**	.447**	.194**	.237**		.353**	.487**	.237**	.293**
Pt	-.058	.282**	.010	.416**	.565**	.418**	.112**	.400**	.353**		.537**	-.016	.371**
Sc	.154**	.442**	.117**	.459**	.371**	.451**	.405**	.143**	.487**	.537**		.267**	.231**
Ma	-.146*	.074	-.178*	.013	-.142*	.119	.148*	.030	.237**	.016	.267**		-.241**
Si	-.032	.452**	-.478**	.280**	.671**	.116	.104	.099	.293**	.371**	.231**	-.241**	

On the initial test, 56 of the 78 correlations were significant, while on the retest, 54 were significant. Generally, the correlations significant initially remained significant on the retest, while those not significant initially remained non-significant.

Initially, the L and K scales were highly intercorrelated, as were the Hs, Hy, and Pt. scales. Pt also correlated highly with Sc and D. The Pd scale correlated most highly with Pt, F and Sc. The Pa scale correlated most highly with Sc, while Si correlated most highly with D. Generally speaking, the Ma scale showed the lowest intercorrelations with the other scales; it correlated most highly with Sc and K.

Changes in Inter-Scale Correlations

While the same general intercorrelations recurred on the retest, certain changes have obviously taken place, as Table XVI-A and XVI-B make clear. The difference between any two correlations, such as that between the L and K scales on the first test and the L and K scales on the retest was analyzed statistically. The z' transformation was used, in a method described by Edwards (7).

Of the 78 correlations, 12 had changed significantly. Correlations which went up were L-Pd, K-Si, K-D, D-Hy, and D-Pa. Correlations which went down significantly were F-D, F-Pt, F-Sc, K-Hy, Hs-Pt, Pd-Pt, and Sc-Pt. Thus, while

the initial correlation between L and Pd was almost zero, it was highly significant on the retest. Or again, while the initial correlation between F and D was significant, upon retesting it no longer was. The same is true for the correlation between Pd and Pt. The remaining correlations which changed between the tests were significant on both tests, but more so on one occasion than the other.

Quantitative Configurational Analysis

Over and over again, psychometric tests of personality have been criticized for their "atomistic" approach and for their ignoring of the "total gestalt" (17). The truth in this criticism has been recognized to the point where "profile analysis" is considered to be one of the most important approaches to the MMPI. Welsh has offered two measures which, while ending up with "yet another number," depend on several of the MMPI scores in the profile; these are the anxiety index and the internalization ration (17). Both of these measures were used in the present study.

The Anxiety Index

The anxiety index is defined by the following formula, which uses T-Scores rather than raw scores: $\frac{(Hs+D+Hy)}{3} +$ ((D+Pt)-(Hs+Hy). An anxiety index was calculated for each man, and the figures thus obtained were analyzed in the same manner as the scores on the individual scales were. Table XVII presents the data for the anxiety index.

TABLE XVII

ANXIETY INDEX DATA: INITIAL TEST MEANS, RETEST MEANS, MEAN CHANGES, TEST-RETEST CORRELATIONS, AND ANALYSES OF VARIANCE FOR THE INITIAL TEST, THE RETEST AND THE CHANGES#

Months in Prison	N	Initial Test Mean	Retest Mean	Mean Change	t	Test-Retest Correlation
1	18	76.67	74.33	-2.33	-	.48*
2	14	75.21	76.71	1.50	-	.35
3	19	79.16	77.68	-1.47	-	.56*
4	22	77.95	76.91	-1.05	-	.67**
5	11	80.09	67.27	-12.82	2.84*	.37
6	16	80.13	69.13	-11.00	2.40*	.32
7	15	79.13	74.73	-4.40	-	.46
8	17	78.59	72.47	-6.12	-	.55*
9	15	80.60	75.47	-5.00	-	.70**
10	14	77.43	76.29	-1.14	-	.78**
11	10	68.30	70.00	1.70	-	-.42
12	14	60.00	64.78	4.79	-	.69**
Total	185	76.51	73.45	-3.06	2.50*	.48**

Analysis of Variance - Initial Test

Source of Variation		df	Mean Square	F
Between	5482.740	11	498.431	1.314
Within	65641.500	173	379.431	
Total	71134.240	184		

Analysis of Variance - Retest

Between	2904.990	11	264.090	1.093
Within	41791.780	173	241.571	
Total	44696.770	184		

Analysis of Variance - Change Scores

Between	3875.981	11	352.362	1.289
Within	47305.365	173	273.441	
Total	51181.346	184		

T-Scores rather than raw scores were used.

The mean anxiety index on the initial test was 76.51, while that on the retest was 73.45. The mean decrease for the total sample was -3.06, which is significant at less than the 5% level of confidence. For only two monthly groups is the change significantly different from zero, for men incarcerated five months and six months; both earlier and later in the year the changes which occur are not significantly different from zero. Thus, it would seem that initially, anxiety stays at the level it had when a man first entered the prison; in the middle of the year, it decreases significantly, but thereafter returns to its initial level.

The reliability of the anxiety index is in line with that for the individual scales. The overall test-retest correlation is highly significant, and seven of the monthly correlations are significant at the 5% level or less. The one negative correlation which occurs is not significantly different from zero.

Analysis of variance shows that the initial means as well as the retest means do not vary among the twelve monthly groups more than would be expected on the basis of chance. The same is true for the change scores.

Just how anxious is this group of men? The anxiety index has been so defined as to yield an expected value of

50 for a normal record. With standard errors of 1.44 and 1.14, respectively, the means obtained on the first test and on the retest were significantly different from 50 at less than the 1% level of confidence.

The Internalization Ratio

The internalization ratio is defined as follows, again using T-Scores: $\frac{Hs+D+Pt}{Hy+Pd+Ma}$. In Table XVIII are presented the data for the internalization ratio.

The initial mean internalization ratio (IR) was .98. With a standard error of .011, this is not significantly different from a "normal" 1.00 (z=1.55) The IR decreased significantly, the retest IR being .95. With a standard error of .009, this differs at less than the 1% level from 1.00.

As analysis of variance shows, the initial IR's and the retest IR's did not differ among the monthly groups. The analysis of variance for the IR changes, however yielded a significant F. Bartlett's test for homogeneity of variance was performed; a chi-square of 19.533 is close to the 19.675 required for significance at the 5% level of confidence for 11 degrees of freedom, which suggest that the variances among the 12 groups vary from each other

TABLE XVIII

INTERNALIZATION RATIO DATA: INITIAL TEST MEANS, RETEST MEANS, MEAN CHANGES, TEST-RETEST CORRELATIONS, AND ANALYSES OF VARIANCE FOR THE INITIAL TEST, THE RETEST, AND THE CHANGES#

Months in Prison	N	Initial Mean	Retest Mean	Mean Change	t	Initial Test-Retest Corrections
1	18	.97	.95	-.02	-	.83**
2	14	.97	.99	+.02	-	.81**
3	19	.99	.97	-.02	-	.73**
4	22	1.03	.98	-.05	-	.52*
5	11	.99	.89	-.10	2.67*	.55
6	16	1.04	.95	-.09	3.09**	.68**
7	15	.97	.94	-.03	-	.85**
8	17	.96	.96	.00	-	.83**
9	15	.99	.97	-.02	-	.79**
10	14	1.03	.95	-.08	1.98	.17
11	10	.89	.94	+.04	-	.58
12	14	.90	.89	-.01	-	.76**
Total	185	.98	.95	-.03	3.48	.67**

Analysis of Variance-Initial Test

Source of Variation	df	Mean Square	F
Between	0.320	11	0.02909	1.381
Within	3.693	173	0.02134	
Total	4.013	184		

Analysis of Variance-Retest

Between	0.162	11	0.01472	1.065
Within	2.391	173	0.01382	
Total	2.553	184		

Analysis of Variance-Change Scores

Between	0.289	11	0.02630	2.007*
Within	2.262	173	0.01307	
Total	2.551	184		

T-scores rather than raw scores were used.

more than would be expected if they were random samples from a common population. Comparisons were then made between each group and every other group, and of the 66 t's calculated, 13 achieved significance. The only IR changes significantly different from zero occurred in the 5 and 6 months groups; the decrease in the 10 month group approached significance at the 7% level. Almost all of the significant t's involved these three groups, which differed from those showing small non-significant increases or decreases in IR. In general, then, it may be said that the men in the sample showed less internalization after incarceration, and once again, most of the change was concentrated in the middle of the year.

The reliability of the internalization ratio is comparable to that of single scales. The overall test-retest reliability is highly significant, and all twelve monthly correlations are positive; three, however, do not achieve significance.

Abnormal and Normal Profiles

Meehl conducted a study involving blind diagnosis with

the MMPI in which criteria for abnormality of profile were developed (13).

> Profiles were called abnormal under the following four conditions: 1. Any of the eight components showed T equal to or greater than 90. 2. Any of the eight components showed T equal to or greater than 80, unless K was less than 40. 3. Any of the eight components showed T equal to or greater than 70, unless K was less than 50 and L less than 60. 4. Any of the eight components showed T equal to or greater than 65, unless K was less than 65 and L less than 60 (13:518).

The above criteria were used in the present study, applying the analysis, however, to all ten clinical scales rather than just eight. Table XIX shows the number and per cent of abnormal profiles in each month and in the sample as a whole on both the initial test and the retest; it also shows the change between testings.

The data below suggest that, in general, more than half of the men had abnormal profiles, and in fact, even the 62% abnormal profiles on the initial test is significantly different from 50%, which would have been expected by chance (z is 3.33, and the probability is less than .01). Furthermore, the proportion of abnormal profiles on the retest was significantly greater than the proportion on test one (z is 2.24, and the probability is less than .05).

TABLE XIX

NUMBER AND PER CENT OF ABNORMAL MMPI PROFILES ON THE INITIAL TEST AND ON THE RETEST FOR THE TWELVE STAGGERED GROUPS

Months in Prison	N	Initial Test Abnormal	%	Retest Abnormal	%	% Increase
1	18	9	50	12	67	17
2	14	8	58	10	72	14
3	19	12	63	14	74	11
4	22	17	77	18	82	5
5	11	6	55	9	82	27
6	16	12	75	11	69	-6
7	15	12	80	13	87	7
8	17	11	65	11	65	0
9	15	8	53	10	67	14
10	14	10	71	8	57	-14
11	10	4	40	6	60	20
12	14	5	36	9	64	28
Total	185	114	62	131	71	9

TABLE XX

DISTRIBUTION OF NORMAL AND ABNORMAL MMPI PROFILES ON THE INITIAL TEST AND ON THE RETEST

		Retest Normal	Abnormal	Total
Initial Test	Abnormal	20	94	114
	Normal	34	37	71
	Total	54	131	185

In an attempt to relate the percentage of abnormal profiles in each month to the length of time those men have been incarcerated, rank order correlations were done between these two variables. For the first test, this correlation is .24, suggesting a slight and non-significant degree of relationship. The comparable correlation on the retest yielded a phi of .62. This may be considered a reasonably strong relationship suggesting that the longer the men were in prison, the lower the percentage of abnormal profiles. The correlation between the percentage of abnormal profiles on the first test and on the retest is .59; that is, the fewer abnormal profiles a given month contained the first time, the fewer there were the second time.

The relationship between months spent in prison and percentage of abnormal profiles is striking. In an attempt to clarify this relationship, these two variables were plotted against each other, and figure 7 presents the data for both testings.

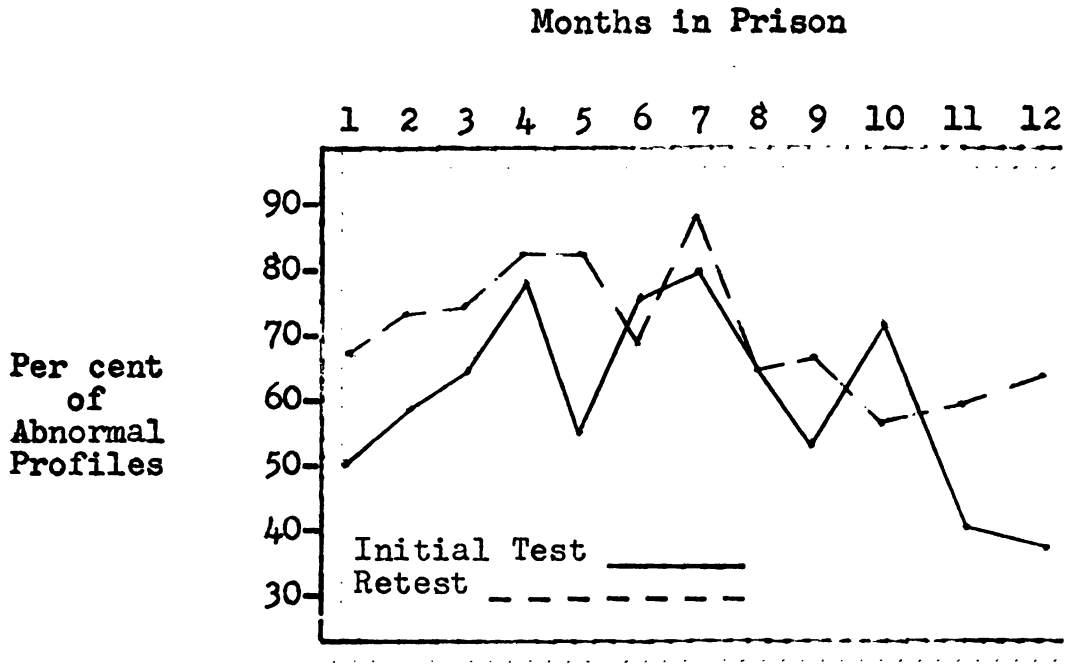


FIGURE 7

PERCENTAGE OF ABNORMAL MMPI PROFILES ON THE INITIAL TEST AND ON THE RETEST FOR THE TWELVE STAGGERED GROUPS

The above diagram suggests that the relationship on the retest between these two variables is more nearly curvilinear than rectilinear; that is, at the beginning and at the end of the year there were fewer abnormal profiles than in the middle of the year. If some measure of degree of abnormality for each man were available, it would be possible to calculate eta; however, the present measures do not seem to warrant such calculation.

Both Table XIX and Figure 7 show that for most of the months, the percentage of abnormal profiles increases. The question arises as to the relationship between the size of

this increase and months spent in prison. The rank order correlation between these two variables is -.06, which seems to indicate that there is no relationship between months in prison and size of increase in percentage of abnormal profiles.

Rank order correlation was also calculated between age and increase in percentage of abnormal profiles. This correlation is -.43, suggesting some trend such that the older the men are in a given month the less increase there is in the percentage of abnormal profiles. It seems questionable, however, whether this correlation can be considered of statistical significance.

Correlations were also done between age and percentage of abnormal profiles for both testings. Neither of these correlations is very high; for the initial test it is .175, for the retest -.157.

The most important findings in this analysis of abnormal profiles would seem to be that significantly more than half of the profiles were abnormal on both the initial test and retest, and that more men presented abnormal profiles on the second occasion. There is no relationship between the percentage of abnormal profiles and monthly group initially, but there is a relationship on the retest such that the longer the men are in prison, the fewer the abnormal profiles. The plotted curve suggests that these

two variables are related in a curvilinear rather than a rectilinear fashion.

Supplementary Data

Because of the differences in age which were found to exist among the twelve monthly groups, it seemed profitable to try to analyze whether the results presented in this chapter would gain in meaning or clarity if the age variable were taken into consideration. Because of the recognized correlation between the depression scale and age (17), the D scale was taken as a sample study. Correlations were calculated between initial D scores and age, retest D scores and age, and change scores on the D scale and age. These correlations were calculated for each month as well as for the sample as a whole. Table XXI presents this data.

TABLE XXI

CORRELATION BETWEEN AGE AND INITIAL MMPI DEPRESSION SCORE RETEST DEPRESSION SCORE, AND DEPRESSION SCORE CHANGE

Months in Prison	N	Correlations between: Age:Initial Test	Age:Retest	Age:Change
1	18	-.08	.35	-.21
2	14	.32	.18	-.03
3	19	.21	.22	-.07
4	22	.09	.31	.14
5	11	.64*	.20	-.66*
6	16	.57*	.55*	-.12
7	15	-.44	.35	.24
8	17	.22	.04	-.16
9	15	.25	.40	.08
10	14	.25	.12	-.14
11	10	-.29	-.33	-.14
12	14	-.42	.33	.21
Total	185	.17*	.28**	-.01

It can be seen that on both testings the correlation between D and age is significant. On the first test, most of the monthly correlations do not achieve significance, and although the retest correlation is significant at less than the 1% level, this is true also of the retest correlations. The correlation between change in D scores and age is not significant, and in only one month does this correlation achieve significance at even the 5% level of confidence.

Clearly, then, the age variable has not influenced the data presented earlier. It will be recalled that analysis of variance indicated that the D scores did not vary significantly from month to month on either the initial test or the retest, but that the change scores did vary significantly among the months; yet age is correlated significantly with both initial and final D scores and not significantly with the change scores.

Furthermore, when test and retest D scores were plotted against months in prison, no smoothing of curves was managed by eliminating the "oldest" and "youngest" months, or even the two "oldest" and the two "youngest" months. There seems to be no evidence whatever, then, that the differences in age demonstrated to exist among the months influenced the results presented earlier. The D scale was expected to be particularly sensitive to such influence because of its

correlation with age, and consequently this line of analysis was abandoned as fruitless.

CHAPTER V

DISCUSSION OF THE FINDINGS

The previous chapter presented the results; it is the purpose of this chapter to integrate the more significant findings and to discuss their implications.

Initial Test Findings

The mean group profile obtained for all 185 cases on the initial test is characterized by elevated Pd and D Scales. Strong psychopathic tendencies are in evidence, coupled with depressive features and some elevation on the other two components of the neurotic triad (Hy and Hs). The pattern in general is that of a conduct disorder but with a slightly lowered Ma score, suggesting less propensity to "acting out" behavior.

These results seem to reflect a shock reaction to imprisonment. Personal experience, as well as the comments of numerous prison officers and officials, has indicated that frequently, it is not until the newly arrived inmate starts on the initial processing (like inoculations and testing) that he recognizes the full implications of his predicament. The new inmate generally recognizes at this time that the prison will be his new home, that his

freedom is going to be curtailed, and that he is going to be kept under the dictates of other people, with little opportunity to do things other than he is told. Under these circumstances, it is understandable that the psychopathic profile is slightly different from its usual form, where the Ma scale is generally the second peak, and the D scale is relatively low.

Comparison of Study Sample and Random Prison Sample

It has been demonstrated that the initial test findings for the study sample differed significantly on several scales from the random sample of the prison population. The question arises: which sample is typical of prison populations in general? There are other studies utilizing the MMPI which have been conducted on prison populations in other states. The most relevant study is one conducted by Robert Smith (16). He administered the MMPI to groups of prisoners at the Minnesota State Prison, the Minnesota State Reformatory, the Maryland State Penitentiary, and several other penal institutions in the United States. When one compares the mean profiles of the Minnesota State Prison and the Minnesota State Reformatory with the random Jackson sample, one finds striking similarity. However, inspection of the profiles does reveal some differences, particularly on the Pd, Ma, D, and F scales. The Minnesota

men tend to score slightly lower on these scales, and higher on the L scale. Comparing the mean Minnesota groups' profile with the mean initial profile on the study sample also reveals difference on the Pd scale, which is elevated for the Minnesota groups.

No statistical comparisons were made among these groups, as it was not felt that this would be a fruitful venture. One important factor which speaks against further analyses is the fact that the Jackson samples were newly admitted, or newly re-admitted to prison, whereas the Minnesota groups were men who had been confined for varied periods of time. Accordingly, one would expect to find differences, since the present study has demonstrated differences between profiles obtained upon first contact with the prison environment and those obtained after confinement. However, the Pd scale bears special mention. The mean Pd score for the Minnesota groups falls approximately midway between the initial study sample score and that of the random sample. It will be recalled that the Pd scale showed no significant change between the initial and the second testing, so that the above mentioned difference between the Jackson samples and the Minnesota groups need perhaps not be taken into account for this scale. It would appear that the random sample of the Jackson population is more strongly psychopathic than the

sample of the Minnesota populations which Smith studied, but that the first offender is less psychopathic than either.

Test-Retest Reliability

The test-retest correlations presented in the results chapter seem on the whole to be lower than those presented in the testing manual (10). However, when one compares the present correlations with those obtained by Gough (9), one finds that his are even lower. Gough's 34 military prisoners were subjected to a therapeutic program over a three-month period of time, and therefore, in addition to experiencing confinement, these men were undergoing treatment meant to bring about changes in personality adjustment. Accordingly, one would expect to find relatively low correlations, if the treatment program is effective.

It is difficult to make sense out of such comparisons, since these studies vary in two ways: populations used, and aim. Perhaps, in general, college students give more "reliable" results than do others; perhaps they experience a need to be "consistent." Psychiatric patients produce strikingly high test-retest correlations (10) which is of course a favorable commentary on the MMPI.

Studies also differ in their aims. A researcher whose aim it is to assess a test's reliability, studies his population under as nearly identical conditions as possible.

Such was not the aim of the Gough study, nor of the present one. Gough introduced therapy between testing, while the present study focussed on incarceration. One would therefore expect lower test-retest correlations in these studies.

Changes in the MMPI Scores

This study was conducted for two main purposes. The first purpose was to discover what changes, if any, take place in men during their imprisonment, as these are reflected on the MMPI. The second purpose of the study was to determine at what time interval changes occurred.

Retest findings have indicated that changes have indeed occurred on the MMPI scores. Two prominent changes are the increase in elevation on the retest on the K scale and the marked decrease in elevation on the D scale. Comparative analysis of the initial and the retest D scores indicates that the change noted does not occur in the same direction or magnitude for all 12 months, but rather, that depression is kept elevated for several months, then decreases for several months, and then starts rising again, so that by the last few months, it has attained the level it had during the first few months in prison. This pattern of change suggest that it takes the men several months to accept their incarceration; when they do, the feelings of

depression lessen, only to rise again when the general routine of the prison becomes upsetting and involves considerable frustration.

The increased K suggest a more defensive attitude, which might be attributed to a rise in feelings of inadequacy, and general concern about well-being; it may also reflect a desire to show "improvement" to prison officials, in order to receive favorable consideration when parole is being contemplated. This line of reasoning is in part supported by the increase in the elevation of the L scale on the retest, which is frequently interpreted as a desire to present a favorable picture.

Changes in scores between the two testings are interesting and striking, but also of interest are scales that do not change significantly. This is true of the Pd scale, which is the most elevated both on the initial test and on the retest. This result is particularly noteworthy when one considers that this scale has been frequently referred to as the main differentiating scale between people who commit antisocial acts and those who tend to live within the law. The lack of significant change in the Pd scores suggests that, at least for the period of time studied, the prison environment has not altered any tendencies of a psychopathically deviant nature. This finding is

especially important when one considers that the rehabilitation programs found at the institution are geared to making the men less antisocial; the findings suggest that this particular end is not being met. It is conceivable that the time interval for this study, namely one year, is insufficient, and perhaps it requires several years of exposure to the rehabilitation program before significant changes will be registered on the Pd scale; on the other hand, association with markedly psychopathic personalities may counterbalance any undesirable effect of the rehabilitation programs on the first offender.

Observed Changes on MMPI as a Function of Length of Incarceration

The next question which arises is whether these changes occur at any particular time after the date of incarceration. Is there more change after three months of incarceration than after six months, or is the time variable irrelevant?

A thorough analysis of the changes that took place between the two testings indicates that no single generalization can be made about these changes. No particular pattern has been established on the basis of which one can say with reasonable certainty that after three months or six months of incarceration the men can be expected to be

more depressed or less depressed, and so on. The data do suggest certain trends for some of the scales, and these are recorded in the results chapter.

During the first few months in prison, there seems to be relatively little change except for the increase in L and K scores; this is suggestive of a desire to please, and to make a favorable impression.

Following the first few months, men seem to settle down. Perhaps they have started to become accustomed to the prison routine; they have probably started to work on some job assignment, or perhaps are attending one of the schools; they have had an opportunity to familiarize themselves with the institution and some of its policies. When the men have been incarcerated almost a year, there seems to be a return to the initial feelings of depression; time seems to be getting heavy on their hands, and there is ample opportunity for considerable ruminations about the past and the future. Welsh's anxiety index has indicated that for the sample as a whole, there is a significant decrease in anxiety. Month by month analysis shows that this decrease is significant only for those men who have been in prison for five and six months.

This trend in the changes in anxiety may be related to that noted on the depression scale and also the

psychasthenia scale, where it was noted that there was no change at first, a decrease in the middle months, and a return to the initial level at the end of the year. These finding again tend to suggest that the men are initially upset at their incarceration, adapt after several months to their new environment, and then, again start becoming upset.

Welsh's internalization ratio has yielded results which would also seem to bear a relationship to this trend. There were no significant changes during the early months of imprisonment, but significant decreases occurred during the 5th and 6th months, which is approximately the time when depression and anxiety went down. The decrease in internalization may be interpreted as a greater tendency toward acting-out behavior. Like depression and anxiety, internalization goes back to its initial level near the end of one year of imprisonment. One added aspect of this trend would seem to be the significant decrease in the Ma scale during the latter part of the year. These findings tend to be inter-related and to support one another, and may well be related to prison life.

The initial period of incarceration, particularly in the Reception-Diagnostic Center, places rather severe restrictions on the men, and they are likely to feel upset

and somewhat depressed at their predicament. Once they move out of the Reception-Diagnostic Center, they are granted more freedom of movement and are confronted with fewer restrictions; this undoubtedly helps to relieve them of some of the pressures of confinement. With the passing of time, the men realize what it means to continue to remain confined for quite some time, and this, coupled with a lack of complete freedom of impulsive action without fear of almost immediate reprisal, brings them back to their initial level of disturbance.

It should be pointed out that in the case of all of the trends discussed, it is not always the same monthly groups involved. Thus, it is not always the eight-months group which is "high" or "low." This would seem to add greater probability to the trends. Had some one or two groups consistently been "different" from the rest, one would have suspected that the monthly differences in age or minimum sentence were responsible. As it is, the trends discussed do <u>not</u> appear to depend on a particular monthly group; rather, the "beginning," the "middle," and the "end" of the year appear to present unique patterns of adjustment.

It should also be pointed out that with all of the trends discussed, no other variable but the number of months spent in prison was taken into consideration. Since

many other variables undoubtedly enter into the initial and final MMPI scores, it seems likely that clearer results would have been obtained if the experimental design had been more complete. Thus, if all tables had been based, for example, on a "Months Imprisoned by Age by Intelligence by Socio-Economic Level" design, much added insight would undoubtedly have been achieved. Personality change under any circumstances is, after all, a highly individualized matter, and group data often obscures individual data. In the present study, unfortunately, the obviously needed complexity could not be achieved, since the total number of cases was so small that many cells in any complex factorial design would have remained empty. Future studies conducted on a large scale, should be able to overcome this difficulty, at least in part, by incorporating more and more important variables.

Research conducted on a larger scale would have another important asset: it could trace the trends discussed over longer periods of time. Are the men who show greater acting-out tendencies after some months in prison the ones who ultimately become the hardened criminals? Does the Pd scale ultimately show a decrease or an increase? How would those inmates who show typically psychopathic records on both the initial and final testing compare over a period of years with those whose profiles show few, if any, signs

of psychopathy? Such important questions can only be answered by future research. Since so much analyzed data is available for this sample of 185 first prison offenders, it might prove fruitful to extend the current study into a longitudinal one. The important point to be made, however, is that this initial research project has only scratched the surface, and raised at least as many questions as it has answered.

Summary of the Discussion

A review and discussion of the test results has indicated that changes in personality adjustment in prison inmates has taken place; the significance of these changes and the trends that seemed to develop have also been discussed. On the basis of the present test findings, one can only speculate on trends beyond a year of imprisonment, and accordingly, one can only suggest that research in this area be continued over an extended period of time, and with more penetrating experimental design and data analysis.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The Problem

The purpose of this study was to investigate what changes in the MMPI profiles took place in first prison offenders during their first year of imprisonment. A secondary problem was to determine at what time interval during this first year changes occurred.

Methodology and Procedure

The sample for the study was composed of 185 first prison offenders admitted to the State Prison of Southern Michigan between February 1, 1956 and January 31, 1957. This sample of 185 was composed of 12 sub-groups, each group containing the men who had been admitted to prison during one month of the year, and who qualified for inclusion in the sample population. The number of men in the sub-groups varied between 10 and 22.

During the first week after their admission to the institution, the men took the group (booklet) form of the MMPI. During the last week in February, 1957, the same test was re-administered. Since the sub-groups had been

admitted to the prison during different months, each sub-group represented a varying length of incarceration experience at the time of retesting.

Aside from the two sets of MMPI scores, the following information was also obtained on each man: age, race, I.Q. score, minimum sentence, maximum sentence, average grade reading level, and crime for which sentenced.

The Findings

The analysis of the MMPI data revealed the following:

1. Initial test findings:

a. In the mean profile for the total sample, the Pd and D scales were elevated more than any other scales.

b. Comparison of initial test findings for the study sample with those for a random sample of prison inmates revealed differences significant at less than the 1% level on the Hs and Pd scales. The Pd scale was slightly higher for the random sample, while the Hs scale was significantly higher for the study sample. The Study sample also scored higher on the L and K scales (7% level) and lower on the Ma scale (6% level).

c. Analysis of variance for the 12 sub-groups for each of the 13 scales of the MMPI indicated that the

12 sub-groups are comparable.

2. Retest findings:

a. Analysis of variance for the 12 sub-groups for each of the 13 scales of the MMPI revealed that Mf scores varied significantly (between the 5% and 1% levels) among the 12 sub-groups.

b. Significant variation among the sub-groups also occurred on the Si scale, at between the 5% and 1% levels of confidence.

c. Comparison of initial test and retest means revealed statistically significant decreases at less than the 1% level of confidence on these scales: D, F, Mf, Pa, Ma, and Si. The Pt mean also went down on the retest, a result significant at the 5% level, while the L and K scales increased at the 1% level of confidence. The decrease on the Sc and Hs scales were significant at the 7% and 6% levels respectively, while the changes on the Pd and Hy scales didn't even approach significance.

d. Analysis of variance for the change scores (retest minus initial score) indicated significant variation among the 12 sub-groups on the K scale (1% level) and the D scale (between the 5% and 1% levels).

3. Test-Retest Reliability:

a. Test-retest correlations on the 12 sub-groups

for each of the 13 scales were computed. Ninety-three of the 156 correlations were found to be significant at the 5% level or less.

b. Test-retest correlations for the total sample were also calculated; these were significant at far beyond the 1% level for all 13 scales.

4. Inter-scale correlations:

a. Correlations were also obtained on both the initial test and the retest between each scale and every other one. Fifty-six of the 78 correlations were significant on the initial test, while 54 of the 78 correlations were significant on the retest.

b. Generally, the same pattern of inter-correlation existed on both the initial and the second testings.

5. The anxiety index:

Welsh's anxiety index was calculated for each man. The mean anxiety index on the initial test was 76.51, while that on the retest was 73.45. The mean decrease for the total sample was -3.06, which is significant at less than the 5% level of confidence. Both the initial and the retest means were significantly different from a "normal" 50 (1% level).

6. The internalization ratio:

Welsh's internalization ratio was calculated for

each man. The mean internalization ratio on the initial test was .98; with a standard error of .011, this is not statistically different from a "normal" 1.00. The retest internalization ratio is .95; with a standard error of .009, this differs from a "normal" 1.00 at less than the 1% level of confidence. The decrease in internalization ratio between testings is significant at less than the 1% level of confidence.

7. Abnormal and normal MMPI profiles:

The criteria developed by Meehl categorizing profiles as normal and abnormal were applied to both the initial and retest findings. On the initial test, 62% of the men registered abnormal profiles; on the retest, 71% of the men had abnormal profiles. This is an increase of 9%, which is significant at between the 5% and 1% levels of confidence.

Conclusions

The outcomes of this research appear to justify the following conclusions, subject to the limitations of the study.

1. Changes in the personality adjustment of inmates during their first year or less of imprisonment are indicated by changes in the MMPI profiles. This conclusion supports the contention of many penologists that the prison

environment encourages changes in personality adjustment. Furthermore, this finding is of considerable importance to prison personnel active in the rehabilitation program. Prison personnel cognizant of these changes in personality adjustment in the inmates can gear their rehabilitation programs to take them into account.

2. Discernible trends indicating phases of the personality adjustment process during the first year of imprisonment were suggested but inconclusive. The type of change and sequence of change were noted. Such trends if supported by more extensive research, can be of considerable practical value to the counselors of the institution, who are actively engaged in counseling the inmates for rehabilitation purposes.

3. More prison inmates had abnormal MMPI profiles following a period of incarceration than on admission to the institution. This is supportive of the views of many penologists that imprisonment leads to increased mental disturbance in prisoners. This finding is suggestive of the need for improvement in our penal rehabilitation programs.

4. First prison offenders, as a group, appear to be less psychopathic than a random sample of prison inmates. This finding leads to the implication that perhaps first offenders, as a group, are more salvable and more capable

of changing to socially acceptable behavior than individuals who have experienced incarceration on several previous occasions. Perhaps more effort toward rehabilitation should be directed at this group; possibly, such reorientation would yield results in the form of a reduced recidivism rate.

Implications For Further Research

This investigation has raised a number of questions which are beyond the scope of this study. Certain conclusions were reached in terms of the data of this study; however, they constitute a small beginning into the controlled study of the effects of imprisonment on personality adjustment. The following are a few of the more important implications for future study:

1. A longitudinal research project involving personality assessment prior to imprisonment, at the time of admission to prison, during confinement, and finally, after release from prison, would appear to be a fruitful project. A study of this nature might well be conducted under varying conditions in different prison systems in an effort to delineate the type of penal environment most apt to foster desirable changes in personality adjustment.

2. Analysis of personality adjustment changes during incarceration as a function of type of criminal offense

(murders, sex offenses, armed and unarmed robbery, car theft, etc.) may produce more refined results than the present study.

3. Because group analysis of data often obscures individual trends, it would seem important in future research to focus more on the individual case than was done in the present study. Tracing the reactions of just a few selected men to the prison environment over a period of time, as assessed by depth interviews as well as various psychological instruments, might prove a valuable complement to the type of research represented by this study.

4. The MMPI was the only measuring instrument used in the current study; perhaps other psychological tests could be developed which are even more sensitive to changes in personality adjustment.

5. Research designed to develop methods to predict prison adjustment would be invaluable. If reasonably accurate predictions of prison adjustment could be made, prison personnel charged with the rehabilitation of the inmates could develop particular programs suited to particular inmates.

6. Future research would do well to incorporate the time variable, since the comparison of initial and retest scores gives a quite different picture from that obtained through the further analysis of the sub-groups.

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APPENDIX A

MMPI RAW SCORES FOR THE TOTAL SAMPLE OF 185 FIRST PRISON OFFENDERS ON THE INITIAL TEST AND THE RETEST

MMPI RAW SCORES FOR THE TOTAL SAMPLE OF 185 FIRST PRISON OFFENDERS ON THE INITIAL TEST AND THE RETEST*

Group Entering Prison February, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
3	11	12	23	27	30	31	21	19	28	31	20	30
2	3	17	11	16	20	26	19	15	24	23	13	23
4	2	18	11	11	19	30	23	7	27	29	26	14
3	2	22	15	18	27	31	25	6	25	28	18	18
5	4	15	15	18	20	22	24	9	22	20	21	31
6	6	23	19	20	23	27	18	10	26	26	18	21
3	3	18	16	22	24	31	24	7	30	27	25	17
4	5	17	14	23	25	30	25	11	26	28	27	20
3	6	12	9	11	18	26	25	10	24	28	32	15
5	4	14	8	16	18	25	20	6	22	27	27	12
4	6	13	9	20	17	26	16	11	19	24	24	19
4	5	19	11	14	22	22	23	13	23	26	22	15
1	7	11	14	20	23	26	29	12	31	34	25	15
2	4	15	12	12	20	27	24	9	26	22	21	11
4	11	13	21	25	29	27	21	14	30	24	22	33
5	10	13	8	24	19	26	25	7	22	19	16	25
6	8	21	22	27	18	34	20	12	31	27	20	22
8	4	21	11	24	18	22	21	8	24	23	18	22
5	8	21	22	24	25	32	20	17	31	39	24	29
7	5	28	15	24	23	34	17	10	32	29	25	21
1	8	7	12	19	21	26	26	9	24	21	21	27
7	2	23	16	14	24	27	22	7	25	26	21	16
-	4	9	12	25	16	35	20	15	35	25	17	43
6	2	20	14	22	18	32	18	11	29	26	16	23
-	6	18	13	21	21	27	24	5	24	23	25	18
9	2	25	13	20	24	26	22	9	30	30	16	17
-	3	11	12	16	16	18	19	5	15	12	14	17
7	1	14	9	17	17	15	18	5	17	17	13	16

* The retest score is written below the initial score for each man; for example, the first subject in the February group initially obtained a 3 L-score, an 11 F-score, a 12 K-score, etc., while on the retest, this man obtained scores of 2, 3, 17, etc., on these scales. K corrections have been added to the Hs, Pd, Pt, Sc, and Ma scores.

MMPI RAW SCORES CONTINUED

Group Entering Prison March, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
2	1	13	8	21	19	23	23	7	18	16	18	24
5	3	18	9	22	20	25	21	8	26	23	18	26
8	2	15	9	15	15	18	22	8	16	17	17	24
8	0	20	10	14	22	21	25	8	20	21	19	19
5	1	13	8	20	15	30	20	7	20	19	17	16
6	3	20	10	20	24	30	21	10	25	24	18	17
9	4	15	17	19	23	28	19	7	32	24	28	23
3	5	18	17	20	17	23	23	13	35	39	29	24
2	4	11	13	21	25	31	23	12	30	34	23	23
4	4	14	9	19	20	29	25	6	25	25	23	19
6	9	24	19	23	28	31	25	12	32	34	25	21
8	13	26	22	27	29	32	30	19	32	42	20	23
2	3	7	9	24	16	22	30	14	23	22	19	38
1	2	6	13	21	19	18	23	10	17	14	16	17
5	2	21	11	19	21	22	35	12	25	22	19	19
5	2	20	19	25	31	28	33	12	29	24	20	20
3	5	12	11	17	17	25	25	15	30	30	27	24
3	5	13	13	25	17	29	24	10	23	24	18	25
8	11	22	23	20	30	36	28	15	30	40	20	35
10	4	22	15	17	18	30	17	8	30	31	17	32

MMPI RAW SCORES CONTINUED

Group Entering Prison April, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
4	6	12	10	20	17	20	20	12	24	27	21	27
3	2	17	10	13	17	24	17	8	26	25	30	18
3	2	16	10	19	14	22	27	12	23	22	18	21
5	4	21	12	21	22	30	22	14	27	28	16	22
6	3	13	14	20	19	25	22	10	24	24	25	32
6	1	16	13	16	20	22	20	5	22	27	21	28
10	10	18	14	26	17	27	24	15	25	32	19	24
4	6	18	15	22	21	21	23	9	24	30	19	27
5	7	18	15	22	23	24	27	14	28	27	23	18
9	3	24	12	21	22	27	25	12	31	28	23	18
3	0	22	13	17	21	24	14	8	27	27	14	23
4	0	23	12	13	17	24	17	11	25	25	15	23
10	6	19	25	25	30	27	25	14	29	29	21	29
10	2	17	26	25	26	24	22	15	22	26	14	25
7	12	18	24	26	28	31	24	12	37	47	20	28
7	8	12	12	28	16	30	28	13	26	25	15	35
4	7	12	31	35	21	33	23	12	39	39	27	34
6	3	17	16	20	37	33	22	9	25	26	23	29
1	3	13	14	26	17	28	24	5	23	21	21	23
2	2	14	13	24	16	25	25	7	22	23	20	25
5	2	20	21	22	22	31	17	7	23	24	18	22
6	0	20	18	21	23	29	17	10	21	24	22	23
2	9	16	20	27	30	35	26	15	33	34	27	25
7	8	18	22	28	30	36	31	16	37	39	29	24
6	1	19	22	23	27	26	25	10	22	23	16	24
4	1	23	16	18	22	32	20	11	26	27	15	23
6	4	13	16	30	28	28	25	14	35	30	14	39
3	7	7	13	24	25	24	27	17	33	29	19	47

MMPI RAW SCORES CONTINUED

Group Entering Prison May, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
1	4	12	11	21	17	30	27	15	26	23	24	22
2	3	15	10	21	17	29	22	10	25	31	19	26
6	8	15	14	25	23	34	32	12	35	30	19	28
7	5	16	16	23	23	31	27	11	35	28	17	36
6	8	11	14	26	22	28	27	14	26	32	20	31
5	7	11	13	24	25	23	25	17	28	25	18	41
4	9	17	12	23	22	32	26	9	25	33	25	31
6	8	21	14	21	19	32	26	11	28	34	19	31
2	4	17	12	15	20	34	25	17	29	26	21	18
4	1	14	9	16	15	31	18	9	24	20	23	21
5	12	7	14	41	24	26	26	14	43	36	16	55
2	4	11	16	30	25	26	29	12	33	29	16	49
2	11	11	26	28	25	25	25	17	40	42	26	36
3	12	10	24	27	29	25	21	14	30	29	21	30
6	4	12	11	20	24	31	31	10	25	20	22	17
3	2	15	12	20	20	30	27	8	31	23	20	19
6	9	15	12	24	25	25	25	13	25	34	22	30
5	4	15	15	17	29	18	24	8	27	30	22	31
2	7	12	18	23	27	30	21	14	34	32	21	39
0	11	12	21	26	25	33	31	11	38	32	17	37
4	6	17	21	21	26	32	16	9	25	28	22	20
4	2	25	15	17	24	22	20	12	26	28	24	14
0	4	4	4	24	10	20	15	10	26	16	16	43
5	6	5	5	23	14	22	17	8	26	18	20	37
4	10	9	21	21	26	29	26	20	33	42	30	31
5	4	19	14	15	20	38	17	6	25	30	23	23
7	4	16	18	22	25	26	22	9	21	19	17	25
7	5	19	16	18	20	23	22	5	22	20	14	23
5	11	14	14	20	13	23	25	4	26	23	22	28
4	7	13	15	20	16	23	21	12	27	26	28	30

MMPI RAW SCORES CONTINUED

Group Entering Prison June, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
1	6	13	17	29	22	32	26	9	36	27	18	34
2	3	14	13	25	21	25	22	11	31	18	17	31
3	6	14	13	24	25	27	29	12	36	30	15	33
7	3	14	9	10	13	19	18	9	18	17	12	24
3	5	12	18	22	28	28	19	10	23	24	22	30
4	3	19	19	19	30	31	20	15	37	38	29	27
4	6	11	9	18	13	28	26	9	28	28	16	43
2	5	8	10	20	8	30	25	13	28	26	15	41
5	3	15	19	20	21	30	15	9	29	28	20	30
7	2	16	16	18	15	27	19	14	33	32	21	39
4	10	9	23	22	28	29	31	19	32	34	21	33
10	3	20	11	15	15	28	18	5	29	26	16	28
2	5	9	8	21	14	21	23	6	25	29	27	28
4	1	17	12	20	17	29	15	8	24	20	21	19
6	2	18	22	20	33	22	25	8	24	24	17	24
7	1	21	19	22	28	27	23	10	24	25	18	17
4	4	15	14	27	18	35	26	9	24	24	24	26
1	4	19	14	23	16	28	23	8	26	25	23	23
2	5	14	11	22	17	29	23	8	26	21	21	27
3	3	16	10	16	16	24	22	10	21	25	20	35
6	7	13	11	21	17	29	26	10	24	29	21	26
3	3	16	15	21	21	24	25	11	21	24	23	20
6	5	13	12	28	16	23	15	12	24	18	6	36
7	5	18	17	29	14	24	20	12	27	23	13	41
7	1	23	13	18	21	23	23	6	25	24	16	22
4	3	24	15	21	24	29	26	9	29	27	15	21
7	8	25	23	21	26	29	28	15	34	39	27	25
8	2	24	22	21	31	25	23	13	30	31	18	23
4	7	10	7	18	13	28	15	6	14	26	27	21
4	3	19	10	18	10	30	12	10	24	27	21	20
3	3	16	15	15	26	23	27	9	23	20	26	13
3	1	16	12	12	21	27	26	7	20	20	22	10
3	2	11	7	18	13	21	21	7	19	17	15	26
3	2	15	10	16	9	22	20	3	24	19	23	23

MMPI RAW SCORES CONTINUED

Group Entering Prison July, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
6	12	16	18$	34	30	30	32	12	42	37	16	36
6	4	16	20	29	32	28$	33	13	42	31	17	39$
4	2	15	12	27	18$	26	23	12	25	21	15	34
6	2	21	13	21	20	32	31	11	25	23	13	31
7	8$	14	18$	27	24	29	20	6	29	27	20	30
5	7	17	17	22	25	32	24	6	28$	28$	20	31
9	3	24	17	20	26	31	22	13	25	28$	22	16
9	4	21	17	18$	24	29	23	15	23	25	19	17
7	2	23	15	21	27	31	27	11	26	28$	22	20
6	0	21	12	19	24	28$	28$	9	23	22	20	26
2	3	12	14	18$	17	25	26	15	25	27	24	22$
5	3	15	14	21	24	25	25	7	24	19	13	27
5	3	13	17	21	20	28$	21	8$	24	19	22	23
4	4	17	23	21	20	32	20	10	27	28$	23	30$
4	3	19	17	16	25	29	21	12	23	31	18$	27
8$	0	20$	12	13	20	24	26	11	22	36	16	27
3	12	9	18$	23	26	29	28$	21	35	42	22	38$
4	11	8$	8$	25	19	24	26	15	30	46	18$	37
6	10	7	18$	33	22	31	42	16	35	33	19	44
8$	4	9	11	24	16	23	36	12	27	23	12	39$
2	8$	7	6	17	8$	21	23	11	26	26	18$	42
1	9	14	12	18$	19	25	19	12	33	36	24	35
3	2	20	11	16	22	28$	35	11	25	23	19	17
2	4	19	12	25	26	39	29	14	29	23	15	27
6	5	12	11	16	16	24	32	9	28$	26	18$	39
6	5	15	10	14	19	28$	29	13	22	22	18$	22
5	11	15	15	29	23	34	19	5	30	31	17	36
6	8$	7	18$	30	29	35	22	7	30	27	19	36
6	5	13	16	16	21	26	31	11	25	25	29	22
8$	2	14	9	16	18$	27	27	13	27	27	34	24

MMPI RAW SCORES CONTINUED

Group Entering Prison August, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
10	3	20	24	34	34	26	21	9	30	24	15	27
8	3	23	18	27	27	26	19	8	29	26	14	28
5	4	16	9	22	15	25	24	5	24	22	17	26
4	2	25	13	20	21	28	23	8	28	29	15	18
3	12	16	15	22	22	27	24	13	32	41	19	22
4	6	19	13	18	21	29	25	12	31	30	23	20
8	4	21	13	25	18	26	24	10	26	24	17	29
6	1	24	13	24	23	31	26	11	27	28	17	24
10	11	13	22	23	29	29	26	10	26	28	18	33
8	12	22	25	27	30	36	26	12	34	35	18	29
4	0	18	11	17	21	17	21	8	20	21	14	19
4	0	17	9	16	21	22	21	5	20	18	19	18
3	7	15	10	21	24	38	26	11	25	24	27	17
5	2	17	9	17	20	30	26	5	21	21	22	17
3	2	20	11	19	18	31	21	10	24	24	17	18
8	3	26	14	14	23	29	18	12	28	28	17	16
4	3	17	16	19	24	26	23	13	34	30	26	20
4	1	13	8	16	16	19	23	9	22	16	22	23
7	9	12	13	29	17	25	25	12	28	31	21	28
8	7	22	17	22	27	35	25	12	25	32	21	18
1	4	14	9	22	19	24	16	14	27	20	19	28
3	2	18	14	21	24	26	21	8	26	22	17	29
8	3	14	14	23	16	25	26	10	22	21	20	23
3	5	21	15	20	17	29	26	11	28	31	24	19
2	12	7	9	21	11	21	28	14	22	22	16	27
2	10	12	9	20	16	25	23	12	29	28	20	26
3	9	10	11	33	19	25	23	6	33	33	24	39
3	8	12	13	21	22	22	20	12	25	21	25	32
7	6	13	14	28	17	21	18	10	23	21	11	32
7	5	14	11	22	18	28	19	12	28	30	20	35
7	8	17	28	36	32	32	27	13	42	36	15	47
9	7	15	23	35	28	22	23	12	34	25	16	46

MMPI RAW SCORES CONTINUED

Group Entering Prison September, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
5	6	19	16	27	23	32	15	9	30	28	17	35
3	6	20	15	25	19	29	17	8	30	27	17	38
4	3	15	12	23	18	27	23	4	30	27	18	22
4	2	22	17	21	21	32	31	6	29	32	20	18
1	12	15	16	30	25	42	25	17	33	34	32	15
6	4	22	16	15	22	35	23	10	24	28	23	18
3	5	9	7	24	19	36	28	13	35	32	19	40
5	5	7	5	19	11	28	27	6	17	15	20	30
3	4	21	15	19	22	34	23	10	34	34	21	24
5	1	17	14	17	21	32	24	8	27	27	26	14
3	7	13	24	34	28	33	24	11	31	29	27	34
4	3	22	21	18	26	26	25	7	30	26	20	22
2	5	10	6	17	14	29	21	8	21	17	22	16
3	3	13	8	15	15	29	20	10	18	19	21	16
6	3	11	8	15	16	26	17	14	26	20	15	29
6	4	15	9	19	20	29	20	17	27	23	15	33
3	6	11	9	24	13	21	24	11	27	24	24	29
8	3	21	11	19	17	25	17	10	27	29	29	18
1	5	8	15	25	22	24	30	12	37	26	14	32
2	3	11	7	15	13	18	24	10	24	19	13	32

MMPI RAW SCORES CONTINUED

Group Entering Prison October, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
4	2	16	17	23	28	36	27	8	31	25	19	21
6	1	20	15	21	22	26	32	9	24	25	18	21
6	7	10	10	19	13	27	31	11	25	31	22	29
5	1	10	14	19	15	28	32	11	23	26	28	23
7	6	16	15	23	21	27	27	9	30	27	24	25
8	2	22	17	18	24	26	28	8	34	30	24	17
3	5	16	11	21	18	23	24	11	33	26	18	30
4	3	21	14	22	20	28	23	11	28	28	20	25
1	8	15	13	21	21	26	26	11	25	25	17	30
2	1	21	14	20	23	29	20	9	34	27	21	29
5	11	21	17	22	19	35	27	17	32	40	27	24
9	9	18	12	20	20	28	25	13	35	39	27	21
8	2	22	15	20	20	30	22	7	24	24	18	23
6	5	24	18	17	28	33	28	8	25	28	22	22
8	7	15	19	34	21	28	24	16	28	24	18	35
5	7	16	21	25	25	27	21	11	25	23	20	36
8	2	23	16	24	25	28	21	12	27	26	17	22
10	4	28	17	20	29	32	23	12	31	35	20	18
2	6	11	29	32	37	34	32	21	46	51	23	24
4	7	20	13	21	27	28	25	14	24	26	19	14
6	0	20	15	25	29	23	26	9	24	21	20	24
7	1	25	16	22	26	25	22	12	29	27	15	23
10	9	18	14	21	26	27	18	9	32	33	22	27
10	4	17	14	21	20	24	14	6	23	22	12	23
9	5	21	22	21	24	25	26	9	26	25	24	16
9	4	24	30	27	36	30	23	12	33	29	25	17
3	10	14	7	22	18	36	26	13	32	24	22	24
4	3	16	10	20	16	28	27	13	28	24	20	21
3	3	21	18	28	22	31	28	12	28	28	16	25
3	3	20	17	22	28	30	24	10	23	23	14	23
6	11	13	31	34	30	26	22	12	46	38	16	35
4	4	22	16	18	27	22	15	9	25	24	14	21
3	7	16	14	34	27	33	30	17	40	38	12	43
4	6	16	17	32	22	33	28	15	46	39	12	46
7	1	20	11	20	20	25	21	4	22	20	17	21
5	3	21	14	19	20	27	24	6	28	23	20	22
3	2	15	22	23	21	21	23	8	28	22	12	25
4	1	11	20	28	17	20	27	6	23	17	14	33
7	6	14	12	25	21	32	23	14	27	22	14	26
8	7	19	12	22	19	30	25	12	24	23	19	17
7	4	18	13	17	20	24	17	5	21	22	19	28
8	8	18	12	19	19	28	18	9	20	23	18	31
2	7	15	17	20	20	27	23	9	29	32	21	24
2	6	16	12	19	13	22	23	5	24	24	20	24

MMPI RAW SCORES CONTINUED

Group Entering Prison November, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
4	5	13	17	13	27	25	17	8	22	23	23	17
3	5	12	19	16	32	29	15	15	23	24	26	17
4	11	10	9	22	12	27	22	15	25	34	21	29
2	6	14	10	21	12	25	19	7	21	25	18	27
6	3	22	22	29	28	33	24	14	36	30	17	36
7	7	26	22	23	34	37	26	13	35	39	23	29
3	1	10	10	16	19	20	29	10	24	14	18	28
4	1	17	10	18	18	23	23	9	25	18	18	24
4	11	9	19	27	22	29	25	15	35	30	18	41
3	5	14	20	25	25	30	20	14	36	32	19	43
8	4	21	21	22	26	34	20	11	31	29	27	22
8	4	17	18	25	27	28	24	9	25	22	21	20
5	8	20	19	21	23	27	21	11	26	31	19	27
4	2	19	16	18	23	28	16	8	26	26	18	23
2	7	14	13	25	25	32	28	7	34	25	26	29
9	0	22	12	20	22	31	26	10	30	31	21	24
1	4	9	17	21	20	28	24	13	27	34	28	36
2	4	12	17	20	26	27	26	11	25	25	21	37
5	4	17	22	29	32	31	22	7	28	23	15	36
8	2	16	19	25	34	27	22	8	24	23	18	27
5	4	16	13	22	24	20	22	9	20	22	17	27
6	4	20	12	24	29	26	22	9	28	25	14	27
4	7	13	17	29	26	34	39	17	35	30	20	37
6	6	18	15	22	20	30	33	12	26	27	16	28
3	1	17	14	18	17	24	28	5	24	25	22	20
2	1	21	13	18	18	22	27	6	21	25	21	13
6	4	19	19	23	25	31	22	13	29	24	16	31
5	6	19	15	25	21	31	17	9	29	24	17	28
6	6	10	17	30	21	25	20	8	30	31	18	56
8	9	11	19	28	23	24	25	11	25	28	18	54
9	4	18	19	27	22	29	17	14	31	29	20	39
6	5	16	18	25	18	26	23	8	26	22	16	27
1	13	11	18	26	21	24	20	9	30	40	29	30
3	12	8	16	25	19	22	25	14	27	34	26	34
9	11	22	20	19	20	28	18	8	30	39	20	41
9	14	19	21	28	28	29	26	11	28	35	20	30
6	7	21	19	18	27	32	23	21	32	30	25	19
8	6	24	20	23	29	27	27	16	28	31	25	23

MMPI RAW SCORES CONTINUED

Group Entering Prison December, 1956

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
3	6	11	8	17	17	24	24	9	24	21	17	23
6	7	24	17	21	24	35	20	10	29	31	18	20
6	4	18	14	21	18	23	26	10	25	24	16	37
6	7	12	21	36	29	31	23	15	39	33	16	49
4	2	11	24	27	26	27	21	8	30	23	24	34
3	3	11	16	22	19	20	23	13	29	23	23	35
5	0	18	24	24	32	22	20	8	26	20	14	30
6	3	21	22	25	32	23	24	9	30	24	18	34
7	7	20	15	22	18	22	21	13	22	23	13	33
7	2	21	13	22	13	20	25	9	27	25	14	31
3	0	14	10	18	22	23	28	8	22	16	20	15
8	0	23	13	21	24	36	30	12	29	27	15	20
3	11	5	9	23	16	23	18	12	28	30	26	34
7	9	12	11	25	20	24	18	9	25	26	19	36
3	5	14	9	19	14	33	21	11	32	30	27	28
3	4	14	8	15	14	31	19	8	26	27	29	24
6	6	22	20	28	25	32	17	8	30	29	14	28
10	2	26	20	26	25	29	15	8	30	30	15	26
1	3	16	15	22	23	28	17	7	35	37	30	26
2	3	16	12	19	19	26	17	7	24	28	26	22
5	5	22	12	18	23	25	25	10	28	26	21	11
6	4	25	13	18	24	26	22	11	27	25	13	13
7	6	18	15	23	22	20	25	8	28	23	16	30
10	6	19	15	18	21	21	27	7	23	23	13	22
3	3	17	20	20	30	31	23	10	26	27	22	20
5	1	25	21	18	35	31	22	12	29	30	22	13
3	0	15	13	20	24	31	31	7	22	21	24	21
6	4	22	15	21	25	26	27	13	23	27	17	15

MMPI RAW SCORES CONTINUED

Group Entering Prison January, 1957

L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
2	2	16	14	15	21	23	25	7	23	22	20	22
5	5	21	19	20	25	32	26	12	27	29	21	27
3	5	16	11	17	22	27	24	8	20	18	18	13
2	3	20	10	13	19	23	22	7	23	23	20	13
3	10	8	17	26	19	29	15	15	27	30	22	35
10	10	26	29	34	34	36	19	13	34	41	21	35
5	4	18	13	24	19	32	20	11	31	29	30	27
5	6	18	16	20	28	29	18	11	33	32	22	27
10	10	10	18	24	19	26	21	13	27	21	12	38
9	11	10	18	20	27	28	24	13	27	22	20	24
2	12	7	13	19	21	25	27	13	23	26	23	29
3	5	15	15	14	22	23	20	12	24	21	21	26
1	9	15	20	24	27	26	26	8	30	31	26	19
1	3	12	15	21	24	31	29	8	29	19	23	25
3	7	9	18	30	23	26	25	10	31	28	18	45
7	5	11	20	23	16	21	23	11	29	24	21	40
2	12	7	25	37	36	21	31	15	49	42	23	57
1	12	7	31	41	39	24	24	15	48	43	23	56
9	5	16	22	28	24	29	26	13	36	26	17	47
9	7	16	20	30	23	27	27	8	27	23	16	43
4	3	15	10	17	17	20	18	10	22	20	13	26
5	2	18	9	19	18	24	21	10	26	23	13	29
2	8	4	15	22	28	34	28	19	33	33	27	30
5	2	19	13	21	26	34	29	13	29	24	19	19
4	3	13	14	19	25	25	24	11	27	24	18	32
5	1	22	15	20	23	26	25	13	34	28	20	26
5	4	15	10	20	16	26	27	9	28	29	22	28
9	6	15	10	15	13	23	19	7	22	23	22	27
6	3	19	11	15	16	28	22	5	22	23	23	22
4	4	20	11	19	19	30	20	7	23	25	16	22
5	11	18	20	29	32	34	35	15	36	33	26	24
5	9	20	20	29	34	37	33	16	40	38	23	34
5	3	19	14	11	21	24	25	13	20	23	22	11
5	1	22	11	12	24	31	26	11	24	24	24	10
3	7	14	16	22	21	35	27	9	32	30	22	22
6	6	11	7	17	14	25	26	6	27	24	30	14

APPENDIX B

CRITICAL RATIO COMPARISONS OF EACH MONTHLY GROUP WITH EVERY OTHER MONTHLY GROUP FOR THOSE ANALYSES OF VARIANCE WHICH YIELDED SIGNIFICANT F'S: RETEST MF SCORES, RETEST SI SCORES, K CHANGE SCORES, D CHANGE, SCORES, INTERNALIZATION RATIO CHANGE SCORES

CRITICAL RATIO COMPARISONS OF EACH MONTHLY GROUP WITH EVERY OTHER MONTHLY GROUP FOR THOSE ANALYSES OF VARIANCE WHICH YIELDED SIGNIFICANT F'S: RETEST MF SCORES, RETEST SI SCORES, K CHANGE SCORES, D CHANGE SCORES, INTERNALIZATION RATIO CHANGE SCORES

Retest Mf Scores

GC#	Dif.	S.E. dif.	t	GC#	Dif.	S.E. dif.	t
1-2	1.661	1.48	1.12	4-8	2.955	1.36	2.17*
1-3	.681	1.40	--	4-9	.821	1.49	--
1-4	.010	1.38	--	4-10	1.385	1.51	--
1-5	.945	1.60	--	4-11	.246	1.75	--
1-6	1.194	1.19	--	4-12	2.742	1.26	2.18*
1-7	2.589	1.55	1.67	5-6	.249	1.46	--
1-8	2.945	1.35	2.19*	5-7	3.534	1.76	2.01*
1-9	.811	1.48	--	5-8	2.000	1.59	1.26
1-10	1.375	1.50	--	5-9	.134	1.70	--
1-11	.256	1.73	--	5-10	.430	1.72	--
1-12	2.732	1.24	2.20*	5-11	1.201	1.93	--
2-3	.980	1.52	--	5-12	1.787	1.50	1.19
2-4	1.671	1.50	1.11	6-7	3.783	1.40	2.70**
2-5	.716	1.71	--	6-8	1.751	1.17	1.50
2-6	.467	1.33	--	6-9	.383	1.32	--
2-7	4.250	1.66	2.56*	6-10	.181	1.35	--
2-8	1.284	1.45	--	6-11	1.450	1.60	--
2-9	.850	1.59	--	6-12	1.538	1.05	1.47
2-10	.286	1.60	--	7-8	5.534	1.53	3.62**
2-11	1.917	1.83	1.05	7-9	3.400	1.65	2.06*
2-12	1.071	1.41	--	7-10	3.964	1.67	2.37*
3-4	.691	1.41	--	7-11	2.333	1.88	1.24
3-5	.264	1.63	--	7-12	5.321	1.44	3.70**
3-6	.513	1.23	--	8-9	2.134	1.46	1.46
3-7	3.370	1.22	2.76**	8-10	1.570	1.48	1.06
3-8	2.264	1.38	1.64	8-11	4.201	1.72	2.44*
3-9	.130	1.51	--	8-12	1.213	1.22	--
3-10	.694	1.53	--	9-10	.564	1.60	--
3-11	.937	1.76	--	9-11	1.067	1.82	--
3-12	2.051	1.28	1.60	9-12	1.921	1.36	1.41
4-5	.955	1.62	--	10-11	1.631	1.84	--
4-6	1.204	1.21	--	10-12	1.357	1.39	--
4-7	2.579	1.56	1.65	11-12	2.988	1.64	1.82

GC# Means Groups Compared

Retest Si Scores

GC#	Dif.	S.E. dif.	t	GC#	Dif.	S.E. dif.	t
1-2	1.900	3.81	--	4-8	2.045	2.64	--
1-3	.547	3.38	--	4-9	5.912	2.84	2.08*
1-4	3.657	3.06	1.19	4-10	5.257	2.51	2.09*
1-5	2.975	3.67	--	4-11	1.754	2.16	--
1-6	2.736	3.33	--	4-12	5.384	1.92	2.80**
1-7	2.255	3.12	--	5-6	.239	3.26	--
1-8	1.612	3.40	--	5-7	5.230	3.05	1.72
1-9	2.255	3.56	--	5-8	1.363	3.33	--
1-10	1.400	3.30	--	5-9	5.230	3.49	1.50
1-11	5.411	3.03	1.79	5-10	1.575	3.22	--
1-12	9.041	2.87	3.15**	5-11	2.436	2.95	--
2-3	2.447	3.46	--	5-12	6.066	2.79	2.17*
2-4	1.757	3.15	--	6-7	4.991	2.63	1.90
2-5	1.075	3.74	--	6-8	1.124	2.95	--
2-6	.836	3.41	--	6-9	4.991	3.13	1.60
2-7	4.155	3.21	1.29	6-10	1.336	2.83	--
2-8	.288	3.47	--	6-11	2.675	2.52	1.06
2-9	4.155	3.63	1.15	6-12	6.305	2.33	2.71*
2-10	.500	3.38	--	7-8	3.867	2.71	1.43
2-11	3.511	3.12	1.13	7-9	0.000	2.91	--
2-12	7.141	2.96	2.41*	7-10	3.655	2.59	1.41
3-4	4.204	2.62	1.61	7-11	7.666	2.24	3.42**
3-5	3.522	3.30	1.07	7-12	11.296	2.02	5.59**
3-6	3.283	2.93	1.12	8-9	3.867	3.20	1.21
3-7	1.708	2.69	--	8-10	.212	2.91	--
3-8	2.159	3.00	--	8-11	3.799	2.61	1.46
3-9	1.708	3.18	--	8-12	7.429	2.42	3.07**
3-10	.500	2.89	--	9-10	3.655	3.10	1.18
3-11	.511	2.58	--	9-11	7.666	2.81	2.73**
3-12	7.141	2.39	2.99**	9-12	11.296	2.64	4.28**
4-5	.682	2.98	--	10-11	4.011	2.48	1.62
4-6	.921	2.56	--	10-12	7.641	2.28	3.35**
4-7	5.912	2.28	2.59*	11-12	3.630	1.88	1.93

K Change Scores

GC#	Dif.	S.E. dif.	t	GC#	Dif.	S.E. dif.	t
1-2	.015	1.87	--	4-8	.735	1.19	--
1-3	1.819	1.57	1.159	4-9	.367	1.16	--
1-4	1.056	1.83	--	4-10	1.214	1.27	--
1-5	.011	1.90	--	4-11	.100	1.14	--
1-6	.007	1.68	--	4-12	2.643	1.44	1.835
1-7	2.556	1.66	1.539	5-6	.018	1.68	--
1-8	.321	1.63	--	5-7	2.545	1.66	1.533
1-9	1.423	1.61	--	5-8	.310	1.63	--
1-10	2.270	1.69	1.343	5-9	1.412	1.61	--
1-11	1.156	1.59	--	5-10	2.259	1.69	1.337
1-12	1.587	1.82	--	5-11	1.145	1.59	--
2-3	1.834	1.54	1.191	5-12	1.598	1.82	--
2-4	1.071	1.50	--	6-7	2.563	1.40	1.831
2-5	.026	1.87	--	6-8	.328	1.36	--
2-6	.008	1.64	--	6-9	1.430	1.34	1.067
2-7	2.571	1.62	1.587	6-10	2.277	1.44	1.581
2-8	.362	1.59	--	6-11	1.163	1.32	--
2-9	1.438	1.57	--	6-12	1.580	1.59	--
2-10	2.285	1.66	1.377	7-8	2.235	1.34	1.668
2-11	1.171	1.56	--	7-9	1.133	1.32	--
2-12	1.572	1.79	--	7-10	.286	1.41	--
3-4	.763	1.11	--	7-11	1.400	1.30	1.077
3-5	1.808	1.57	1.152	7-12	4.143	1.57	2.639*
3-6	1.826	1.30	1.405	8-9	1.102	1.28	--
3-7	.737	1.27	--	8-10	1.949	1.38	1.412
3-8	1.498	1.23	1.218	8-11	.835	1.26	--
3-9	.396	1.21	--	8-12	1.908	1.54	1.230
3-10	.451	1.32	--	9-10	.847	1.36	--
3-11	.663	1.19	--	9-11	.267	1.24	--
3-12	3.406	1.48	2.301*	9-12	3.010	1.52	1.980
4-5	1.045	1.54	--	10-11	1.114	1.34	--
4-6	1.063	1.25	--	10-12	3.857	1.60	2.411*
4-7	1.500	1.22	1.229	11-12	2.743	1.50	1.829

D Change Scores

GC#	Dif	S.E. dif.	t	GC#	Dif	S.E. dif.	t
1-2	.968	1.67	--	4-8	.324	1.44	--
1-3	.190	1.35	--	4-9	.191	1.38	--
1-4	1.980	1.44	1.375	4-10	.552	1.59	--
1-5	4.489	2.13	2.107*	4-11	3.691	1.59	2.321*
1-6	2.764	1.35	2.047*	4-12	1.020	1.67	--
1-7	.589	1.50	--	5-6	1.625	2.08	--
1-8	1.624	1.41	1.152	5-7	3.800	2.19	1.735
1-9	1.789	1.35	1.325	5-8	2.765	2.13	1.298
1-10	2.532	1.56	1.623	5-9	2.600	2.09	1.244
1-11	1.711	1.56	1.097	5-10	1.957	2.23	--
1-12	.960	1.65	--	5-11	6.60	2.23	2.959**
2-3	.788	1.64	--	5-12	3.429	2.29	1.497
2-4	2.948	1.71	1.724	6-7	2.175	1.44	1.510
2-5	5.357	2.32	2.309*	6-8	1.140	1.35	--
2-6	3.732	1.63	2.289*	6-9	.930	1.28	--
2-7	1.575	1.76	--	6-10	.232	1.50	--
2-8	2.592	1.69	1.534	6-11	4.400	1.50	2.933**
2-9	2.757	1.64	1.681	6-12	1.804	1.59	1.135
2-10	3.500	1.81	1.934	7-8	1.035	1.50	--
2-11	.743	1.81	--	7-9	1.200	1.44	--
2-12	1.928	1.89	1.020	7-10	1.943	1.64	1.185
3-4	2.170	1.38	1.572	7-11	2.300	1.64	1.402
3-5	4.597	2.09	2.199*	7-12	.300	1.72	--
3-6	2.954	1.28	2.308*	8-9	.165	1.35	--
3-7	.779	1.76	--	8-10	.908	1.56	--
3-8	1.814	1.35	1.344	8-11	3.335	1.56	2.138*
3-9	1.979	1.29	1.534	8-12	.664	1.65	--
3-10	2.722	1.51	1.803	9-10	.743	1.51	--
3-11	1.521	1.51	--	9-11	3.500	1.51	2.318**
3-12	1.150	1.60	--	9-12	1.829	1.60	1.143
4-5	2.409	2.15	1.120	10-11	4.243	1.70	2.496*
4-6	.784	1.37	--	10-12	1.572	1.78	--
4-7	1.391	1.53	--	11-12	2.671	1.78	1.501

Internalization Ratio Change Scores

GC#	Dif.	S.E. dif.	t	GC#	Dif.	S.E. dif.	t
1-2	.0436	.036	1.21	4-8	.0452	.040	1.13
1-3	.0010	.032	--	4-9	.0224	.044	--
1-4	.0270	.041	--	4-10	.0365	.054	--
1-5	.0852	.046	1.85	4-11	.0884	.041	2.16*
1-6	.0785	.040	1.96	4-12	.0371	.041	--
1-7	.0093	.033	--	5-6	.0071	.050	--
1-8	.0182	.033	--	5-7	.0759	.045	1.69
1-9	.0046	.037	--	5-8	.1034	.045	2.30*
1-10	.0635	.049	1.30	5-9	.0806	.048	1.68
1-11	.0614	.035	1.75	5-10	.0217	.057	--
1-12	.0101	.035	--	5-11	.1466	.046	3.19**
2-3	.0426	.033	1.29	5-12	.0953	.046	2.07*
2-4	.0706	.042	1.68	6-7	.0688	.039	1.76
2-5	.1286	.047	2.74*	6-8	.0963	.039	2.47*
2-6	.1217	.041	2.97**	6-9	.0735	.042	1.75
2-7	.0529	.035	1.51	6-10	.0146	.053	--
2-8	.0256	.035	--	6-11	.1395	.040	3.49**
2-9	.0482	.039	1.24	6-12	.0882	.040	2.21*
2-10	.1071	.050	2.14*	7-8	.0275	.032	--
2-11	.0178	.036	--	7-9	.0047	.036	--
2-12	.0335	.036	--	7-10	.0542	.048	1.13
3-4	.0280	.039	--	7-11	.0707	.033	2.14*
3-5	.0862	.044	1.96	7-12	.0380	.033	1.15
3-6	.0791	.037	2.14*	8-9	.0228	.036	--
3-7	.0103	.030	--	8-10	.0817	.048	1.49
3-8	.0172	.030	--	8-11	.0432	.033	1.31
3-9	.0056	.035	--	8-12	.0081	.033	--
3-10	.0635	.047	1.35	9-10	.0589	.051	1.15
3-11	.0604	.032	1.89	9-11	.0660	.037	1.78
3-12	.0091	.032	--	9-12	.0147	.037	--
4-5	.0582	.051	1.14	10-11	.1249	.049	2.55*
4-6	.0511	.046	1.11	10-12	.0736	.049	1.50
4-7	.0177	.040	--	11-12	.0513	.035	1.47