1965

A Description of Personality Pattern Changes in Religious Levels of Training

Mary Olivia Reindl
Loyola University Chicago

A DESCRIPTION OF PERSONALITY PATTERN CHANGES IN RELIGIOUS AT VARIOUS LEVELS OF TRAINING

by

Sister Mary Olivia Reindl, SSND

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

February

1965

ACKNOWLEDGEMENTS

The author wishes to express her gratitude to the members of the Loyola Psychology Department for the encouraging help they so generously and consistently extended. Particular gratitude is expressed to Dr. Horace J. A. Rimoldi for his patient guidance and direction. Special thanks are extended to Dr. Thomas F. Grib and Mr. James Erdmann for their gracious assistance in the statistical procedures used in this study. Very special thanks are due also to the Postulants, Novices, Junior and Senior Sisters of the School Sisters of Notre Dame who so generously and willingly participated in this investigation by allowing themselves to be tested in the interests of the Congregation.

VITA

Sister Mary Olivia Reindl, SSND, was born on June 1, 1918 in Waukesha, Wisconsin. She received her secondary education at Edgewood High School in Madison, Wisconsin, and her college education at Mount Mary College in Milwaukee. In 1955 she entered the psychology department of Fordham University in New York and received her M.A. in psychology from this University in February, 1957. In the spring of 1957, she was accepted as a doctoral candidate in the psychology department of Loyola University. During her internship in clinical psychology, she was associated with the Catholic Charities in Chicago. At the present time she is serving her religious community in the capacity of clinical psychologist.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION AND PURPOSE

Since World War II, there has been a steadily increasing interest evinced by religious communities in the application of the findings and the techniques of modern scientific psychology to the problems involved in the selection and formation of new members. Prior to that time there had been some use made of the results of intelligence and achievement tests in the admissions programs of these groups, and in the structuring of their programs of formation. However, it was not until after the War that serious consideration was given to the contribution that might be made by psychology to the improving of the methods used in the selection and formation of future religious men and women (Bier and Schneider,1957).

During the past decade, an interesting number of religious communities of men and women have introduced psychological examinations as a part of the assessment programs for the selection of suitable candidates for the religious life. This trend has received the approbation of the Holy See, as is evidenced in a decree of the Sacred Congregation of Religious of July 7, 1956, implementing the Apostolic Constitution, Sedes Sapientiae, of Pope Pius XII issued in May, 1956. The decree read in part as follows:

> The particular signs and motives of genuine vocation must be attentively weighed in those admitted to the novitiate according to the age and condition of the candidate. Both the moral and the intellectual qualities of

> the candidates must be accurately and thoroughly examined. Moreover, their physical and psychological fitness must also be investigated, relying in this on the medical history and diagnostic judgment of an experienced doctor, either in relation to strongly hereditary diseases, especially mental ones. The judgment of the doctor must be recorded in the report of each candidate.

A review of the literature demonstrates that the major effort to utilize the contributions of psychology in the solution of the problems met with in religious formation has thus far been directed toward finding suitable means for detecting unsuitable applicants and toward the finding of instruments capable of assisting in predicting the probable adjustment of candidates for the religious life.

Research designed to determine what the profile of successful religious was like at the time of entrance has led to the conclusion that no single profile can be said to be typical of potentially successful candidates. It has become increasingly clear that each community needs tp custom-tailor its assessment program to fit the requirements of the particular community. It is also evident that the probability of successfully predicting the adjustment of the applicant is increased if pattern analysis is used in preference to a consideration of individual scales or a simple grouping of scales.

Those studies in which applicants have been compared to persons who have spent some time in the religious life reveal marked differences in personality profiles. By contrast, the profiles of applicants for the religious life, when compared with those of college students of the same age and educational status, show a considerable amount of similarity

between the two groups. This observation raises the question of whether the differences in profiles are the result of selection procedures which continue to operate all during the period of formation or are due to a change in personality stemming from growth and training in the religious life.

The research in this area of the personality characteristics of religious presents a picture which is not wholly unambiguous. It is in the hope of contributing to the clarification of the picture that this investigation has been undertaken.

Purpose of the Study

This study has been undertaken to describe and compare personality patterns of young women at five different levels of training in a particular community of Catholic Sisters. It is an attempt to determine, if possible, the direction and degree of change in personality patterns as the length of time spent in the religious life increases.

It is hoped that the results of the study will contribute to the evaluation of the effect of living in a religious community on the overall personality patterns of the subjects. It is also hoped that the findings will permit some tentative observations to be made about the effect of present training procedures on the personalities of those young women and will point the way to future research designed to discover procedures which may be more effective and more fruitful in the formation of religious women.

Plan of the Present Study

The Criteria

Two model criterion patterns were used in this study. The first model was constructed using the scores of the total sample on the various clinical scales of the Minnesota Multiphasic Personality Inventory. In the second criterion pattern, the model was set up using the scores of Group IV on these scales.

In the construction of the first criterion pattern, the scores of all subjects on each of the ten MMPI scales were combined and the median for each scale was found. These medians were then considered as cut-off points and a matrix set up for each group in which the filled-in cells represented scores above the median for the scale being considered.

The second model pattern was constructed in a similar way, except that in this pattern the medians of the scales were determined using only the scores of Group IV. Matrixes were set up for each group indicating by filled-in cells those scores on the various scales which were above the medians for Group IV.

In order to estimate the consistency of the group patterns, a third set of matrixes was constructed. In this group, each of the five groups was considered separately. Medians for the various scales were determined on the basis of the responses of the subjects in the group under consideration, and filled-in cells in the matrixes represented scores above the scale medians for that particular group.

Group IV was selected as the "ideal group" for two reasons. First,

using perseverance in the religious state as a criterion of successful adjustment in lieu of any more acceptable manner of determining adjustment, this group satisfied this requirement to the extent that they had persevered in the religious life sufficiently long to have been accepted as permanent members of the Congregation. Second, this group had received the same type of formation and had been under the direction of the same directresses during the initial period of their formation, as had the first three groups. Although the subjects in Group V had been in the religious life for a longer period of time, their formation differed to some extent from that of the other groups. Moreover, at several levels of formation they had had other directresses than those who guided the subjects in the other groups.

The Measurement Instrument

Since the vast majority of previous studies relating to personality characteristics of religious had included the Minnesota Multiphasic Personality Inventory as one of the measuring instruments, it was considered advisable to use this test to assess the personality patterns of the subjects in this investigation. The Inventory had the advantage of being objectively scorable; it provides several scales, covers a wide range of personality factors. It lends itself to patterning, since the various clinical scales can be combined in a number of ways.

The Subjects

The five groups of subjects used in this study were composed of young women at various levels of training in the same religious community of Catholic Sisters. Each group represents one of the essential stages

of training in the religious life, as it is lived in this community.

Specific Problems

The study will seek to answer the following questions:

(1) Are there significant differences in personality patterns of the five groups used in the investigation

(a) when the model patterns are based on the scale score medians of the total sample;

(b) when the model patterns are based on the scale score medians of Group IV?

(2) Are the personality patterns found within each group sufficiently consistent to permit the use of a "typical pattern" for the group?

(3) What is the direction and degree of change in personality pattern as the length of time in the religious life increases?

(4) How can the changes which are found be explained and used in the evaluation of the effect of present methods of training on the personalities of the young religious?

(5) What indications for further research does this study provide?

CHAPTER II

REVIEW OF THE LITERATURE

The use of psychological insights and techniques in the assessment and formation programs of religious communities has a fairly short history. However, the part played by research in that history is quite important. Though there has been some research in this area done with members of Protestant groups, the present review is principally concerned with the research conducted with Catholic groups of religious.

A landmark in this research appeared almost thirty years ago, when T. V. Moore (1936, a) published the report of a study dealing with the rate of insanity among priests and religious. According to this report, the incidence of mental disorders among religious was lower than that among the American population as a whole. However, the report also showed that certain types of mental disorders tended to appear more frequently in the diagnoses of mentally disturbed religious than among the mentally disturbed patients as a whole. Moore inferred from this that the seclusion and retirement which was commonly associated with the concept of religious life tended to exercise a powerful fascination upon certain pre-psychotic personalities. Such person, he believed, were likely to be attracted to the religious life for psychologically unhealthy rather than genuinely spiritual reasons.

In more recent years other studies have appeared which tended to corroborate the findings of Moore. Kelly (1958) studied the incidence

of mental illness in hospitalized religious women in the United States. She pursued this investigation in another study, published in 1961, in which she reported on the symptom of depression, as it appeared in the illness of the hospitalized religious women.

A study of the incidence of mental disorders among priests who were hospitalized was conducted by McAllister and Vanderveldt (1961). All of these investigations substantiated Moore's findings regarding the relative emphasis on schizophrenia and obsessive-compulsive trends in the diagnoses of the mental disorders of these hospitalized religious. Although this emphasis is not thought to be remarkably different from that in the general public, it does suggest the need to pay special attention to these two types of syndromes in the selection of candidates for the religious life. (Kobler, 1962). Additional weight is given to this suggestion by the observation of McAllister and Vanderveldt (1961), who found that priests in their study quite generally admitted having had the roots of these problems early in their seminary training.

In a second article appearing in 1936, Moore (1936, b) suggested that it would be advisable to make use of the findings of modern scientific psychology, and particularly of the psychometric tools, in the armamentarium of the psychologist, to detect the potential psychological casualties before they were admitted to the seminary or the convent. This suggestion sparked a number of research projects designed to provide empirical understandings for the inferences drawn by Moore in his original study. Though a few of these studies have sought to determine the personality changes observable among religious as the length of time spent

in the religious life, by far the greater number of reported investigations have dealt with the problem of developing suitable measuring instruments and appropriate norms to be used in predicting the probable success of applicants in adjusting to the religious life.

Among the first of these studies was that made by Peters (1942). She investigated the intercorrelations of personality traits noted in novices from several different communities of women religious. Using a controlled interview technique, she rated the subjects on a scale devised by Moore. The purpose of this study was the detection of prepsychotic trends in candidates for the religious life. Although she was able to isolate three groups of traits, namely: 1) undesirable, 2) common-sense judgment and 3) leadership, Peters did not determine whether the differences were the result of typical personalities characterizing persons who were attracted to the religious life or due, rather, to the demands made upon them by the new mode of life they had recently embraced.

Burke (1947) undertook to describe the personality characteristics of successful minor seminarians. The following year, Bier (1948) did a study in which he compared a group of seminarians in the major seminary with four other groups of college males, using the Minnesota Multiphasic Personality Inventory. Both investigators reported finding personality profiles which seemed to be characteristic of the seminary groups.

Lhota (1948) and D'Arcy (1954) contributed to this concerted effort to identify the characteristics that might be expected to appear in the personality picture of young men suitable for the religious life. These investigators were concerned with interest patterns in these subjects,

the former dealing with priests and the latter with foreign missioners. A third study, concerned with the determination of the interest patterns of successful and unsuccessful seminarians in a foreign-mission society, was undertaken by Friedl (1952).

These studies, as well as that done by McCarthy (1942) are in general agreement in giving a consistent picture of the typical religious-in-training, particularly during the early years of training. According to the investigators, the typical religious-in-training tends to be more submissive, dependent, introspective, and self-conscious than the average American male. When compared with college students in general, and with professional students in particular, the seminarian is found to deviate from the average in the direction of greater neuroticism to a more marked extent than other students. However, all college students showed some tendency to deviate from the average in this direction. In addition, the studies regarding interests indicated that the interests of priests differ sufficiently from those of men in other occupations to warrant the development of special scales for their measurement. (McCarthy,1957).

These early studies seem to indicate that a typical "seminarian" profile might be found. However, more recent studies have led to the conclusion that no one profile can be said to be "typical" for all seminarians. Thus, Rice (1958), in a follow-up study on the Minnesota Multiphasic Personality Inventory results, obtained from a group of seminarians, found that there was little difference between the profiles of those who persevered and those who dropped out. He indicated the necessity of custom-tailoring norms for each religious community, if the results of the test

were to be useful in predicting probable success in adjustment to the religious life as it was lived in a particular community. This same investigator later undertook the task of developing custom-tailored norms for a particular community of women with rather gratifying success. (Rice,1962).

Weisgerber (1962) also developed an interesting and statistically thorough means of profile analysis of Bier's Modified Minnesota Multiphasic Personality Inventory. Using data obtained from the records of men who had taken this test in the early 1950's, he sought to determine how accurately potentially unsuccessful seminarians could be identified through the use of the test results. His study showed that the MMPI means of those who left the seminary differed hardly at all from those who stayed. Moreover, an examination of the individual profiles revealed a great deal of similarity between the profiles of the two groups. An inspection of the individual scales showed that the Masculinity-Femininity (Mf) scale tended to be highest, with the Psychopathic Deviate (Pd), Schizophrenia (Sc) and Hypomania (Ma) scales being the nest most frequent high points in that order. While prediction of perseverance on the basis of the separate scale scores appeared to be practically impossible, there seems to be some evidence of a more successful prediction of success, as measured by perseverance in the seminary, when the judgment is based on the combination of the two highest scale scores. Weisgerber concluded that, though the Minnesota Multiphasic Personality Inventory must be used with caution, a conservative use of the profile analysis of this instrument may be helpful in identifying those applicants who will be poor risks or who will require special attention during the period of training.

The Minnesota Multiphasic Personality Inventory was included in the battery of tests employed in the investigation undertaken by Hispanicus (1962). The long-term purpose of his study was the determination of the value of a test battery including both personality and intelligence tests as a means of selecting promising candidates for the priesthood. Two criteria were arbitrarily set up to evaluate the effectiveness of the tests. One was the judgment of the seminary staff; the other, the comparison of scores made by successful as opposed to unsuccessful seminarians. He found that the MMPI traits most successfully judged by the faculty raters were: suspiciousness (Pa), unconventionality (Pd), and compulsivity (Pt). Neurotic tendencies, evidenced by high scores on the Hypochondriasis (Hs), Depression (D) and Hysteria (Hy) scales, were fairly successfully rated, whereas the schzoid (Sc) and maniac (Ma) factors were not. In regard to the comparison of the successful with the unsuccessful men, it was noted that those who stayed had significantly lower scores on the Pd, Pt, and Sc scales.

Quinn (1962) used the Thematic Apperception Test to investigate the attitudes of religious so as to predict their promise for the religious life. Using the method of sequential analysis, he studied the records of forty-five religious who had taken either annual or triennial vows, but who were still pursuing their studies in the scholasticate of the Institute. The outside criterion used in this study was the ranking of these men as to their "promise...for future success in the Institute" by their Superiors and their fellow scholastics. In his conclusions, Quinn noted that the use of the method of sequential analysis with the Thematic Apperception

test makes this a promising method for the prediction of success or non-success in the religious life.

Factors Related to Personality Deviation

The fact that studies of personality test results consistently revealed a tendency for religious to deviate from the norms generally accepted for normal groups led to a series of investigations designed to ferret out the causes for those deviations. Many of these studies were carried out at Fordham under the direction of Bier. These studies, closely related in method and design, sought empirical evidence for various explanations given for the observed deviate scores.

One of the proposed explanations dealt with the validity of the standardized tests themselves. The question was raised as to the validity of both test items and the norms as they apply to religious life. Bier had previously demonstrated that, in spite of the number of inappropriate items, the Minnesota Multiphasic Personality Inventory does give a valid picture of the seminarian's personality. One of his students, Strincosky (1953), conducted an investigation which revealed that, when the inappropriate items were replaced by items which were more appropriate, the test became even more discriminating. The pattern of the scores on this modified form of the test remained the same as that observed in the records of seminarians who were given the standard form, but the revised version showed higher deviations.

Four other studies completed at Fordham were designed to determine whether certain personality types are attracted to the religious life. They were also concerned with studying the effect of religious training

on the personality of religious.

Mastej (1954) studied the influence of religious life on the personality adjustment of religious women. Using Bier's Modified Minnesota multiphasic Personality Inventory, she found that there were clear indications that the amount of deviation increases in direct proportion to the amount of time spent in the religious life.

Three groups of religious at various periods of training for the active religious life were compared by Sandra (1957) with a group of students attending a Catholic Women's College and a group of students attending a non-Catholic college for women. In a well-planned and quite extensive study, she used a battery of tests which included the Bier Modified Minnesota Multiphasic Personality Inventory, a Sentence Completion Test, and the Draw-A-Person Test. She found that the religious whom she had tested tended to score higher than the other two groups on three of the MMPI scales, on three of the variables used in scoring the Sentence Completion Test, and on four out of the five scales devised for the scoring of the Draw-A-Person Test. The novices in her sample were found to have higher scores than most of the other groups on the majority of the variables considered. The investigator explained this by drawing attention to the fact that these subjects had recently embarked on a new mode of life and might well be exhibiting the effects of the increased psychological demands made on them as they attempted to adjust to their new role. Sandra also pointed out that this group leads a life which calls for considerable withdrawal from the usual contact with persons not in their own group and a marked restriction of the areas of interests generally found among other

groups of similar age and educational status.

A comparative study of personality differences between contemplative and active religious women was made by Vaughan (1956). In the battery he used he included the Modified Minnesota Multiphasic Personality Inventory, a Sentence Completion Test, and the Draw-A-Person. The two latter tests revealed no significant differences between the two groups. In the results of the MMPI, the only scale which showed a significant difference between the two groups was the Hypomania (Ma) scale. On this scale, the subjects who belonged to the contemplative communities scored consistently higher than their counterparts in the active religious communities. This was found to be true of all the subjects, regardless of the age level.

Murray (1957) studied the personality traits and interest patterns of seminarians. His results corroborated those of Sandra, namely, that the length of time spent in the religious life is less important as a determinant of personality change than is the particular stage of religious training. In both of these studies it appeared that the scores tended to be most deviant at those points in the training period at which insecurity might be expected to be greatest. For example, the novices showed more deviant scores than the Junior Professed, while the major seminarians were characterized as more deviant from the normal than the minor seminarians.

All of these studies, as well as most of the other studies in this area which have been published to date, were cross-sectional studies. However, McCarthy's (1956) longitudinal study dealing with personality changes in religious men, made at the University of Ottawa, presented results that agree very well with those arrived at in the cross-sectional

investigations. His study showed that, while certain personality changes did occur in the men used as subjects in his investigation, the changes were associated with critical choice points and particular behavioral demands made upon the religious at these points, rather than on mere increase of time spent in the religious life. A further observation made by this investigator indicates that, while a decrease in nervous tension and an increase in emotional stability seems to follow the passing of a critical choice point, there is also evidence of an increase both in conforming behavior and in withdrawal in the groups who have passed these points. In commenting on this phenomenon, McCarthy notes that though the findings may appear to be contradictory, apparently conformity and withdrawal, in this context, may be situationally appropriate behavior and consequently, would not be indicative of pathology. He likewise observed that, while religious training did affect the personality of the religious, this effect was limited to certain aspects of personality. Moreover, this effect tended to be essentially the same for everyone within the groups undergoing the same type of training. In other respects, the personality variations among the individuals was as great for these religious men as one would expect to find in any comparable group (McCarthy, 1957).

Gorman (1961) studied the adjustment of fourth year students in a minor seminary. Using the MMPI, he found that their scores on all the scales, except the Sc scale, were equal to or lower than the scores reported for various groups of college males. He concluded that the seminarians he tested were definitely well adjusted.

A validation study of a psychological assessment program for

candidates for the religious life was made by Vaughan (1963). His study covered a five-year period and had as subjects 218 young men between the ages of 18 and 30 who applied for admission, were accepted, and entered an order of religious men. Fifty-five of these young men subsequently left the seminary. Before entrance, each of the subjects completed a battery of four personality measurements. A report of the basic results of these tests served as one of the factors, which went into the final decision of the Major Superiors to accept the candidates. During the same period, candidates were rejected because of psychological unsuitability as shown by the test evaluations, a psychological interview in doubtful cases, and other sources of information. These applicants were not included in Vaughan's study. However, since the decision to accept the candidates was not based solely on the test results, some applicants with poor test records were accepted. A statistical analysis of the validating and clinical scales of the Minnesota Multiphasic Personality Inventory failed to show any significant differences between those who left and those who remained in the religious life. Mean scores which deviate from the expected norms were noted on the K, D, Pd, and Mf scales. In an analysis of the profile patterns, it appeared that those who remained in the religious life tended to show a wide variation in pattern, while those who left tended to have patterns in which Hy-Pd and Pd-Ma peaks were characteristic.

Vaughan noted that among the test records of two seminarians who became psychotic during their novitiate and eventually dropped out, the records on the MMPI were completely within the normal or average range. Another record, that of a seminarian who persevered and was later reported

by the Superiors as having made an adequate adjustment without any special problems, showed relatively high scores on four MMPI scales and had been declared a poor risk in the original psychological report. The investigator concluded that the psychological assessment program described in his study, when considered by itself, is not an adequate screening device. However, when it is used with caution and in conjunction with other sources of information, it can be helpful in determining the suitability of candidates for the religious life.

Among the few studies which have been designed to test the effectiveness of psychological assessment programs there are two which concentrated attention on the interest scales which have been developed for priests. Friedl (1952) found that the Missionary Priest Scale failed to predict those who would stay and those who would leave within one year after entering the seminary. In a personal communication sent to McCarthy (1957) D'Arcy reported that he had recently completed a study which confirmed the results of Friedl's investigation. D'Arcy also said, however, that he found significant differences on other scales of the Strong Vocational Interest Blank between those who stayed and those who dropped out of the seminary.

Investigating the usefulness of psychological tests in the selection of candidates for the diocesan priesthood, Wauck (1956) found a multiple correlation of +.38, significant at the one per cent level of confidence, using pooled ratings on McCarthy's Rating Scale as a criterion. Wauck's study included the results of the Ohio State University Psychological Test, the Kuder, the Group Rorschach, and the Minnesota Multiphasic Personality Inventory. He noted that on the MMPI scales, the D and Mf scales

the best adjusted seminarians showed an elevation which was significant at the five per cent level of confidence. They showed an elevation in score on the Pt scale, which was significant at the ten per cent level of confidence. These young men were described as serious minded, conscientious, and secure in their contacts with other persons. Wauck believed that their elevated scores might be attributed to the temporary and situational anxiety resulting from the seriousness with which they viewed their seminary life.

An analysis of three studies, using religious as subjects, was made by Kobler (1962). He was concerned with determining the usefulness of the Minnesota Multiphasic Personality Inventory, the Kuder, and the Mooney Problem Check List in the selection or psychological identification of these religious. Two of these studies were done with men religious; the third, with religious women.

No outside criterion was used in this analysis, since it is difficult to obtain such a criterion, and those which might be obtained are of doubtful validity and comparability. A clinical empirical approach was used instead, and subsequent adjustment or success or failure in the religious life, based on emotional adjustment, will be the criterion used later on.

An arbitrary decision, based on a study of the MMPI profiles and scores sufficiently high to suggest some pathology, was used to divide the subjects into a normal and a high group. The subjects who had a mean score of 57.2 or higher and had one or more scale of 70 or above on the MMPI profile were placed in the high group. An inspection of the profiles of these high groups in the three studies reveals a marked similarity.

For the normal groups, there was a notable similarity in profile also present. Taking the three groups as a whole and comparing their profiles with that of the general college population, it was noted that they did not differ from these latter to any marked degree.

The three highest MMPI scales for all of the groups were the Mf, Sc and Pt scales. The profiles of the three high groups indicated that these individuals have problems and symptoms that cluster around schizophrenia and psychasthenia. Though this trend is more marked for women than for men, it is very similar in all the groups. Kobler pointed out that the differences observed between the high and the normal groups in each case were differences of quantity rather than of quality. The data indicated that the high groups are composed of persons whose personality organization represents an exaggeration of the basic organization typical of their respective local populations.

In regard to the Kuder, the striking feature was that the profile of the women resembled that generally expected for males in the general population, while the religious men's profile is similar to that expected for women in the general population. This reversal of interest patterns was also noted in studies done with Protestant men and women religious. It appears that the masculine interests observed among women religious and the feminine interests observed among men religious is not peculiar to Catholic religious. In the high groups, the women show an exaggerated excessive interest in certain areas, for example, in interests related to the outdoors, while for the men the interest profile is flattened.

The third test considered in this investigation was the Mooney

Problem Check List. The high group differed from the normal group only in regard to the number and severity of the problems they had, rather than in the type of problems.

Using the results of this comparative study, a set of criteria to be used to determine probable drop-outs among the seminarians and religious were set up. While the results among the men religious are not yet available for checking, the religious women who were rated as poor risks using these criteria have either dropped out already or are showing behaviorial patterns which indicate that they will either drop out or be asked to leave, in all probability.

Studies Using the Pattern Analysis Technique

The technique of pattern analysis which was used in this study was developed by Rimoldi and Grib (1960,a). Utilizing a new type of scoring procedure which has wider applications than those pertaining to pattern analysis exclusively, this technique permits the description and comparison of response patterns. The properties of the method itself and the implications for a theory of research methodology were discussed by the authors in an article appearing in 1960 (Rimoldi and Grib, 1960,b).

The first study employing this statistical technique was made by Grib (1961). He investigated the difference in movement and location responses on the Rorschach given to normals and neurotics. The results of his investigation indicate that this method of pattern analysis is more sensitive in picking up differences in these types of Rorschach responses than the holistic or atomistic approaches used in previous studies of this nature.

A comparison of the performance of experts and senior medical stu-

dents on a Test of Diagnostic Skills was made by Rimoldi and Haley (1962). In addition to using the pattern analysis technique, devised by Rimoldi and Grib, these investigators introduced an original statistical technique for determining the significance of each subject's performance through the use of a hypergeometric distribution.

Baldwin (1962), in addition to studying Rorschach personality pattern differences among over-achievers, normals, and under-achievers at the fifth grade level, investigated the usefulness of the pattern analysis technique in this type of research. She found the technique valuable in detecting differences which were significant in the manner of approach to problems and academic tasks and in sustained efficiency in learning situations in the three groups she studied.

CHAPTER III

INVESTIGATIONAL MEANS AND PROCEDURES

The thinking which directed the choice of the measuring instrument used in this study has been briefly outlined in Chapter I. This chapter will deal with the methods used in collecting the data and will describe in greater detail the personality test and the statistical technique of pattern analysis employed in analyzing the data.

The Measuring Instrument

The personality test used to obtain information about the personality characteristics of the subjects used in the present study was the standard form of the Minnesota Multiphasic Personality Inventory. This is a psychometric instrument designed to provide, in a single test, scores on those personality traits commonly considered as characteristic of disabling psychological abnormality. The instrument itself is comprised of 550 statements, covering a wide range of subject matter--from the physical to the moral and social attitudes of the individuals being tested. (Hathaway and McKinley, 1951).

Personality characteristics are assessed on the basis of nine "clinical scales," which were developed empirically by criterion keying of items, the criterion being the traditional psychiatric diagnosis. The scales thus prepared were: 1. Hs: Hypochondriasis, 2. D: Depression, 3. Hy: Hysteria, 4. Pd: Psychopathic deviate, 5. Mf: Masculinity-femininity

6. Pa: Paranoia, 7. Pt: Psychasthenic, 8. Sc: Schizophrenia and 9. Ma: Hypomania (Anastasi, 1961). A Social Introversion scale has been added to the original nine clinical scales and is now routinely included in the MMPI profiles. Although the scales are named according to the abnormal manifestations of the symptomatic complex, they have all been shown to have meaning within the normal range. (Hathaway and McKinley, 1951).

In addition to the clinical scales, the MMPI utilizes four so-called validity scales. These scales are not concerned with validity in the technical sense, but rather are used to check on carelessness, misunderstanding, malingering, and the operation of special response sets and test-taking attitudes. Anastasi describes these four scales as follows:

> Question Score (?): the total number of items put into the Cannot Say category.
>
> Lie Score (L): based upon a group of items that make the subject appear in a favorable light, but are unlikely to be answered truthfully in the favorable direction. (E.g., I do not like everyone I know.)
>
> Validity Score (F): determined from a set of items very infrequently answered in the scored direction by the standardization group. Although representing undesirable behavior, these items do not cohere in any pattern of abnormality. Hence, it is unlikely that any one subject actually shows all or most of these symptoms. A high F score may indicate scoring errors, carelessness in responding, gross eccentricity, or deliberate malingering.
>
> Correction Score (K): utilizing still another combination of specially chosen items, this score provides a measure of test-taking attitude, related to both L and F, but believed to be more subtle. A high K score may indicate defensiveness or an attempt to "fake good." A low K score may represent excessive frankness and self-criticism or a deliberate attempt to "fake bad." (1961, p. 500).

In an article written for counselors, Angers (1963) gives the following description of the clinical scales of the MMPI.

1. The Hs scale (33 items) consists of statements which indicate concern over bodily functions, concern about health, tendency toward physical complaint, pessimism, and dispiritedness. Women tend to earn higher raw scores on this scale than men, and married women tend to score higher than the unmarried.

2. The D scale (60 items) consists of statements which indicate depression, dejection, discouragement, despondency, subjective distress. Women tend to earn higher raw scores on this scale than men. Scores tend to increase with age, so that a "normal" score may actually be considerably above a T score of 50 for an older person.

3. The Hy scale (60 items) consists of items which indicate a person who is immature, unrealistic, kindly, courteous, naive, able to group ideas, and has need of social acceptance. This scale correlates rather highly with the Hs scale (.52 for normals and .71 for clinical cases). There is a slight relationship between Hs and intelligence and a high score on this scale.

4. The Pd scale (50 items) consists of statements which may indicate the following types of personality: irresponsible, undependable, impulsive, egocentric, defiant, asocial, tactless, individualistic, improvident, and deficiencies in ability to calculate own social stimulus value. A young unmarried person will ordinarily be slightly elevated on this scale. Moderately high scores (T score 60-68) are also associated with intelligence, education, good background and appealing personality.

5. The Mf scale for women (60 items) consists of statements indicating a dissatisfied, driving, vigorous, determined personality. Young women, particularly those interested in careers tend to earn high T scores. Low T scores (below 40) are frequently earned by women who present themselves as helpless or overly submissive.

6. The Pa scale (40 items) consists of statements which are indicative of persons who are aggressive, critical, irritable, sensitive, moody, easily hurt by criticism, stubborn, and skeptical.

7. The Pt scale (48 items) consists of statements which are indicative of persons who are apprehensive, tense, hesitant, in-

secure, self-conscious, perplexed, anxious, agitated, or have feelings of inadequacy.

8. The Sc scale (78 items) consists of statements which indicate a personality with certain of the following characteristics: bashfulness, over-sensitivity, secretiveness, cautiousness, uncertainty, resignation.

9. The Ma scale (46 items) consists of statements which indicate persons who see themselves as confident, hypersensitive, not persistent, aggressive, charming, expansive, irritable, and impatient (pp. 120-122).

The Social Introversion-Extroversion Scale (Si) consists of 70 items designed to measure the tendency to withdraw from social contact with others. Although this is not a clinical scale in the sense that the others are, not having been developed by comparing the responses of normals and hospitalized patients, it has been found useful in distinguishing college students who tend to get involved in many extracurricular activities from those who do not. However, it has proved valuable in counseling and guidance work.

The various studies which have been done using the Minnesota Multiphasic Personality Inventory have shown that this instrument is most effective when the profile pattern is used to describe the personality rather than the individual scale scores. To make the designation of the scales for use in profile patterning easier and clearer, Welsh (1948) developed a coding system which has since become widely used by clinicians. This coding system is as follows:

Scale	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Code	1	2	3	4	5	6	7	8	9	0

While a number of the studies included in the review of the litera-

ture presented in Chapter II used the Bier Modified Minnesota Multiphasic Personality Inventory, this investigator preferred to use the standard form of test. The decision was based on the belief that the changes made in modifying the test, constitutes a change in the test itself. As a consequence, much of the research carried on with the standard form is, at least, to some extent, inapplicable to the revised form, and the interpretations given for the various profile patterns in the literature become less valid for the modified form of the test.

The Subjects of the Investigation

In order to reduce the number of extraneous variables, the sample was drawn entirely from one community of Catholic Sisters located in the Midwest and numbering approximately 2,00 professed members. The majority of these Sisters are engaged in teaching. By this restriction of the sample population, greater homogeneity could be expected, since these religious would have had a common training and environment.

The total sample population included representatives from the various stages of formation in the religious life, as it is found in this community. The Postulants, designated in the study as Group I, are young women in the initial period of formation. They had been in the convent for about six months at the time of the testing. They were pursuing a regular college course of studies in addition to receiving an intensified program of instruction in living the Christian life.

The Novices, who constituted Group II, had been in the community for approximately a year and a half, had entered the novitiate about six months prior to the testing and were spending a year in relatively complete

isolation from all except the members of their own group. These young women were receiving special training in the various aspects of the spiritual life and were being instructed in the rights and obligations of persons living under the three vows of obedience, chastity, and poverty, as these are practiced in the community to which they were seeking admission.

Group III was composed of Junior Professed Sisters. These young religous women had taken their first vows six months before being tested and had been in the convent for about two and one half years. At the time of the testing, these Sisters were continuing their college education and were also receiving further instruction on the spiritual life and the religious life as lived in the Congregation. They had greater freedom of movement and social contact than the Novices, but had not yet entered upon the active apostolic work of the community.

The Sisters who comprised Group IV had completed the period of formal training and probation and had just been accepted as permanent members of the Congregation. They had been in the community for approximately eight and one half years and had been living under vows for six years. For the five years preceding the testing, they had been actively engaged in the apostolic work of the community.

The last group, chosen because they were representative of the older members of the Congregation, had spent approximately nineteen years in the religious life, sixteen of these as Professed Sisters living under the obligations of the vows. Most of them had also spent sixteen years as teachers or had been engaged in one of the other apostolic works of the Congregation. The members of this group had received training that differed in some

respects from that received by the subjects in the other four groups. These Sisters had spent two years in the convent before becoming Novices and had entered the active apostolate immediately after their first Profession. Moreover, they had had different directresses in the early years of their formation than the other groups had.

Table 1 summarizes the identifying information about these subjects.

Table 1

Length of Time in the Religious Life and Status of Subjects in the Study

Group	N	Status in the Religious Life	Length of Time in the Religious Life	Under Vows
I	56	Postulants	6 months	-
II	46	Novices	1½ years	-
III	41	Senior Sisters	2½ years	6 months
IV	38	Final Vow Group	8½ years	6 years
V	25	Senior Sisters	19 years	16 years

Procedures Followed in Collecting the Data

All the data were collected in group testing sessions, each group in the study being tested separately. The Postulants, Novices, and Junior Sisters were tested during the Christmas vacation period in 1960, while the other two groups were tested in July, 1961. At that time the Final Vow Group was spending several weeks in preparation for their pronouncing of their final vows, at which time they would become full-fledged members of

the community. The Senior Sisters were also spending a few weeks in the Motherhouse in a sort of prolonged retreat after having been actively engaged in the apostolic work of the community for 16 years. In each case, the tests were administered by the investigator, but at the time of the testing of the first three groups, two other psychologists were collaborating with the investigator in a program which included a psychological interview in addition to the testing. Only the test results are considered in this study, however.

In order to protect the subjects and ensure greater frankness on their part, each subject was given a code number to be used in place of a name. The reason for the testing was explained to each group prior to the administration of the test, and they were assured that the findings would be regarded as confidential.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter will present a detailed description of the method used to analyze the data in a manner which would permit the description and comparison of the personality patterns of the five groups. The first part of the chapter will be devoted to a presentation of the procedure followed in the construction of the matrixes used in the personality pattern descriptions, the statistical treatment of the data, and a discussion of the results. The last part of the chapter will deal with the limitations of this investigation and the indications for further research that are found in the results of the study.

Construction of the Matrixes

The first step in the analysis of the data was the construction of a matrix of raw scores on the ten MMPI scales for each of the five groups used in the study. From these matrixes frequency tables were constructed and the medians for the various scales were computed. Medians were found for each of the ten MMPI scales using the responses of each of the groups separately and also using the combined responses of all the groups on each of the scales. The results of these computations are presented in Table 2. The Table gives the raw scores and the equivalent T scores for the medians of each group separately and for the entire sample population.

Table 2

Raw Scores and T Scores of the Medians of the Ten MMPI Scales for the Total Sample Population and for Each Group Separately

Group	Score	MMPI Scales 1	2	3	4	5	6	7	8	9	0
Total	Raw	14	20	21	21	35	10	30	28	20	29
	T	52	51	54	55	53	56	58	58	58	54
I	Raw	13	20	22	22	35	11	31	30	22	28
	T	50	52	56	57	53	59	60	61	63	53
II	Raw	15	20	21	21	36	9	30	26	20	25
	T	54	51	54	55	51	53	58	55	58	50
III	Raw	14	21	21	22	34	9	31	28	20	33
	T	52	53	54	57	55	53	60	58	58	60
IV	Raw	13	20	20	20	35	10	30	28	19	30
	T	50	51	52	53	53	56	58	58	55	55
V	Raw	16	22	22	22	35	10	30	27	19	30
	T	56	55	56	57	53	56	58	57	55	55

The decision to use medians in preference to means was made in order to minimize the effect of extreme scores. This statistic was also deemed more appropriate because the scores represent a series that is discrete rather than continuous.

Although they were not used in the matrixes subsequently constructed, the medians for the L, F, and K scales were also computed. These results appear in Table 3 and indicate that the personality profiles may be considered as valid estimates of the group personality pictures.

Table 3

Raw Scores and T Scores for Validity Scale Medians for Each Group and for Entire Sample Population

Group	L scale		F scale		K scale	
	Raw score	T score	Raw score	T score	Raw score	T score
I	4	50	4	53	15	55
II	6	55	3	50	18	61
III	6	55	4	53	16	57
IV	3	45	3	50	16	57
V	6	55	3	50	17	59
Total	5	53	3	50	16	57

Three sets of matrixes were constructed for each of the five groups. In the first set, the medians of the MMPI scales obtained when the responses of the entire sample population were considered were used as cut-off points. An original matrix was constructed for each group in which the filled-in cells represented scores above the scale median. In this matrix the subjects were numbered consecutively, and the number assigned to each subject was retained in all the other matrixes constructed for that group. An illustration of the original matrixes appears in the appendix.

The observed matrix for each group was next constructed. In this matrix the order of the scales was determined by the number of raw scores above the total sample median appearing in the group. The scales having the greatest number of raw scores above the mean appeared first and the remaining scales were ranked in order of decreasing column totals of

filled-in cells. The subjects were also ranked according to the number of scales on which they scored above the median for the entire sample. The order of ranking here was from the lowest to the highest number of filled-in cells in the row. This arrangement was used in order to facilitate the construction of the model matrixes. The observed patterns obtained for each group, using each of the three cut-off points, are presented in Appendix III.

The order of the scales and the subjects used in the observed matrixes was retained in the construction of the corresponding model matrixes. In this construction, it was assumed that if a subject scored above the scale median on only one scale, this would occur on that scale on which the largest number of subjects in her group scores above the median. Similarly, if there were two scores above scale medians, these were expected to occur on the two scales having the highest column totals for the group. Row and column totals were kept constant in relation to the corresponding observed matrix. The model matrix, then, was constructed with these underlying assumptions.

A system of weights for all the cells in the model pattern was next defined, using the following equations:

$$\text{weight of filled-in cells} = \frac{R_i \, C_j}{\sum_i^K R_1} \quad ;$$

$$\text{weight of empty cells} = \frac{\bar{R}_i \, \bar{C}_j}{\sum_i^K \bar{R}_i} \quad .$$

where R_i indicates the row total for the filled-in cells,

C_j indicates the column total for the filled-in cells,

$\bar{R}_i$ indicates the row total for the empty cells and

$\bar{C}_j$ indicates the column total for the empty cells.

An illustration of an observed matrix, a model matrix, and a matrix of weights for the model pattern for one of the groups used in this study appears in Appendix I.

The next step in the analysis of the personality patterns was the investigation of the difference between the observed and model pattern for each of the five groups. This was done through the computation of a similarity ratio.

The similarity ratio between the sum of the weights of unchanged cells and the total weight of the model pattern. A minimum value for each pattern was also defined, such that, the deviation of the observed and model patterns could be judged from the distances of this similarity ratio from zero. The more closely this similarity ratio, approximately zero, the greater the deviation between the observed and expected or model pattern. This index of agreement (I_a) for any table under any conditions (except when all the cells are either filled-in or empty, since in this case there would be no deviation possible when R_i and $\bar{R}_i$ are kept constant) will vary from 1.00 (perfect agreement) to 0 (minimum possible agreement).

A second series of matrixes was constructed using the medians of Group IV as cut-off points for the MMPI scales. Similarity ratios and indexes of agreement were computed for each group in this set of matrixes.

The results of the computations for each of these series is given in Table 4.

Table 4

Similarity Ratios and Indexes of Agreement for the Five Groups on Matrixes 1 and 2

	Similarity Ratios		Indexes of Agreement	
Group	Matrix 1*	Matrix 2**	Matrix 1	Matrix 2
I	.667	.713	.382	.497
II	.788	.753	.610	.602
III	.696	.712	.471	.532
IV	.727	.862	.414	.613
V	.654	.680	.413	.465

* Using medians of the entire sample population as cut-off points.
** Using the medians of Group IV as cut-off points.

In order to determine the internal consistency of the groups, a third set of matrixes was constructed in which the medians of the scales obtained using the responses of each group separately were used as cut-off points for the group. This permitted the comparison of the observed pattern with the model pattern for each group by itself. The similarity ratios and indexes of agreement for this set of matrixes is presented in Table 5.

Considering the results presented in Table 5, first, it is noted that the greatest similarity between observed and model patterns appeared in the patterns of Groups IV and V. The least amount of similarity between

the observed and model patterns was found in Group I, while the similarity ratios for Groups II and III were almost identical.

Table 5

Similarity Ratios and Indexes of Agreement for the Five Groups on Matrix 3*

Group	Similarity Ratio	Index of Agreement
I	.789	.581
II	.837	.674
III	.836	.684
IV	.862	.613
V	.868	.726

* using the median of its own subjects' responses as cut-off points for the Group.

The Index of Agreement of Group V is highest on Matrix 3, indicating that the group pattern obtained by using the medians of the scales as cut-off points is most consistent with the pattern expected for this group. The least degree of consistency occurs in the pattern of Group I. This may be due to the fact that the subjects in Group I have been in the convent the shortest period of time, while those in Group V have been religious for the longest period of time. Thus the first group has not yet become as homogeneous as the latter group, and this tendency toward greater individuality in the first group makes it less possible to get one personality pattern that is truly representative of the whole group.

On the whole, the consistency noted in the personality patterns for

the various groups is low enough to warrant great caution in the interpretation of the results obtained when the other two sets of matrixes were used.

An inspection of Table 4 reveals that the observed and expected or model personality patterns obtained when the medians for the total sample population were used as cut-off points are most similar for Groups II and IV. However, when the minimum value for each of these patterns is defined, the resulting indexes of agreement indicate greater agreement between the observed and model patterns for Group II than that found in Group IV. Moreover, the index of agreement for Group II is notably higher than that for any of the other four groups on Matrix 1.

Group V has the lowest similarity ratio on Matrix 1, but the index of agreement for this group on Matrix 1 is higher than that for Group I. This seems to suggest that the pattern obtained when the medians for the whole population were used as cut-off points is less representative of the members of Group I than it is of any of the other groups. These results are consistent with those obtained in Matrix 3, where the pattern of each group was evaluated against its own specific model pattern.

When the medians for Group IV were used as cut-off points, the similarity ratio between the observed and model patterns was highest for that group. Since this ratio measures the internal consistency of the group pattern, it might be expected to be higher than the ratios of the other groups. On this Matrix, as on Matrix 1, the similarity ratio of Group II is closest to that of Group IV. This would seem to indicate that these groups tend to be more alike than either of them is to any of the other

groups. These results seem to be different than those found by Mastej (1954). She found that the amount of deviation from the normal was in direct proportion to the length of time spent in the religious life.

Sandra (1957) found that the novices used in her study tended to have higher scores on the MMPI scales than the other groups included in the investigation. The present investigation does not corroborate this finding. Rather, it would seem to indicate that the greatest deviation from the normal occurred among the Postulants, that is, the group that had spent the shortest period of time in the religious life. This may be due, at least in part, to the fact that there were subjects included in this group who later dropped out of the religious life, and whose scores may have contributed to some considerable extent to the high scores noted in this group.

Both, McCarthy (1956) and Murray (1957), stated that the subjects in their studies tended to show greater deviation from the normal at those points in their formation which might be characterized as critical choice points. Thus, it would appear that the novices, who are faced with the necessity of adjusting to a new mode of life, ought to show a greater amount of emotional instability than the Junior Professed, who have made the decision regarding the taking of the vows, and who have had some experience in living the religious life. However, in the present investigation, the Junior Professed showed more emotional instability than the novices. The latter group appeared to be as emotionally stable as the group who had completed their period of formation and had been accept ed as permanent members of the community. At the same time, on seven of the ten MMPI scales, The members of Group V, who had been in the religious life for the longest

period of time, scored higher than the Novices included in Group II. This group also scored higher than the Junior Professed in Group III on three scales and above the members of Group IV on four scales.

Table 4 indicates that there is more agreement among the results of the five groups when the medians of Group IV are used as cut-off points than there is when the medians of the total sample population are used as cut-off points.

The results of this investigation seem to corroborate the conclusion reached by Rice (1958) who pointed out the fact that no one profile can be considered as "typical" for all seminarians. It would appear, from the relatively low indexes of agreement, that no profile pattern can be considered as "typical" for religious at any of the various levels of formation included in this study.

While a method has been devised to determine the randomness of the patterns set up through this method of pattern analysis, the calculations required are of such a nature that for Tables of the size used in this study it would be necessary to employ the services of an IBM machine. Since the program needed to use such a machine for this purpose has not yet been set up, it was not possible to include this information in the results of the investigation.

McNemar Test for Significance of Change

In order to ascertain whether there was a significant difference between the responses of the subjects to different scales on the MMPI, the McNemar test of significance of change was applied to each of the observed matrixes in the three sets of matrixes. The resulting chi square values are presented in Appendix II.

Relatively few significant chi square values were found for the matrixes in the first series, that in which the cut-off points were the medians of the scales obtained through the combining of the responses of the entire sample population. This would seem to indicate that the cut-off points so determined are not appropriate for differentiating the performance of subjects at various levels of religious formation on the different MMPI scales.

The second series of matrixes yielded the greatest number of significant chi square values. Among this group of matrixes, that of Group II revealed the largest number of significant differences. Twenty-three of the forty-five chi square values reached significance at the .05 level or above. Consequently, it appears that the cut-off points obtained by determining the medians of the scales for Group IV are better suited to differentiating the performance of these subjects in regard to the various MMPI scales.

The observed matrixes for Group IV showed the least number of significant chi square values. There were no significant chi squares found in the matrix for the second series, and only one which was significant at the .05 level in the first series.

Thus, it would seem that, in regard to Group IV, there is no consistent pattern of change to be found in the responses of the group to the various MMPI scales, when the median of the scales is used as a cut-off point. It is possible that by raising the cut-off point, a more sensitive measure of differences would be evident.

A complete presentation of chi square values for the matrixes in the three series appears in Appendix II.

Limitations of the Study

In regard to the subjects used in this investigation, the most serious limitation lies in the fact that different subjects are used at the various levels of religious formation. This cross-sectional approach, used because of the unavailability of data on the same group at these various points of religious formation, causes the intervening variables to be decidedly more numerous and decisive. It would be highly desirable to do a longitudinal study of this same design to determine the reliability of the results obtained.

The relatively low chi square values obtained in so many cases when the McNemar test for significance of change was used, suggests that the use of the median as a cut-off point does not provide a clear-cut difference in performance on the various MMPI scales and, consequently, the patterns obtained are not precise enough to reveal real differences in personality patterns at the various levels.

CHAPTER V

SUMMARY AND CONCLUSIONS

Though there has been an increasing amount of research devoted to the study of the personality characteristics to be looked for in applicants for the priesthood and the religious life, only a few studies have been undertaken to ascertain the effect of religious life on the personalities of young people who enter this state of life. This investigation was undertaken in an attempt to describe and compare the personality patterns of religious women at various stages of formation in the religious life. Previous studies, which dealt with this problem, have led to rather inconclusive results. It was hoped that the present study, which makes use of a new statistical technique to analyze personality patterns, might prove more useful in the evaluation of the effect of present training procedures on the personalities of young women in the religious life. It was, likewise, hoped that the results of the study would indicate the areas which could be investigated in future research for the improvement and implementation of these training procedures, in order to render them more effective in achieving the personality development requisite for an effective apostolate.

The subjects used in the study were young women at five levels of training in the religious life. All of the subjects were members of the same community of Catholic Sisters. The levels of training included all the initial training periods, the termination of the period of formal

training and the period of mature religious living. Thus, the subjects ranged from the Postulants, who had entered the convent about six months prior to the testing, to a group of Sisters, who had spent sixteen years as Professed Sisters engaged in the active apostolic works of the community.

The measuring instrument used in the study was the Minnesota Multiphasic Personality Inventory. This instrument was selected because of the relative objectivity of the administrative and scoring procedures it uses, and also because much of the previously reported research had employed this test as the measuring instrument.

Each of the five groups used in the study was tested separately by the investigator. In order to safeguard the confidentiality of the findings and to secure greater frankness in the responses of the subjects, code numbers were assigned to the subjects to be used in place of names. The validity scales of the MMPI indicate that the resulting test data can be accepted as being quite accurate estimations of the personality characteristics of these young religious women.

In analyzing the personality patterns fo the five groups, the technique of pattern analysis developed by Rimoldi and Crib was employed. Three sets of matrixes were constructed for the five groups, giving three descriptive patterns for each group. In the first series of matrixes, the cut-off points for the ten MMPI scales, studied in the investigation, were based on the medians obtained by combining the scores for all the subjects in the total sample population. Filled-in cells in the matrixes indicated scores above the cut-off points for the particular series.

The second series of matrixes used the medians of the scale scores

found for Group IV, the group selected as the "ideal group" because these subjects had completed the period of formal training and had had the same directresses during the various periods of initial formation as had Group I, II, and III. Group V was included in the study for the sake of comparing these younger religious with the more mature Sisters, but was not used as the "ideal group," because the methods of training and the directresses of training were different for this group than for the other four groups.

In order to determine the internal consistency of the five groups and thus provide a measure of the representativeness of the group personality pattern, a third series of matrixes was constructed in which each group was considered apart from all the other groups.

Each series of matrixes included an original matrix in which the scores above the cut-off point for the various MMPI scales, based on the particular group of medians used in the series, were indicated by filled-in cells. In the original matrix, the scales and subjects were not ranked. An observed matrix was next constructed in which both the scales and the subjects were ranked. Corresponding to each observed matrix, an expected or model matrix was constructed in which the row and column totals were kept constant in relation to the observed matrix. In constructing the model matrix, it was assumed that the subjects with the fewest scores above the cut-off points had earned these scores on those scales on which the greatest number of subjects in their group had scored above the cut-off points. Finally, a system of weights for the cells in the model pattern were defined and presented in the matrix of weights.

In order to permit the comparison of the observed and model matrixes

for each of the groups and the comparison of one group with the other groups, similarity ratios and indexes of agreement were computed.

The results of these computations lead to the following conclusions:

(1) As was suggested in the study made by Rice (1958), it seems that no "typical" personality pattern can be found for these young religious women at any of the levels of religious life considered in the study. The indexes of agreement are relatively low for all groups, though those for Group II tend to be the highest, indicating that the personality characteristics found among the subjects in this group are more generally descriptive of the individuals in it than is true for the other groups. This may be due, at least in part, to the fact that these young women live very closely together and are isolated quite completely from any other group.

(2) In contrast to several previous studies, notably that of Mastej (1954), McCarthy (1956), and Murray (1957), the evidences of personality deviation and emotional instability did not increase as length of time spent in the religious life increased. Moreover, there were evidences of greater emotional stability among subjects in the critical period of the Novitiate than in the relatively uncritical period following First Profession. Thus, there appear to be factors other than the necessity for making far-raching decisions involved in increasing personality deviation from the normal pattern.

(3) In the present study, the Novices in Group II and the Sisters, who had just taken Final Vows and thus become permanent members of the community, showed the greatest similarity in personality patterns. The Postulants, who had spent the least amount of time in the convent, showed the

greatest dissimilarity in personality pattern. It may be that this fact is due to the presence in the latter group of young women who would later leave the community, and whose personality pattern might be exerting an undue influence on the group personality pattern.

(4) In general, the results of the McNemar test for significance of change, used to study the differences in elevation of scores on the various MMPI scales, indicate that there was little relationship between the rank scale and the elevation of the score for most of the matrixes. In the matrixes in the third series, in which the group median was used as the cut-off point for the scales, only one significant chi square value was found for Group I and Group II, while the other groups showed no significant change in the position of the elevated scores, when the scales were compared with each other.

The greatest change in position of the elevated scores on the various scales was found in the matrixes for the second series. Among this set of matrixes, that for Group II had the greatest number of significant chi square values, indicating that there appeared to be more relationship between the scales considered as factors for the other groups than there was in this group.

These findings appear to corroborate the findings of other investigators, who reported little success in using the separate scales to differentiate one group from another among religious.

The results of this investigation are limited in scope because of the nature of the study. The use of the cross-sectional approach introduces additional variables, thereby rendering the interpretation of the results

less clear-cut. It would be desirable to compare the results obtained through this approach with those arrived at through the use of a longitudinal approach.

The inconsistency of the results, both as regards the present study and in comparison with similar studies, make it difficult to draw any definite conclusions , regarding the effect of the procedures employed in the formation of young religious women in this community. It would be desirable to make a study of the same group as they progress from one level of formation to another, in order to render the determination of the effect of the formation on their personality patterns more decisive and clear.

BIBLIOGRAPHY

Anastasi, Anne. Psychological testing. New York: Macmillan, 1961.

Angers, W. P. Guidelines for counselors for the MMPI interpretation. Catholic Counselor, 1963, 7, No. 3, 120-124.

Baldwin, Joan C. Rorschach personality pattern differences between over-achievers, normals, and under-achievers at the fifth grade level. Unpublished doctoral dissertation, Loyola University, Chicago, 1961.

Bier, W. C. A comparative study of a seminary group and four other groups on the Minnesota Multiphasic Personality Inventory. Studies in Psychology and Psychiatry, 1948, 7, No. 3.

Bier, W. C. Testing procedures and their value. In Haley, J.E. (Ed.) Proceedings of the 1959 Sisters' Institute of Spirituality. Notre Dame: University of Notre Dame Press, 1960, 263-295.

Bier, W. C. and Schneiders, A. A. (Eds.) Selected papers from the ACPA meetings of 1957, 1958, and 1959. New York: Fordham University Press, 1960.

Burke, H. S. Personality traits of successful minor seminarians. Washington: Catholic University of America Press, 1947.

Cronbach, L. J. Essentials of psychological testing. (2nd ed.) New York: Harper, 1960.

Dahlstrom, W. G. and Welsh, G. S. An MMPI handbook: a guide to use in clinical practice and research. Minneapolis:University of Minnesota Press, 1959.

D'ARCY, P.F. Constancy of interest factor patterns within a specific vocation of foreign missioner. Studies in Psychology and Psychiatry, 1954, 9, No. 1.

D'Arcy, P.F. Review on research on vocational interests of priests, brothers, and sisters. In Herr, V. (Ed.) A screening program for seminarians and religious. Chicago: Loyola University Press, 1962, 149-203.

Friedl, F. P. Vocational interests of successful and unsuccessful seminarians in a foreign mission society. Unpublished master's thesis, Catholic University of America, Washington, 1952.

Gorman, J. R. Adjustment and interests of fourth year minor seminarians studying for the diocesan priesthood. Unpublished master's thesis, Loyola University, Chicago, 1961.

Grib, T. F. Pattern analysis of movement responses and location choices on the Rorschach. Unpublished doctoral dissertation, Loyola University, Chicago, 1961.

Hathaway, S. R. A coding system for MMPI profile classification. Journal of Consulting Psychology, 1947, 11, 334-337.

Hathaway, S. R. and McKinley, J. C. Minnesota Multiphasic Personality Inventory Manual; revised. New York: Psychological Corporation, 1951.

Herr, V. V. (Ed.) A screening program for seminarians and religious. Chicago: Loyola University Press, 1962.

Hispanicus, P. Selecting seminarians. In Herr, V. V. (Ed.) A screening program for seminarians and religious. Chicago: Loyola University Press, 1962.

Hovey, H. B. MMPI profiles and personality characteristics. Journal of Consulting Psychology. 1953, 17; 2, 142-146.

Kelley, Mary William. Depression in the psychoses of members of religious communities of women. American Journal of Psychiatry, 1961, 118, 423-425.

Kelley, Mary William. The incidence of hospitalized illness among religious sisters in the United States. American Journal of Psychiatry, 1958, 115, 72-76.

Kobler, F. Psychological test analysis on women applicants for the religious life. Unpublished report, Loyola University, Chicago, 1962.

Lhota, B. G. Vocational interests of Catholic priests. Studies in Psychology and Psychiatry, 1948, 7, No. 1.

Machover S. and Andersen, H. Validity of a paper and pencil form of the MMPI Pd scale. Journal of Consulting Psychology, 1953, 17; 6, 459-461.

Mastej, Sister M. Martina. A Study of the influence of the religious life on the personality adjustment of religious women as measured by a modified form of the MMPI. Unpublished doctoral dissertation, Fordham University, New York, 1952.

McAllister, R. and Vanderveldt, A. Factors in mental illness among hospitalized clergy. Journal of Nervous and Mental Disorders, 1961, 132, 80-81.

McCarthy, T. N. Evaluation of present scientific status of screening for a religious vocation. In Bier, W. C. and Schneiders, A. A. (Eds.) Selected papers from the ACPA meetings of 1957, 1958, and 1959, 1960, 35-43.

McCarthy, T. N. Interests of teaching brothers and teaching sisters on the Kuder Preference Record, Occupational. Unpublished study, 1962.

McCarthy, T. N. Personality trait consistency during the training period for a Roman Catholic congregation of teaching brothers. Unpublished doctoral dissertation, University of Ottowa, Ottawa, 1956.

McCarthy, T. N. and Donders, E. A. Predictor variables and criteria of success in religious life: needed research. The Catholic Psychological Record, 1963, 1, 71-80.

McNemar, Q. Psychological statistics. New York: Wiley, 1955.

Moore, T. V. Insanity in priests and religious, I: the rate of insanity in priests and religious. Ecclesiastical Review, 1936, 95, 485-498 (a).

Moore, T. V. Insanity in priests and religious, II: detection of pre-psychotics applying for admission to the priesthood or religious communities. Ecclesiastical Review, 1936, 95, 610-613 (b).

Murray, J. B. Training for the priesthood and personality and interest test manifestations. Unpublished doctoral dissertation, Fordham University, New York, 1957.

Peters, Sister Richarda. A study of the intercorrelations of personality traits among a group of novices in religious communities. Studies in Psychology and Psychiatry, 1942, 5, No. 7.

Quinn, T. L. Differences in the motivational patterns of college student Brothers as revealed in the TAT, the ratings of their peers and the ratings of their superiors: a validation study. Unpublished doctoral dissertation, Loyola University, Chicago, 1961.

Rice, P. MMPI performances of well adjusted and poorly adjusted religious women. Unpublished report. Loyola University, Chicago, 1962.

Rice, P. An MMPI study of religious seminarians. Unpublished master's thesis. Loyola University, Chicago, 1958.

Rimoldi, H. J. A. and Grib, T. F. Pattern analysis. British Journal of Statistical Psychology, 1960, 13, 137-149.

Rimoldi, H. J. A. and Grib, T. F. Some properties and applications of pattern analysis. Loyola Psychometric Laboratory Publication, No. 14, Loyola University, Chicago, May, 1960.

Rimoldi, H. J. A. and Haley, J. V. Determining significance levels in pattern analysis. Psychological Reports, 1962, 10, 500 S.

Sandra, Mother M. Elaine. Degree of adherence to the Catholic religion as related to selected personality indices. Unpublished doctoral dissertation, Fordham University, New York, 1957,

Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill, 1956.

Skrincosky, P. A comparative study of the standard form of the MMPI and a modified form of the same adapted for a seminary group. Unpublished master's dissertation, Fordham University, 1953.

Taulber, E. Configural analysis of MMPI profiles of a psychiatric group. Journal of Consulting Psychology, 21; 5, 1957, 413-417.

Vaughan, R. P. Moral issues in psychological screening. Review for Religious, 16, March, 1957, 68.

Vaughan, R. P. A psychological assessment program for candidates to the religious life: validation study. The Catholic Psychological Record, 1963, 1, 65-70.

Vaughan, R. P. A study of personality differences between contemplative and active religious women. Unpublished doctoral dissertation, Fordham University, New York, 1956.

Wauck, L. A. An investigation of the usefulness of psychological tests in the selection of candidates for the diocesan priesthood. Unpublished doctoral dissertation, Loyola University, Chicago, 1957.

Weisgerber, C. A. Survey of a psychological screening program in a clerical order. In Herr, V. V. (Ed.) A screening program for seminarians and religious. (Chicago: Loyola University Press, 1962, 107-149).

APPENDIX I

ORIGINAL MATRIX 1 FOR GROUP V

Subjects	MMPI Scales 1	2	3	4	5	6	7	8	9	0	R_i	$\bar{R}_i$
1	x	x	x		x	x					5	5
2	x	x	x	x							4	6
3					x				x		2	8
4	x	x	x	x	x		x				6	4
5	x	x				x	x			x	5	5
6	x	x	x	x	x	x		x			7	3
7		x									1	9
8		x						x		x	3	7
9	x	x	x			x				x	5	5
10	x	x	x					x			4	6
11		x			x		x	x		x	5	5
12				x	x					x	3	7
13	x	x	x				x		x	x	6	4
14	x	x	x			x	x			x	6	4
15	x	x		x	x	x	x	x		x	8	2
16	x				x				x	x	4	6
17	x	x	x			x			x		5	5
18			x						x		2	8
19		x		x		x		x		x	5	5
20										x	1	9
21				x	x			x	x		4	6
22	x	x	x		x	x	x			x	7	3
23	x	x	x			x	x				5	5
24	x	x		x	x					x	5	5
25			x	x	x	x			x		5	5
											k	n
C_j	15	18	13	9	12	11	8	7	7	13	$\sum_i^k R_i =$	$\sum_j^n C_j = 113$
$\bar{C}_j$	10	7	12	16	13	14	17	18	18	12	$\sum_i^k \bar{R}_i$	$\sum_j^n \bar{C}_j = 137$

OBSERVED MATRIX 1 FOR GROUP V

Subjects	MMPI Scales 2	1	3	0	5	6	4	7	8	9	R_i	$\bar{R}_i$
7	x										1	9
20				x							1	9
3					x					x	2	8
18			x							x	2	8
8	x			x					x		3	7
12				x	x		x				3	7
2	x	x	x				x				4	6
10	x	x	x						x		4	6
16		x		x	x					x	4	6
21					x		x		x	x	4	6
1	x	x	x		x	x					5	5
5	x	x		x		x		x			5	5
9	x	x	x	x		x					5	5
11	x			x	x			x		x	5	5
17	x	x	x			x				x	5	5
19	x			x		x	x		x		5	5
23	x	x	x			x		x			5	5
24	x	x		x	x		x				5	5
25			x		x	x	x			x	5	5
4	x	x	x		x		x	x			6	4
13	x	x	x	x				x		x	6	4
14	x	x	x	x		x		x			6	4
6	x	x	x		x	x	x		x		7	3
22	x	x	x	x	x	x			x		7	3
15	x	x		x	x	x	x	x	x		8	2
C_j	18	15	13	13	12	11	9	8	7	7	$\sum_i^k R_i =$	$\sum_j^n C_j = 113$
$\bar{C}_j$	7	10	12	12	13	14	16	17	18	18	$\sum_i^k \bar{R}_i =$	$\sum_j^n \bar{C}_j = 137$

MODEL MATRIX 1 FOR GROUP V

	MMPI Scales											
Subjects	2	1	3	0	5	6	4	7	8	9	R_i	$\bar{R}_i$
7	x										1	9
20	x										1	9
3	x	x									2	8
18	x	x									2	8
8	x	x	x								3	7
12	x	x		x							3	7
2	x	x	x	x							4	6
10	x	x	x	x							4	6
16	x	x	x	x							4	6
21	x	x	x	x							4	6
1	x	x	x	x	x						5	5
5	x	x	x	x	x						5	5
9	x	x	x	x	x						5	5
11	x	x	x	x	x						5	5
17	x	x	x	x		x					5	5
19	x	x	x	x		x					5	5
23	x	x			x	x	x				5	5
24	x				x	x	x	x			5	5
25						x	x	x	x	x	5	5
4					x	x	x	x	x	x	6	4
13					x	x	x	x	x	x	6	4
14					x	x	x	x	x	x	6	4
6				x	x	x	x	x	x	x	7	3
22			x		x	x	x	x	x	x	7	3
15			x	x	x	x	x	x	x	x	8	2
C_j	18	15	13	13	12	11	9	8	7	7	$\sum_i^k R_i = \sum_j^n C_j = 113$	
$\bar{C}_j$	7	10	12	12	13	14	16	17	18	18	$\sum_i^k \bar{R}_i = \sum_j^n \bar{C}_j = 137$	

Matrix of Weights* for Model Pattern 1 for Group V

	MMPI Scales												
Subject	2	1	3	0	5	6	4	7	8	9	T_{ri}	A_{ri}	mA_i
7	16	66	79	79	85	92	105	112	118	118	870	736	736
20	(16)	66	79	(79)	85	92	105	112	118	118	870	775	736
3	(32)	(27)	70	70	(76)	82	94	99	105	(105)	760	520	491
18	(32)	(27)	(70)	70	76	82	94	99	105	(105)	760	526	491
8	48	(40)	(35)	(61)	67	72	82	87	(92)	92	686	458	292
12	(48)	(40)	61	35	(67)	72	(82)	87	92	92	686	449	292
2	64	54	46	(46)	57	61	(70)	74	79	79	630	514	118
10	64	54	46	(46)	57	61	70	74	(79)	79	630	505	118
16	(64)	54	(46)	46	(57)	61	70	74	79	(79)	630	384	118
21	(64)	(54)	(46)	(46)	(57)	61	(70)	74	(79)	(79)	630	135	118
1	80	66	58	(58)	53	(51)	58	62	66	66	618	509	-
5	80	66	(58)	58	(53)	(51)	58	(62)	66	66	618	394	-
9	80	66	58	58	(53)	(51)	58	62	66	66	618	504	-
11	80	(66)	(58)	58	53	51	58	(62)	66	(66)	618	356	-
17	80	66	58	(58)	48	48	58	62	66	(66)	610	486	-
19	80	(66)	(58)	58	48	48	(58)	62	(66)	66	610	362	-
23	80	66	44	44	53	48	(40)	(62)	66	66	565	366	-
24	80	(36)	44	44	53	(48)	40	35	66	66	512	349	-
25	26	36	(44)	44	(48)	48	40	(35)	(31)	31	383	225	-
4	(21)	(29)	(35)	35	64	(58)	48	42	(37)	(37)	406	189	74
13	(21)	(29)	(35)	(35)	(64)	(58)	(48)	42	(37)	37	406	79	74
14	(21)	(29)	(35)	(35)	(64)	58	(48)	42	(37)	(37)	406	100	74
6	(15)	(22)	(26)	(81)	74	68	56	(50)	43	(43)	478	241	192
22	(15)	(22)	81	(26)	74	68	(56)	50	(43)	(43)	478	273	192
15	(10)	(15)	(92)	92	85	78	64	57	50	(50)	593	426	368
											T = 15071		
											A_T =	9861	
											mA_T =		4484

___ indicates empty cells in model pattern.

( ) indicates cells which are different in observed and model patterns.

* Weights are given in hundreds but all decimal points have been omitted in the matrix.

APPENDIX II

CHI SQUARE VALUES OBTAINED THROUGH USE OF THE McNEMAR TEST FOR SIGNIFICANCE OF CHANGE WITH THE MMPI SCALES IN THE OBSERVED MATRIXES

Observed Matrix 1 - Group I

	9	4	8	3	6	7	0	5	1
2	5.02^{++}	3.12^{+}	3.45^{++}	1.89	1.57	2.02^{+}	.90	0	.45
1	3.45^{++}	2.37^{+}	6.72^{+++}	7.50^{+++}	3.11^{+}	2.04^{+}	.15	.04	-
5	3.70^{++}	7.04^{+++}	3.70^{++}	1.53	2.04^{+}	1.33	.04	-	-
0	.78	1.16	2.78^{+}	.89	.96	.50	-	-	-
7	.70	.06	.31	.04	.05	-	-	-	-
6	.06	0	.06	0	-	-	-	-	-
3	.05	0	0	-	-	-	-	-	-
8	.07	-	-	-	-	-	-	-	-
4	0	-	-	-	-	-	-	-	-

\+ significant at the .05 level
++ significant at the .01 level
+++ significant at the .001 level

Observed Matrix 2 - Group I

	4	3	9	8	5	6	7	1	0
2	10.46^{+++}	4.03^{++}	4.11^{++}	2.70^{+}	3.33^{++}	2.78^{+}	1.89	.17	.10
0	5.91^{+++}	3.23^{+}	2.53^{+}	2.04^{+}	.32	2.04^{+}	1.07	.16	-
1	10.24^{+++}	.32	2.21^{+}	2.12^{+}	.83	1.33	.41	-	-
7	6.86^{+++}	1.44	.32	.31	.03	.04	-	-	-
6	3.05^{+}	.76	.06	0	.54	-	-	-	-
5	3.44^{++}	.32	.15	0	-	-	-	-	-
8	.64	1.39	.06	-	-	-	-	-	-
9	.94	0	-	-	-	-	-	-	-
3	.70	-	-	-	-	-	-	-	-

Observed Matrix 3 - Group I

	4	9	1	8	0	3	5	2	6
7	2.35^{+}	1.74	.76	.01	.50	.04	0	.04	.06
6	2.89^{+}	1.74	.04	.05	.05	.05	.05	0	-
2	2.37^{+}	.24	.17	.04	.75	.04	0	-	-
5	1.89	.59	.03	.04	.04	.04	-	-	-
3	1.09	.55	.07	.05	.33	-	-	-	-
0	2.12^{+}	3.12	.04	.04	-	-	-	-	-
8	2.12^{+}	0	.01	-	-	-	-	-	-
1	1.44	0	-	-	-	-	-	-	-
9	1.44	-	-	-	-	-	-	-	-

\+ significant at the .05 level
++ significant at the .01 level
+++ significant at the .001 level

Observed Matrix 1 - Group II

	5	1	3	7	4	9	2	6	8
0	3.06^{+}	2.45^{+}	1.14	1.57	.17	.35	0	.17	0
8	2.70^{+}	1.06	1.14	1.25	.27	.24	.06	.06	-
6	3.46^{++}	.27	1.39	.19	.07	.21	0	-	-
2	2.78^{+}	3.37^{++}	1.25	.21	.56	.16	-	-	-
9	.96	.88	.21	.47	.04	-	-	-	-
4	1.57	1.07	.06	.05	-	-	-	-	-
7	.56	.27	.19	-	-	-	-	-	-
3	.21	0	-	-	-	-	-	-	-
1	0	-	-	-	-	-	-	-	-

Observed Matrix 2 - Group II

	3	5	9	1	4	7	2	6	8
0	10.23^{+++}	11.13^{+++}	6.64^{+++}	8.45^{+++}	6.04^{+++}	3.28^{+}	0	.19	.15
8	8.52^{+++}	6.04^{+++}	6.26^{+++}	7.50^{+++}	4.52^{++}	1.56	0	0	-
6	12.19^{+++}	14.44^{+++}	7.26^{+++}	6.05^{+++}	5.26^{+++}	1.25	.08	-	-
2	7.45^{+++}	6.26^{+++}	5.28^{++}	6.05^{+++}	4.52^{++}	2.08^{+}	-	-	-
7	3.37^{++}	3.82^{++}	1.90	1.39	.69	-	-	-	-
4	.75	.16	.19	.06	-	-	-	-	-
1	.75	.17	.05	-	-	-	-	-	-
9	.06	.04	-	-	-	-	-	-	-
5	0	-	-	-	-	-	-	-	-

$^{+}$ significant at the .05 level
$^{++}$ significant at the .01 level
$^{+++}$ significant at the .001 level

Observed Matrix 3 - Group II

	0	3	7	8	4	5	6	1	9
2	2.45+	1.25	3.27+	1.56	.94	1.25	2.09+	.06	.04
9	.55	.27	.27	.45	.04	.38	.45	.05	-
1	.41	.37	.07	.44	0	.45	.06	-	-
6	.06	0	0	0	0	.05	-	-	-
5	.04	.06	0	0	.04	-	-	-	-
4	.38	0	0	0	-	-	-	-	-
8	.06	.06	.08	-	-	-	-	-	-
7	.07	.02	-	-	-	-	-	-	-
3	0	-	-	-	-	-	-	-	-

Observed Matrix 1 - Group III

	0	7	2	8	3	5	9	1	4
6	5.76+++	5.50+++	4.35++	3.06+	2.77+	1.27	1.39	1.56	.75
4	3.63++	3.68++	1.56	.94	3.12+	.06	.06	.07	-
1	3.38++	1.89	1.07	.31	0	0	0	-	-
9	1.44	1.56	.35	.07	.06	0	-	-	-
5	.67	1.71	.17	.06	.05	-	-	-	-
3	1.88	1.56	.94	0	- -	-	-	-	-
8	1.39	1.23	.76	-	-	-	-	-	-
2	.44	.08	-	-	-	-	-	-	-
7	10	-	-	-	-	-	-	-	-

\+ significant at the .05 level
++ significant at the .01 level
+++ significant at the .001 level

Observed Matrix 2 - Group III

	9	0	7	1	3	2	8	5	4
6	7.68^{+++}	7.04^{+++}	7.68^{+++}	5.26^{+++}	3.72^{++}	3.64^{++}	4.27^{++}	1.78	.75
4	6.05^{+++}	4.61^{++}	4.05^{++}	2.77^{+}	4.92^{++}	2.23^{+}	1.56	.45	-
5	3.06^{+}	.27	2.45^{+}	.41	.39	.16	0	-	-
8	.38	.84	1.23	.56	.75	.19	-	-	-
2	.27	1.12	0	.06	0	-	-	-	-
3	.75	0	0	0	-	-	-	-	-
1	.90	.05	.06	-	-	-	-	-	-
7	.17	.59	-	-	-	-	-	-	-
0	.04	-	-	-	-	-	-	-	-

Observed Matrix 3 - Group III

	2	8	0	5	7	1	3	6	9
4	1.25	.94	.96	.84	.45	.07	.90	.27	2.45
9	.05	0	.08	.19	.45	.95	.31	.84	-
6	.19	.21	.19	.07	0	.05	.06	-	-
3	.06	0	.05	.06	.06	0	-	-	-
1	0	.27	.06	.05	0	-	-	-	-
7	.08	.27	.17	.06	-	-	-	-	-
5	.04	0	0	-	-	-	-	-	-
0	0	.05	-	-	-	-	-	-	-
8	.05	-	-	-	-	-	-	-	-

\+ significant at the .05 level
++ significant at the .01 level
+++ significant at the .001 level

Observed Matrix 1 - Group IV

	9	8	5	4	6	3	1	7	2
0	4.05++	2.50+	1.39	1.25	1.23	.19	.21	.07	.08
2	1.14	.75	.27	0	.08	0	0	0	-
7	.94	.90	.64	.27	.10	0	0	-	-
1	.45	.16	0	.08	0	.25	-	-	-
3	1.89	1.82	0	0	0	-	-	-	-
6	.47	.08	.23	.10	-	-	-	-	-
4	.27	0	0	-	-	-	-	-	-
5	.06	0	-	-	-	-	-	-	-
8	.06	-	-	-	-	-	-	-	-

Observed Matrix 2 - Group IV

8	1	2	3	7	9	4	5	0	6
8	1.12	.75	.75	1.46	.08	.07	.27	.08	.08
6	.08	.08	0	0	.06	.08	0	0	-
0	0	0	0	0	0	0	.06	-	-
5	0	0	0	0	0	.07	-	-	-
4	0	0	.10	0	0	-	-	-	-
9	.06	.05	.06	.07	-	-	-	-	-
7	.10	.10	.07	-	-	-	-	-	-
3	.11	.08	-	-	-	-	-	-	-
2	.08	-	-	-	-	-	-	-	-

+ significant at the .01 level

Observed Matrix 1 - Group V

	9	8	7	4	6	5	0	3	1
2	.45	8.64^{+++}	.90	4.27^{+++}	4.00^{++}	1.56	1.45	1.67	.80
1	2.12^{+}	5.79^{+++}	6.12^{+++}	1.79	1.12	.31	.08	.17	-
3	2.77^{+}	2.40^{+}	1.45	.65	.12	0	.06	-	-
0	2.57^{+}	2.77^{+}	1.78	2.57	.08	.08	-	-	-
5	.90	2.08^{+}	.75	.57	0	-	-	-	-
6	.27	1.45	.44	.08	-	-	-	-	-
4	0	.57	0	-	-	-	-	-	-
7	.08	.08	-	-	-	-	-	-	-
8	.08	-	-	-	-	-	-	-	-

Observed Matrix 2 - Group V

	4	1	2	3	5	0	6	9	7
8	8.47^{+++}	5.79^{+++}	7.69^{+++}	3.06^{+}	2.50^{+}	1.45	1.45	.36	0
7	7.56^{+++}	8.10^{+++}	8.10^{+++}	3.27^{+}	2.08^{+}	1.12	.44	.06	-
9	9.09^{+++}	2.40^{+}	2.72^{+}	1.23	.10	.06	0	-	-
6	5.82^{+++}	3.28^{+}	3.12^{+}	1.12	.07	0	-	-	-
0	4.08^{++}	2.08^{+}	2.08^{+}	.27	.07	-	-	-	-
5	3.27^{+}	1.45	.65	.06	-	-	-	-	-
3	1.78	.12	.57	-	-	-	-	-	-
2	.10	.11	-	-	-	-	-	-	-
1	.10	-	-	-	-	-	-	-	-

$^{+}$ significant at the .05 level
$^{++}$ significant at the .01 level
$^{+++}$ significant at the .001 level

Observed Matrix 3 - Group V

	8	7	1	4	9	2	6	0	5
3	.56	.44	1.50	.31	.07	.44	.06	.06	.07
5	0	.31	.65	.57	.08	.07	0	.07	-
0	.90	1.12	.36	.27	.27	.36	.10	-	-
6	0	.44	.12	.08	0	0	-	-	-
2	.08	.80	.57	.07	.06	-	-	-	-
9	.08	.06	0	0	-	-	-	-	-
4	0	0	0	-	-	-	-	-	-
1	0	0	-	-	-	-	-	-	-
7	.08	-	-	-	-	-	-	-	-

APPENDIX III

Table 6

Observed Matrix 1 for Group I

Subjects	MMPI Scales										R_i	$\bar{R}_i$
	9	4	8	3	6	7	0	5	1	2		
2											0	10
55											0	10
4							x				1	9
6				x							1	9
25	x										1	9
34	x										1	9
12	x	x									2	8
13							x			x	2	8
3			x	x					x		3	7
15				x			x		x		3	7
16	x	x						x			3	7
17		x		x	x						3	7
20	x			x	x						3	7
29	x	x						x			3	7
35	x	x						x			3	7
5				x		x	x			x	4	6
8				x			x		x	x	4	6
10			x			x		x	x		4	6
11	x	x		x	x						4	6
19		x			x	x		x			4	6
32		x	x			x	x				4	6
44		x						x	x	x	4	6
54				x			x	x	x		4	6
33		x			x	x		x		x	5	5
36	x				x		x	x		x	5	5
37				x		x	x	x		x	5	5
38		x			x		x	x		x	5	5
1	x	x	x	x	x				x		6	4
9	x	x	x		x	x	x				6	4
14	x		x	x	x			x	x		6	4
18		x		x	x	x	x			x	6	4
21	x	x	x	x	x				x		6	4
22	x		x		x	x	x	x			6	4
23	x	x	x	x		x			x		6	4
24	x	x	x	x		x		x			6	4
27	x	x	x	x	x			x			6	4
30	x	x	x	x	x			x			6	4

Subjects	MMPI Scales 9	4	8	3	6	7	0	5	1	2	R_i	$\bar{R}_i$
31	x	x	x		x	x		x			6	4
41		x	x	x		x			x	x	6	4
42	x	x	x		x	x	x				6	4
49	x	x	x			x	x			x	6	4
50	x		x		x	x	x			x	6	4
56	x	x	x	x	x	x					6	4
28	x	x	x	x	x	x			x		7	3
40		x	x		x	x	x	x		x	7	3
48	x	x	x	x	x	x			x		7	3
52			x	x	x	x	x		x	x	7	3
53	x	x		x	x			x	x	x	7	3
7	x		x	x	x	x	x	x		x	8	2
39		x	x	x	x	x	x		x	x	8	2
45	x	x	x	x		x	x		x	x	8	2
47	x	x	x	x	x	x			x	x	8	2
51	x	x	x	x	x	x	x		x		8	2
26	x	x	x		x	x	x	x	x	x	9	1
46	x		x	x	x	x	x	x	x	x	9	1
43	x	x	x	x	x	x	x	x	x	x	10	0
C_j	33	32	32	31	31	29	25	23	22	22	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j = 280$	
$\bar{C}_j$	23	24	24	25	25	27	31	33	34	34	$\sum_{i}^{k} \bar{R}_i = \sum_{j}^{n} \bar{C}_j = 260$	

Table 7

Observed Pattern for Group I

Subjects	MMPI Scales 4	3	9	8	5	6	7	1	0	2	R_i	$\bar{R}_i$
2											0	10
4											0	10
6		x									1	9
12	x		x								2	8
25			x		x						2	8
34	x		x								2	8
55	x	x									2	8
13					x				x	x	3	7
15		x						x	x		3	7
16	x		x		x						3	7
35	x		x		x						3	7
54		x			x			x			3	7
3	x	x		x				x			4	6
17	x	x	x			x					4	6
20	x	x	x			x					4	6
44	x				x			x		x	4	6
5	x	x					x		x	x	5	5
8		x			x			x	x	x	5	5
10	x			x	x		x	x			5	5
11		x	x	x	x	x					5	5
29	x	x	x	x	x						5	5
32	x			x			x	x	x		5	5
33	x				x	x	c			x	5	5
36			x		x	x			x	x	5	5
38	x				x	x			x	x	5	5
1	x	x	x	x		x		x			6	4
9	x		x	x		x	x		x		6	4
22			x	x	x	x	x		x		6	4
23	x	x	x	x			x	x			6	4
24	x	x	x	x	x		x				6	4
27	x	x	x	x	x	x					6	4
30	x	x	x	x	x	x					6	4
31	x	x		x	x	x	x				6	4
37	x	x			x		x		x	x	6	4
41	x	x		x			x	x		x	6	4
42	x		x	x		x	x		x		6	4
49	x		x	x		x			x	x	6	4
18	x	x				x	x		x	x	6	4
19	x	x	x		x	x	x				6	4

	MMPI Scales											
Subjects	4	3	9	8	5	6	7	1	0	2	R_i	$\bar{R}_i$
14	x	x	x	x	x	x		x			7	3
21	x	x	x	x	x	x		x			7	3
28	x	x	x	x		x	x	x			7	3
40	x			x	x	x	x		x	x	7	3
52		x		x		x	x	x	x	x	7	3
53	x	x	x		x	x		x		x	7	3
7		x	x	x	x	x	x		x	x	8	2
39	x	x		x		x	x	x	x	x	8	2
45	x	x	x	x			x	x	x	x	8	2
47	x	x	x	x		x	x	x		x	8	2
48	x	x	x	x	x	x	x	x			8	2
51	x	x	x	x		x	x	x	x		8	2
56	x	x	x	x	x	x	x	x			8	2
26	x		x	x	x	x	x	x	x	x	9	1
46		x	x	x	x	x	x	x	x	x	9	1
43	x	x	x	x	x	x	x	x	x	x	10	0
C_j	43	36	34	32	31	31	29	25	23	22	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j = 305$	
$\bar{C}_j$	14	20	22	24	25	25	27	31	33	34	$\sum_{i}^{k} \bar{R}_i = \sum_{j}^{n} \bar{C}_j = 255$	

Table 8

Observed Pattern 3 for Group I

Subjects	MMPI Scales 4	9	8	1	0	3	5	2	6	7	R_i	$\bar{R}_i$
2											0	10
6											0	10
25											0	10
55											0	10
4					x						1	9
34		x									1	9
12	x	x									2	8
13					x			x			2	8
15				x	x						2	8
16	x						x				2	8
17	x								x		2	8
3			x	x		x					3	7
5					x			x		x	3	7
8				x	x			x			3	7
11		x				x			x		3	7
18	x				x			x			3	7
19	x						x		x		3	7
20		x				x			x		3	7
27	x					x	x				3	7
29		x	x				x				3	7
32	x			x	x						3	7
35	x	x					x				3	7
9	x	x	x		x						4	6
10			x	x			x			x	4	6
14		x		x		x	x				4	6
36					x		x	x	x		4	6
41	x			x		x		x			4	6
44	x			x			x	x			4	6
54				x	x	x	x				4	6
1	x	x	x	x		x					5	5
22			x		x		x		x	x	5	5
23	x	x	x	x						x	5	5
24	x	x	x				x			x	5	5
30	x	x	x			x	x				5	5
33	x						x	x	x	x	5	5
37					x	x	x	x		x	5	5
38	x				x			x	x	x	5	5
49	x		x		x			x		x	5	5
56	x	x		x		x		x			5	5

Subjects	MMPI Scales 4	9	8	1	0	3	5	2	6	7	R_i	$\bar{R}_i$
21	x	x	x	x		x			x		6	4
31	x	x	x				x		x	x	6	4
42	x	x	x		x				x	x	6	4
50		x	x	x	x			x		x	6	4
53	x	x		x		x	x	x			6	4
28	x	x	x	x		x			x	x	7	3
40	x		x		x		x	x	x	x	7	3
47	x	x	x	x		x		x		x	7	3
48	x	x	x	x		x			x	x	7	3
51	x	x		x	x	x			x	x	7	3
52			x	x	x	x		x	x	x	7	3
7		x	x		x	x	x	x	x	x	8	2
39	4		x	x	x	x		x	x	x	8	2
45	x	x	x	x	x	x		x		x	8	2
46		x	x	x	x	x	x	x	x		8	2
26	x	x	x	x	x		x	x	x	x	9	1
43	x		x	x	x	x	x	x	x	x	9	1
C_j	32	26	25	25	25	23	23	22	22	22	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j = 245$	
$\bar{C}_j$	24	30	31	31	31	33	33	34	34	34	$\sum_{i}^{k} \bar{R}_i = \sum_{j}^{n} \bar{C}_j = 315$	

Table 9

Observed Patter 1 for Group II

Subjects	MMPI Scales 5	1	3	7	4	9	2	6	8	0	R_i	$\bar{R}_i$
4											0	10
18											0	10
3	x										1	9
10						x					1	9
23	x										1	9
25						x					1	9
13	x									x	2	8
16							x			x	2	8
20						x			x		2	8
21					x			x			2	8
28						x		x			2	8
30	x					x					2	8
8		x	x			x					3	7
11	x		x		x						3	7
31		x	x						x		3	7
32	x	x						x			3	7
36	x			x						x	3	7
37		x	x			x					3	7
44	x		x			x					3	7
5	x			x			x		x		4	6
6	x			x	x	x					4	6
7	x	x	x		x						4	6
26			x			x		x	x		4	6
34		x	x				x			x	4	6
38	x			x		x				x	4	6
2		x		x	x				x	x	5	5
15	x	x	x		x			x			5	5
40	x	x	x	x						x	5	5
1		x		x	x	x		x	x		6	4
9	x	x	x	x	x				x		6	4
12	x	x	x	x		x				x	6	4
17	x	x		x		x			x	x	6	4
19	x	x	x		x		x	x			6	4
29		x	x		x	x	x		x		6	4
41	x	x	x	x		x				x	6	4
42	x	x	x		x	x				x	6	4
46	x			x			x	x	x	x	6	4
53		x	x		x		x	x	x		6	4

	MMPI Scales											
Subjects	5	1	3	7	4	9	2	6	8	0	R_i	$\overline{R}_i$
14	x		x	x	x	x	x	x			7	3
22	x	x	x	x		x	x	x			7	3
24	x	x		x	x		x	x		x	7	3
43		x	x	x	x		x	x	x		7	3
45		x	x	x		x	x	x	x		7	3
35	x	x	x	x	x		x	x		x	8	2
39	x	x	x	x	x		x		x	x	8	2
27		x	x	x	x	x	x	x	x	x	9	1
C_j	26	25	22	22	19	19	16	16	16	15	$\sum_i^k R_i = \sum_j^n C_j = 196$	
$\overline{C}_j$	20	21	24	24	27	27	30	30	30	31	$\sum_i^k \overline{R}_i = \sum_j^n \overline{C}_j = 264$	

Table 10

Observed Pattern 2 for Group II

Subjects	MMPI Scales 3	5	9	1	4	7	2	6	8	0	R_i	$\bar{R}_i$
4					x						1	9
10			x								1	9
18			x								1	9
23		x			x						2	8
3	x	x	x								3	7
13		x	x							x	3	7
20			x	x					x		3	7
21	x				x			x			3	7
25	x		x		x						3	7
28		x	x					x			3	7
30		x	x		x						3	7
36		x				x				x	3	7
37	x		x	x							3	7
44	x	x	x								3	7
5		x				x	x		x		4	6
8	x		x	x	x						4	6
11	x	x	x		x						4	6
32		x		x	x			x			4	6
38		x				x	x			x	4	6
6	x	x	x		x	x					5	5
7	x	x	x	x	x						5	5
16	x	x		x			x			x	5	5
17		x	x	x		x			x		5	5
31	x	x		x	x				x		5	5
34	x		x			x	x			x	5	5
40	x	x		x		x				x	5	5
15	x	x	x	x	x			x			6	4
19	x	x		x	x		x	x			6	4
26	x	x	x	x				x	x		6	4
29			x	x	x	x	x		x		6	4
41	x	x	x	x		x				x	6	4
42	x	x	x	x	x				x		6	4
1	x		x	x	x	x		x	x		7	3
2	x		x	x	x	x			x	x	7	3
9	x	x	x	x	x	x			x		7	3
12	x	x	x	x	x	x				x	7	3
14	x	x	x		x	x	x	x			7	3

Subjects	MMPI Scales 3	5	9	1	4	7	2	6	8	0	R_i	$\bar{R}_i$
22	x	x	x	x		x	x	x			7	3
33	x		x	x	x		x	x	x		7	3
46	x	x				x	x	x	x	x	7	3
24	x	x		x	x	x	x	x		x	8	2
35	x	x		x	x	x	x	x		x	8	2
39	x	x		x	x	x	x		x	x	8	2
45	x		x	x	x	x	x	x	x		8	2
27	x		x	x	x	x	x	x	x	x	9	1
43	x	x	x	x	x	x	x	x	x		9	1
C_j	32	31	31	28	27	22	16	16	16	14	$\sum_i^k R_i = \sum_j^n C_j = 232$	
$\bar{C}_j$	14	15	16	18	19	24	30	30	30	32	$\sum_i^k \bar{R}_i = \sum_j^n \bar{C}_j = 228$	

Table 11

Observed Pattern 3 for Group II

Subject	MMPI Scales 0	3	7	8	4	5	6	1	9	2	R_i	$\bar{R}_i$
3											0	10
4											0	10
10									x		1	9
18	x										1	9
23	x										1	9
25					x						1	9
13	x					x					2	8
16	x									x	2	8
20				x					x		2	8
21					x		x				2	8
28							x		x		2	8
30						x			x		2	8
32						x	x				2	8
7		x			x	x					3	7
11		x			x	x					3	7
37	x	x							x		3	7
38	x		x							x	3	7
44		x				x				x	3	7
5			x	x		x				x	4	6
6			x		x		x		x		4	6
26		x		x			x		x		4	6
31	x	x		x				x			4	6
36	x		x			x	x				4	6
2	x		x	x	x			x			5	5
8	x	x			x			x	x		5	5
34	x		x	x			x			x	5	5
42		x		x	x			x	x		5	5
1			x	x	x		x	x	x		6	4
15	x	x			x	x	x	x			6	4
22		x	x			x	x		x	x	6	4
29			x	x	x			x	x	x	6	4
33		x		x	x		x	x		x	6	4
40	x	x	x	x		x		x			6	4
46	x		x	x		x	x			x	6	4
9	x	x	x	x	x	x		x			7	3
12	x	x	x	x		x		x	x		7	3
17	x		x	x		x	x	x	x		7	3
19		x		x	x	x	x	x		x	7	3

Subjects	MMPI Scales										R_i	$\bar{R}_i$
	0	3	7	8	4	5	6	1	9	2		
24	x		x	x	x	x	x			x	7	3
41	x	x	x	x		x		x	x		7	3
14	x	x	x		x	x	x		x	x	8	2
35	x	x	x		x	x	x	x		x	8	2
43	x	x	x	x	x		x	x		x	8	2
45		x	x	x	x		x	x	x	x	8	2
27	x	x	x	x	x		x	x	x	x	9	1
39	x	x	x	x	x	x	x	x		x	9	1
C_j	24	22	22	22	21	21	21	19	19	16	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j = 207$	
$\bar{C}_j$	22	24	24	24	25	25	25	27	27	30	$\sum_{i}^{k} \bar{R}_i = \sum_{j}^{n} \bar{C}_j = 253$	

Table 12

Observed Pattern 1 for Group III

Subject	MMPI Scales										R_i	$\bar{R}_i$
	0	7	2	8	3	5	9	1	4	6		
29											0	10
38								x			1	9
3	x		x								2	8
12						x	x				2	8
22	x					x					2	8
34				x			x				2	8
36	x		x								2	8
40							x			x	2	8
8	x		x			x					3	7
20	x	x	x								3	7
37	x		x					x			3	7
7					x		x		x	x	4	6
10	x	x	x				x				4	6
14	x	x	x	x							4	6
15					x	x			x	x	4	6
16	x	x	x			x					4	6
17	x	x	x					x			4	6
30	x	x	x						x		4	6
32	x	x		x			x				4	6
39	x	x				x	x				4	6
1		x	x	x	x		x				5	5
5	x	x		x		x			x		5	5
13	x	x	x		x				x		5	5
19	x	x		x		x				x	5	5
24		x	x		x			x	x		5	5
27	x	x		x		x				x	5	5
31				x	x		x	x	x		5	5
41	x	x		x		x	x				5	5
4		x		x	x		x	x	x		6	4
28	x	x	x		x	x		x			6	4
33	x		x			x	x		x	x	6	4
35				x	x	x	x	x	x		6	4
2	x	x	x	x	x			x		x	7	3
6	x	x	x	x	x	x		x			7	3
11		x	x	x	x			x	x	x	7	3
23				x	x	x	x	x	x	x	7	3
26	x	x	x	x	x		x	x			7	3

	MMPI Scales											
Subject	0	7	2	8	3	5	9	1	4	6	R_i	$\bar{R}_i$
25	x	x	x	x	x		x	x	x		8	2
9	X	X	X	X	X	X	X	X		x	9	1
18	x	x	x	x	x	x		x	x	x	9	1
21	x	x	x	x	x	x	x	x	x	x	10	0
C_j	27	25	23	20	18	18	18	17	15	12	$\sum_i^k R_i$ =	$\sum_j^n C_j$ = 193
$\bar{C}_j$	14	16	18	21	23	23	23	24	26	29	$\sum_i^k \bar{R}_i$ =	$\sum_j^n \bar{C}_j$ = 217

Table 13

Observed Pattern 2 for Group III

	MMPI Scales											
Subject	9	0	7	1	3	2	8	5	4	6	R_i	$\bar{R}_i$
38					x						1	9
3		x				x					2	8
22	x							x			2	8
29	x				x						2	8
8		x				x		x			3	7
12	x			x				x			3	7
20		x	x			x					3	7
34	x				x		x				3	7
40	x							x		x	3	7
14		x	x			x	x				4	6
16		x	x			x		x			4	6
30		x	x			x			x		4	6
32	x	x	x				x				4	6
36	x	x		x		x					4	6
37	x	x		x		x					4	6
39	x	x	x				x				4	6
7	x			x	x				x	x	5	5
10	x	x	x	x		x					5	5
19		x	x				x	x		x	5	5
24			x	x	x	x			x		5	5
27		x	x				x	x		x	5	5
31	x			x	x		x		x		5	5
1	x		x	x	x	x	x				6	4
4	x		x	x	x		x		x		6	4
5		x	x		x		x	x	x		6	4
13		x	x	x	x	x			x		6	4
15	x			x	x			x	x	x	6	4
17	x	x	x	x	x	x					6	4
28		x	x	x	x	x		x			6	4
33	x	x				x		x	x	x	6	4
35	x			x	x		x	x	x		6	4
2		x	x	x	x	x	x			x	7	3
23	x			x	x		x	x	x	x	7	3
26	x	x	x	x	x	x	x				7	3
41	x	x	x	x	x		x	x			7	3
6	x	x	x	x	x	x	x	x			8	2
11	x		x	x	x	x	x		x	x	8	2
25	x	x	x	x	x	x	x		x		8	2
9	x	x	x	x	x	x	x	x		x	9	1
18	x	x	x	x	x	x	x	x	x	x	10	0

	MMPI Scales											
Subject	9	0	7	1	3	2	8	5	4	6	R_i	$\overline{R_i}$
21	x	x	x	x	x	x	x	x	x	x	10	0
C_j	27	26	25	24	24	23	20	19	15	12	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j = 215$	
$\overline{C}_j$	14	15	16	17	17	18	21	22	26	29	$\sum_{i}^{k} \overline{R}_i = \sum_{j}^{n} \overline{C}_j = 195$	

Table 14

Observed Pattern 3 for Group III

Subject	MMPI Scales 2	8	0	5	7	1	3	6	9	4	R_i	$\bar{R}_i$
29											0	10
22				x							1	9
36	x										1	9
38						x					1	9
12				x					x		2	8
34		x							x		2	8
40								x	x		2	8
3	x		x					x			3	7
8			x	x				x			3	7
17	x		x			x					3	7
20	x		x		x						3	7
27		x		x				x			3	7
37	x		x			x					3	7
41		x		x					x		3	7
5		x		x	x					x	4	6
7							x	x	x	x	4	6
14	x	x	x		x						4	6
15				x			x	x		x	4	6
16	x		x	x	x						4	6
30	x		x		x					x	4	6
32		x	x		x				x		4	6
39			x	x	x				x		4	6
1	x	x					x		x		4	6
10	x		x		x		x		x		5	5
19		x	x	x	x			x			5	5
24				x		x	x	x		x	5	5
31		x				x	x		x	x	5	5
33	x			x				x	x	x	5	5
4		x			x	x	x		x	x	6	4
13	x	x			x	x	x			x	6	4
25	x	x				x	x		x	x	6	4
28			x	x	x	x	x		x		6	4
35		x		x		x	x	x	x		6	4
2	x	x	x		x		x	x	x		7	3
11	x	x				x	x	x	x	x	7	3
23		x		x		x	x	x	x	x	7	3
26	x	x	x	x		x	x		x		7	3

	MMPI Scales											
Subjects	2	8	0	5	7	1	3	6	9	4	R_i	$\bar{R}_i$
6	x	x	x	x	x	x	x		x		8	2
9	x	x	x	x	x	x	x	x	x		9	1
18	x	x	x	x	x	x	x	x		x	9	1
21	x	x	x	x	x	x	x	x	x	x	10	1
C_j	20	20	20	19	19	18	18	18	18	15	$\sum_i^k R_i = \sum_j^n C_j =$	185
$\bar{C}_j$	21	21	21	22	22	23	23	23	23	26	$\sum_i^k \bar{R}_i = \sum_j^n \bar{C}_j =$	225

Table 15

Observed Pattern 1 for Group IV

	MMPI Scales											
Subjects	0	2	7	1	3	6	4	5	8	9	R_i	$\bar{R}_i$
6											0	10
28											0	10
3	x										1	9
37										x	1	9
4	x					x					2	8
13			x							x	2	8
21	x							x			2	8
23	x	x									2	8
24							x	x			2	8
25				x	x						2	8
26							x			x	2	8
27	x	x						x			3	7
33	x								x	x	3	7
7		x			x			x		x	4	6
11	x					x	x			x	4	6
22	x			x	x				x		4	6
29				x	x		x	x			4	6
30	x		x					x		x	4	6
34	x	x	x			x					4	6
38		x			x		x	x			4	6
9	x	x	x	x				x			5	5
16		x		x	x	x			x		5	5
1		x	x	x				x	x	x	6	4
5	x	x	x			x	x	x			6	4
12	x		x			x		x	x	x	6	4
14			x	x	x		x		x	x	6	4
19			x	x	x	x	x	x			6	4
20	x	x	x			x		x	x		6	4
31			x	x	x	x	x			x	6	4
32	x	x	x	x	x				x		6	4
8		x	x	x	x	x	x		x		7	3
36	x	x		x	x	x	x			x	7	3
10	x	x	x	x	x	x		x	x		8	2
15	x	x	x	x	x	x	x		x		8	2
35	x	x	x	x	x	x	x		x		8	2
2	x	x	x	x	x	x	x		x	x	9	1

	MMPI Scales											
Subject	0	2	7	1	3	6	4	5	8	9	R_i	$\overline{R}_i$
17	x	x	x	x	x	x	x	x	x		9	1
18	x	x	x	x	x	x	x	x	x	x	10	1
C_j	22	19	19	18	18	17	16	16	15	14	$\sum_{i}^{k} R_i = \sum_{j}^{n} C_j =$	174
$\overline{C}_j$	16	19	19	20	20	21	22	22	23	24	$\sum_{i}^{k} \overline{R}_i = \sum_{j}^{n} \overline{C}_j =$	206

Table 16

Observed Pattern 2 for Group IV

Subject	MMPI Scales 1	2	3	7	9	4	5	0	6	8	R_i	$\bar{R}_i$
6											0	10
28											0	10
3								x			1	9
21							x				1	9
23		x									1	9
37					x						1	9
4								x	x		2	8
13				x	x						2	8
24						x	x				2	8
25	x	x									2	8
26					x	x					2	8
27		x					x	x			3	7
30				x	x		x				3	7
7		x	x		x		x				4	6
11					x	x		x	x		4	6
29	x		x			x	x				4	6
33					x		x	x		x	4	6
34		x		x				x	x		4	6
38		x	x			x	x				4	6
9	x	x		x			x	x			5	5
16	x	x	x						x	x	5	5
22	x		x		x			x		x	5	5
14	x		x	x	x	x				x	6	4
19	x		x	x		x	x		x		6	4
31	x		x	x	x	x			x		6	4
32	x	x	x	x				x		x	6	4
1	x	x		x	x	x	x			x	7	3
5		x	x	x		x	x	x	x		7	3
8	x	x	x	x		x			x	x	7	3
12				x	x	x	x	x	x	x	7	3
36	x	x	x		x	x		x	x		7	3
10	x	x	x	x	x		x		x	x	8	2
15	x	x	x	x		x		x	x	x	8	2
20	x	x		x	x		x	x	x	x	8	2
35	x	x	x	x	x	x		x	x	x	9	1
2	x	x	x	x	x	x	x	x	x	x	10	0

Subject	MMPI Scales 1	2	3	7	9	4	5	0	6	8	R_i	$\bar{R}_i$
17	x	x	x	x	x	x	x	x	x	x	10	0
18	x	x	x	x	x	x	x	x	x	x	10	0
C_j	19	19	19	19	19	18	18	18	17	15	$\sum_i^k R_i = \sum_j^n C_j = 181$	
$\bar{C}_j$	19	19	19	19	19	20	20	20	21	23	$\sum_i^k \bar{R}_i = \sum_j^n \bar{C}_j = 199$	

Table 17

Observed Pattern 2 for Group V

	MMPI Scales											
Subject	4	1	2	3	5	0	6	9	7	8	R_i	$\bar{R}_i$
7			x								1	9
20		x				x					2	8
3	x				x			x			3	7
12	x				x	x					3	7
18	x			x				x			3	7
2	x	x	x	x							4	6
16	x	x			x	x		x			5	5
19	x		x			x	x			x	5	5
21	x	x			x			x		x	5	5
23		x	x	x			x		x		5	5
24	x	x	x		x			x			5	5
25	x			x	x		x	x			5	5
1	x	x	x	x	x		x				6	4
4	x	x	x	x	x				x		6	4
8	x		x	x		x		x		x	6	4
9	x	x	x	x		x	x				6	4
10		x	x	x	x			x		x	6	4
11		x	x		x	x			x	x	6	4
17	x	x	x	x			x	x			6	4
5	x	x	x	x		x	x		x		7	3
6	x	x	x	x	x		x			x	7	3
13	x	x	x	x		x		x	x		7	3
14	x	x	x	x		x	x		x		7	3
15	x	x	x		x	x	x		x	x	8	2
22	x	x	x	x	x	x	x		x		8	2
C_j	20	18	18	15	13	12	11	10	8	7	$\sum_{i}^{k} R_i =$	$\sum_{j}^{n} C_j = 132$
$\bar{C}_j$	5	7	7	10	12	13	14	15	17	18	$\sum_{i}^{k} \bar{R}_i =$	$\sum_{j}^{n} \bar{C}_j = 118$

Table 18

Observed Pattern 3 for Group V

	MMPI Scales											
Subject	3	5	0	6	2	9	4	1	7	8	R_i	$\bar{R}_i$
7					x						1	9
18						x					1	9
20			x								1	9
2	x						x				2	8
3		x				x					2	8
8			x			x				x	3	7
9	x		x	x							3	7
16		x	x			x					3	7
24		x				x	x				3	7
1	x	x		x				x			4	6
12		x	x				x			x	4	6
17	x			x		x		x			4	6
19			x	x			x			x	4	6
21		x				x	x			x	4	6
23	x			x	x				x		4	6
10	x				x	x		x		x	5	5
11		x	x		x				x	x	5	5
25	x	x	x			x	x				5	5
5			x	x	x			x	x		5	5
4	x	x			x		x	x	x		6	4
6	x	x		x	x			x		x	6	4
13	x	x			x	x		x	x		6	4
14	x		x	x	x			x	x		6	4
15		x	x	x			x		x	x	6	4
22	x	x	x	x	x			x	x		7	3
C_j	12	12	12	11	10	10	9	8	8	8	$\sum_i^k R_i$	$= \sum_j^n C_j = 100$
$\bar{C}_j$	13	13	13	14	15	15	16	17	17	17	$\sum_i^k \bar{R}_i$	$= \sum_j^n \bar{C}_j = 150$

APPROVAL SHEET

The dissertation submitted by Sister Mary Olivia Reindl, SSND has been read and approved by five members of the Department of Psychology.

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

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

January 9/64
Date

Signature of ~~Adviser~~