A STUDY OF ORGANIC BRAIN DAMAGED PATIENTS IN A UNITED STATES ARMY GENERAL HOSPITAL

A Thesis

Presented to

the Faculty of the Department of Psychology

University of Houston

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

William Baylor Gates

August 1950

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This study consisted of an analysis of the test scores made by fifty verified organic patients on the Wechsler-Bellevue Intelligence Scale. The group tested were routine brain damaged patients found in the wards of Brooke General Hospital. The sample upon which the investigation was made consisted of five women and forty-five men. Twenty-two of the subjects had an I.Q. score of 99 or below, while twenty-eight had an I.Q. score of 100 and above. The mean I.Q. score of the entire group was 101.2. The mean education level attained by the group was 9.9 years of school. Each patient was examined and tested under the same circumstances. An electroencephalogram record was made for each subject. Thirty-eight subjects had abnormal EEG patterns, while twelve had normal EEG records.

A control group of 110 subjects from Wechsler's standardization group in the 30-34 year age level was compared with the fifty verified organic patients.

Another control group consisting of the thirty-two well-adjusted normal males from Rapaport's standardization of the Wechsler-Bellevue Intelligence Scale as a diagnostic instrument was compared with the military organic group with I.Q. levels of 100 and above. They were compared from the standpoint of the significance of the differences in weighted scores and the

differences in their scatter patterns.

The abnormal EEG patients were compared with the normal EEG patients. These groups were compared from the standpoint of the significance of the differences in weighted scores and the differences in their scatter patterns as measured from the vocabulary mean.

The findings of the study are summarized briefly as follows:

(1) An analysis of the sub-test results comparing the verified organic group with the control groups indicates that no significant differences exists at the .01 level of confidence.

(2) An analysis of the sub-test results comparing the abnormal EEG subjects with those having normal EEG records indicates that no significant differences exist. See Tables VI and VII.

(3) An analysis of the sub-test results of the control groups and the organic group indicates that there are no significant differences in the scatter patterns of the normal person and those of the organic patients.

The findings, insofar as this study is concerned, indicate that the Wechsler-Bellevue Intelligence Scale is not a statistically valid instrument for differentiating between organic brain damaged subjects and normal persons.

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CHAPTER I

INTRODUCTION

Clinical psychologists have for many years recognized the importance of psychological tests in determining personality and mental abnormalities. Considerable success has been attained in the analysis of personalities, determining intellectual levels, and in diagnosis of mental illnesses. Not the least in importance of these psychological tests has been the Wechsler-Bellevue Intelligence Scale. It is used in the basic battery of tests at army general hospitals, along with such well-known tests as the Minnesota Multiphasic Personality Inventory, Sentence Completion Test, and the Bender Gestalt Test. Among the tests not used in the army's basic battery but found to be clinically valuable in determining organic conditions are the Hunt-Minnesota Organic Brain Damage Test, the Shipley-Hartford Retreat Scale, the Goldstein-Scherer Color Form Test, and the Rorschach Test. These tests are valuable in determining brain damage, but have not been placed in the basic battery either because of the high skill necessary to interpret their results, or because they are useful only for determining certain specific conditions. If the Wechsler-Bellevue Intelligence Scale is not only a good intelligence test but also a clinically useful diagnostic instrument, much valuable time can be saved. There would

be no need to verify the findings of the basic battery of tests by the use of more advanced specialized testing instruments.

PURPOSE OF THE STUDY

The purposes of this study of organic brain damaged adult patients in a United States Army General Hospital are (1) to make an analysis of the test results to determine whether a definite pattern is formed by organic patients, (2) to study the Wechsler-Bellevue Scale and its clinical use as a diagnostic indicator for brain damaged patients, and (3) to serve as a repeat and validating study for previous and similarly analyzed data.

NEED OF THE STUDY

A study of organic brain damage is not new. There have been several such studies in the past few years. This one is different from previous investigations in that it utilizes military patients living in a military environment. If the Wechsler-Bellevue Scale is found to be a valid and reliable indicator of brain damage, its use would reduce the time needed for psychological evaluation, for in one simple easy-to-use test, the psychologist could determine intelligence and brain damage. This study, it is hoped,

will suggest a step toward shortening the time of observation of brain damaged patients by the use of the Wechsler-Bellevue Intelligence Scale.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written about the brain and brain damage in the last century. In fact, the function of the brain has been a favorite topic of investigation by several schools of thought. One early school, which includes such well-known names as Broca, Munk, Wernicke, Ferrier, and Sherrington, insists that the brain is a complex mechanism subdivided into definite areas with restricted functions.[1] The unit school, including such names as Flourens, Goltz, Loeb, Franz, Lashley, and Head, strongly believes that the cortex, at least, operates as a unit.[2] The problem of exact areas for specific functions has not been completely solved yet to the satisfaction of all concerned, despite the many investigations.

Perhaps the best known study made by the unit school of thought was that of Karl Lashley. Lashley took white rats and divided them into sub-groups. Each sub-group had varying amounts and different areas of the cortex destroyed. A learning record was made for each rat after recovery from the operation. Comparing the results with the results

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[1] Gardner Murphy, Historical Introduction to Modern Psychology (New York: Harcourt, Brace and Company, 1949), pp. 184-191.

[2] Ibid., pp. 374-380.

obtained by the control group of normal rats, according to errors, time, and number of trials, Lashley found that, in general, the brain damaged white rats were attended by an increase in the amount of practice necessary to solve the maze, but that the degree of deterioration in learning ability and retentiveness was proportional to the amount of brain tissue injured and independent of the area of the cortex affected. In other words, similar injuries in different cortical areas produce equal amounts of retardation. It is the magnitude of the injury that is important, not the location.[3]

In 1861, Broca's experiment with aphasia showed that there are specific areas of the brain for motor speech. They are located, according to Broca, in the posterior portion of the third left frontal convolution. This, perhaps, is one of the best known of the studies of specific areas for specific functions of the brain.[4]

In 1939, Kluver and Bucy presented the fact that man and the higher developed mammals have quite definite areas of functional localization in the cerebral cortex, and that these areas become less well-defined as one descends the

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[3] Karl Lashley, Brain Mechanism and Intelligence (Chicago: University of Chicago Press, 1929), pp. 58-59.

[4] Gardner Murphy, op. cit., p. 185.

philogenetic scale. The results of these studies show less specific localization and more equipotentiality in the rat than in man. The exact centers are not known, but areas of the human brain are definitely defined.[5]

Since 1940, there have been many studies of scatter on the Wechsler-Bellevue Scale, beginning with the Gilliland study of psychotic and normal scatter profiles. Gilliland found scatter to be 35% greater in psychotics than in normal persons. Likewise, Gilliland concluded that there were pattern differences which would differentiate a psychotic from a normal individual.[6] Hence, any mental abnormality would be reflected by the scatter on the Wechsler-Bellevue Scale.

Wechsler reports that almost always organic brain damaged patients do better on verbal than on performance tests. The greatest and most consistent falling off is on the digit symbol test. The organic patients' inability to do the block design test, which is associated with disturbances and visual motor organization, is significant. Next in order of frequency to a low score on digit symbols

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[5] H. Kluver and P.C. Bucy, "A Study of Functional Localization in the Cerebral Cortex," Psychological Monograph, 1939.

[6] A.R. Gilliland, "Differential Functional Loss in Certain Psychoses," Psychological Bulletin, 37:429, 1940.

and block designs are difficulties with arithmetic and, in certain types of brain damage, low scores on the object assembly test. Digit span is low and "digits reversed" is significantly impaired. All learning is materially affected. Certain types of organics often show a generalized deterioration and thus present low scores on all of the sub-tests.[7]

Helen E. Peixotto has published the results of a survey of one hundred and fifty-five cases from Hawaii to determine the validity of the Wechsler-Bellevue diagnostic patterns for various clinical entities such as feeble-mindedness and psychiatric syndromes.[8] The results indicate that the patterns are not valid for the population sample studied. No criticism was offered as to the usefulness of the test as an indicator of general intelligence.

Usually, scatter in the traumatic brain damaged cases is great, while in general paresis the intellectual processes are more or less equally impaired.[9]

A well-known study of recent years dealing with scatter and the Wechsler-Bellevue Scale as a diagnostic

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[7] David Wechsler, Measurement of Adult Intelligence, Third Edition (Baltimore: Williams and Wilkinson, 1944), p. 153.

[8] Helen E. Peixotto, "Wechsler-Bellevue Sub-Test Patterns: A Note of Caution," Journal of Clinical Psychology, Volume VI, Number 2, 1950.

[9] David Wechsler, op. cit., p. 154.

indicator is that by Rapaport. Rapaport concluded that the Wechsler-Bellevue Intelligence Scale is a valid and clinically useful diagnostic instrument.[10] Rapaport, however, failed to include organics in his study.

Gelb and Goldstein, studying the brains of men suffering from gunshot wounds in World War I, found that the whole visual field was recast when a slight injury was inflicted upon the visual area. Thus, they concluded that the brain will develop a pseudo-area for a destroyed area.[11]

Goldstein shows that in the case of intellectual functions, specific errors do not necessarily follow upon local injury; rather, the shattered or broken individual reduces the level of his activity, attempts less, and finds a way of coping with life at a reduced level. The organism must attempt to maintain a state of equilibrium with the environment.[12]

Gutman made a study of the validity of three methods of determining brain damage on the Wechsler-Bellevue Scale. She used a control group of thirty normals and an organic group of thirty. The methods of organic evaluation on the

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[10] David Rapaport, Diagnostic Psychological Testing, Volume I (Chicago: Year Book Publishers, 1948), pp. 87-318.

[11] Gardner Murphy, op. cit., p. 373.

[12] Kurt Goldstein, The Organism (New York and Cincinnati: American Book Company, 1939), p. 123.

Wechsler-Bellevue Intelligence Scale used in studies by Wechsler, Reynall, and Hewson were utilized. The results indicated that the Wechsler method of determining organic patterns on the Wechsler-Bellevue Scale was no better than chance. The chances of making a correct diagnosis by Reynall's method are six out of ten compared to a psychiatric diagnosis of the same group of patients; Chi square is 2.5, which indicates that there is one chance in ten of obtaining the results by chance. The chances of making a correct diagnosis by the Hewson method are seven out of ten compared to a psychiatric diagnosis of the same group. Chi square for the Hewson method was 5.9, indicating that there are fewer than two chances in a hundred of getting the same results by chance. The conclusion is that the Hewson method is the only clinically useful system of determining brain damage by the use of the Wechsler-Bellevue Intelligence Scale.[13]

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[13] Brigette Gutman, "The Application of the Wechsler-Bellevue Scale in the Diagnosis of Organic Brain Disorder," Journal of Clinical Psychology, Volume VI, Number 2, 1950.

CHAPTER III

EXPERIMENTAL DESIGN

The Wechsler-Bellevue Intelligence Scale was selected as the clinical instrument for this study because it readily lends itself to statistical analysis, and there is a need for an intelligence test that is useful as a valid clinical tool for psychological work. The Wechsler-Bellevue Intelligence Scale is widely used, and Rapaport and others have made favorable comments concerning its use as a diagnostic instrument.

This study is based on the weighted scores of the eleven sub-tests of the Wechsler-Bellevue Intelligence Scale. The Wechsler-Bellevue Intelligence Scale is an intelligence test organized into eleven homogeneous sub-tests. The individual items are credited according to scoring standards, and the raw scores are translated into weighted scores with the help of Wechsler's weighted score table.[1]

There are two features of the Wechsler-Bellevue Scale which account mainly for its diagnostic usefulness:

(a) In contrast to most intelligence tests, it consists of groups of homogeneous items. Accordingly, any sub-test calls into play a specific function or set of functions.

(b) All the sub-test scores of the Wechsler-

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[1] David Wechsler, Measurement of Adult Intelligence, Third Edition (Baltimore: Williams and Wilkinson, 1944), pp. 116-193.

> Bellevue Scale are translated into weighted scores, which are equated and directly comparable; thus, a well-adjusted person should have little discrepancy among his weighted scores. A significant deviation of a subject's weighted score on one sub-test from the central tendency of his other weighted scores is a deviation from the norm implicit in these equated scores, and thus is characteristic for his adjustment and may be an indication of his specific maladjustment. The introduction of the weighted score scale thus serves as the basis of investigation of deviation of sub-tests from each other. These deviations are called scatter.[2]

The concept of scatter includes: (a) the deviation of any single sub-test score from the central tendency of the rest of the scores; (b) the deviation of any two sub-test scores from each other; (c) the discrepancy between the central tendency of one sub-test group and that of another -- as between that of the verbal sub-tests and that of the performance sub-tests; (d) the general dispersion of the sub-test scores from their central tendency; and (e) the deviation of any individual sub-test scores from any chosen baseline, such as the vocabulary score.

In general clinical practice, as well as in investigations of scatter, many measures of scatter are used. Among them are:

(a) Vocabulary is the sub-test most resistant to impairment, and thus serves as a baseline for

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[2] Loc. cit.

measuring the impairment of other sub-tests.

(b) Mean Scatter refers to the deviation of the verbal sub-test and performance sub-test scores from their mean. The deviation from the mean indicates the unevenness in efficiency of different functions of the individual.

(c) Extremely high and extremely low weighted scores serve to elucidate the patterns of scatter.[3]

Scatter analysis allows for the evaluation of the unevenness in efficiency of different functions, and from these differences in function-efficiency clinical categories may be inferred.[4]

Scatter analysis is used by some psychologists as the center of diagnostic intelligence testing on the Wechsler-Bellevue Scale. It is supplemented by item analysis, qualitative analysis of response, and the patient's adjustment and manner. Accurate clinical observations are almost as significant as the test data.[5]

Vocabulary is thought to test an acquisition automatically secured in the course of unhampered maturation

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[3] Frederick Zerbar, Unpublished Manual of Instruction, 1949.

[4] Loc. cit.

[5] Loc. cit.

of the natural endowment. The integration and wealth of the vocabulary depend partly upon the natural endowment and partly upon the wealth of early educational environment. Vocabulary is not subject to impairment by maladjustment to any great extent.[6] Wechsler states that vocabulary serves as an index of one's education, and is a measure of a person's general intelligence. Apart from its importance as a measure of intelligence, the vocabulary test is an especially desirable test because of its qualitative possibilities. In defining a word, the person being tested gives more than its meaning. He may tell a great deal about himself, or, at least, about the quality and character of his thought processes. In this study, scatter has been measured from the vocabulary level.

Briefly, the function of each of the ten remaining sub-tests is as follows:

Information indicates the patient's educational and cultural opportunities, as well as endowment.

Comprehension shows the soundness of the patient's judgment; his ability to use his intellectual assets in a manner not only logically correct but emotionally relevant. If comprehension is lower than information,

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[6] David Rapaport, Diagnostic Psychological Testing, Volume I (Chicago: Year Book Publishers, 1948), p. 52.

there is impairment of judgment.

Digit Span is a measure of attention, and the performance of an individual is disturbed by anxiety.

Arithmetic and Picture Completion involve the measurement of voluntary concentration. These demand the exclusion of emotional and other thought content.

Picture Arrangement involves planning ability and judgment, a grasp of social situations, and a degree of sophistication.

Similarities measures verbal concept formation. Similarities usually stands up better than comprehension in maladjustment unless there is much deterioration.

Block Design and Object Assembly measure ability to analyze patterns into given parts in order to reconstruct wholes. Analysis and concept formation are involved. Visual-motor functions are included likewise, as well as attention.

Digit Symbols measures the same elements as the block design and object assembly, but also places emphasis on rapid learning.[7]

The patients presented in this study were fifty cases of brain damage, verified by the psychiatric staff of Brooks General Hospital, Fort Sam Houston, Texas. The

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[7] Ibid., p. 89.

fifty patients were not a selected group of brain damaged military personnel, but were routine cases, accepted after testing and diagnosis by the medical staff.

The sample utilized consisted of five women and forty-five men. Twenty-two of the subjects had an intelligence quotient of 99 or below, while twenty eight of them had an intelligence quotient of 100 and above. The mean intelligence quotient of the group was 101.2. The mean age of the group was 30.68 years.

CHAPTER IV

RESULTS

The Wechsler-Bellevue intra-test scatter was basic in this study. The subjects were fifty verified organic patients in a United States military hospital. These patients were first studied as a group with the following results (See Table I):

The mean I.Q. level of the group was 101.2. The range of I.Q. was from fifty-five to one hundred and thirty-two. The mean age level was 30.68 years with a mean educational level of attainment of 10.12 years. The range of the educational level was wide, beginning with the second year of grammar school and extending through the sixth year of college.

The mean deterioration on the Wechsler-Bellevue Scale for deterioration was 12.76% for the total group. The range of deterioration was from 0% to 34%.

The most serious deviation from the vocabulary mean was a deviation in weighted score of -2.22 by digit symbols with a mean weighted score of 7.72 and a standard deviation of 2.60. This would indicate, according to the Rapaport study, that the group reflected impairment in visual motor co-ordination and rapid learning. A deviation of -2.22 from the vocabulary mean for an average intellectual group

is a significant impairment according to Wechsler.[1] There were no other sub-tests with significant deviation in weighted scores.

Digit span showed the next most severe deviation, with deviation in weighted scores of -1.3 from the vocabulary mean. The mean weighted score was 8.50 with a standard deviation of 3.12. Rapaport states that this sub-test measures the mental factor of attention.

Picture arrangement presented the next most serious deviation with a mean of 9.10 and a standard deviation of 3.70. The range of weighted scores was from three to eighteen. This sub-test, according to Rapaport, involves planning ability and judgment in rapidly changing social situations.

The mean score on the block designs test was 9.16 with a standard deviation of 2.94. Visual motor and concept formation were impaired but not significantly deteriorated.

The information sub-test, which reveals present and past learning, was the highest weighted score, followed very closely by the comprehension score. The mean for the information score was 10.38 with a standard deviation of 3.09. The range of information weighted scores was from four to

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1 David Wechsler, Measurement of Adult Intelligence, Third Edition (Baltimore: Williams and Wilkinson, 1944), p. 149.

fifteen. Comprehension, the second highest weighted score, had a mean of 10.28 with a standard deviation of 3.10 and a weighted score range of from two to seventeen.

The mean score on the vocabulary test was 9.94 with a standard deviation of 2.92. The range was from four to sixteen. Vocabulary, according to Rapaport, is the sub-test most resistant to impairment.

The object assembly sub-test mean was a score of 9.93 with a standard deviation of 3.35. The range was from five to fifteen. Object assembly measures the ability to analyze patterns, and from these patterns the patient may reconstruct wholes. The ability to synthesize is measured by the test.

The mean of the arithmetic sub-test scores was 9.24 with a standard deviation of 3.40. The range of weighted scores was from three to eighteen. The arithmetic sub-test measures the reasoning and concentration ability of an individual.

The mean of the picture completion weighted scores was 9.7 with a standard deviation of 2.44. The range of weighted scores was from one to fourteen.

The mean of the similarities weighted scores was 9.72 with a standard deviation of 3.18. The range of the weighted scores was from three to fifteen.

Information and comprehension sub-tests yielded the high est weighted scores of any of the sub-tests. The dull normal group had the greatest deterioration, the lowest level of education, and the greatest scatter. The high average group had the highest school level and the lowest level of deterioration.

Table II presents the data for twenty-two organic cases with intelligence quotients of 99 and below. The mean age level was 28.18 years and the mean educational level was 7.7 years. The performance and verbal means had no significant difference between them (7.49 - 7.82). Deterioration of 14.3% was found in the analysis of deterioration. The mean I.Q. level was 85.8, which is the lowest intelligence level of any sub-group of the organic patients studied.

Table III shows the data for twenty-eight organic cases with intelligence quotients of 100 and above. The mean age level for this group was 32.64 years, with an educational mean of 11.53 grades completed. This group not only had the highest educational level but also had the highest mean I.Q. score (113.39).

Table IV indicates the data for the brain damaged cases with normal EEG. A mean I.Q. of 101.3 and a deterioration mean of 13.41% were reflected by the group.

Table V presents the data for thirty-eight organic

cases with abnormal EEG records. The mean age level of this group was 29.86 years. The group had an I.Q. mean score of 101.1 with a range from 55 to 132. The education level was 10.47 years of school.

Table VI shows the comparison between the weighted scores of organic patients with normal and abnormal EEG records on the verbal scale of the Wechsler-Bellevue. The mean I.Q. score for the normal brain wave group was 101.8 compared to 101.1 for those with abnormal EEG records. The standard error of difference and the critical ratio scores were obtained and no significant difference was found.

Table VII presents the comparison between organic patients with normal and abnormal EEG records on the performance tests of the Wechsler-Bellevue Intelligence Scale.

The block design score had a critical ratio of 2.3, and the digit symbols score had a critical ratio of 2.8. The critical ratio of these two scores was large, but not significant at the .01 level of confidence.

Table VIII is a comparison of the total military organic group with Wechsler's standardization of age group 30-34 years. The verbal mean of the organic group was 9.64 with a standard deviation of 3.17. The verbal mean of Wechsler's control group was 9.43 with a standard deviation of 3.15. The standard error of difference was .17, and the

critical ratio .03. No significant difference existed. The performance mean of the organic group was 9.13 with a standard deviation of 3.0. The performance mean of the Wechsler control group was 9.43 with a standard deviation of 3.21. The standard error of difference was .22 with a critical ratio of .06. No significant difference existed between these two groups.

Table IX is a comparison between Rapaport's well-adjusted patrol group with a mean I.Q. of 118.3 and the military organic patients with I.Q. scores of 100 and above.[2] The mean I.Q. score of the organic group was 113.38. The performance scale was used for this table. Digit symbols, again as in Table VII, had the largest critical ratio, 3.93, followed by block design with a critical ratio of 1.94. The critical ratio of 3.93 presented by digit symbols indicates that there was a significant difference between the organic group and the patrol group insofar as the digit symbols sub-test is concerned.

Table X is a comparison of Rapaport's well-adjusted patrol group with the organic patients with I.Q. scores of 100 and above. The verbal scale was used for this table. No significant difference of any verbal sub-tests existed

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[2] David Rapaport, Diagnostic Psychological Testing, Volume I (Chicago: Year Book Publishers, 1943), p. 521.

at the .05 level of confidence.

Tables XI and XII are comparisons of the military organic group with I.Q. levels of 100 and above with Wechsler's standardization group, age level 30-34. The mean I.Q. of the control group was 100 compared to a mean I.Q. in the organic group of 113.89. The great difference found in the I.Q. level indicated that insofar as intelligence was concerned, unlike groups were being compared. The control group belonged to the average intelligence group, while the selected organic group attained the high average to superior classification. The critical ratio of each of the sub-tests indicated that there were no significant differences at the .05 level of confidence.

Tables XIII and XIV are a comparison of Wechsler's control group, age level 30-34, with the total organic group. The mean I.Q. of the control group was 100, while the mean I.Q. of the military organic group was 101.2. No significant difference existed at the .05 level of confidence for any of the sub-tests except digit symbols. Digit symbols had a critical ratio of 3.02, which indicated that there were significant differences existing at the .05 level of confidence.

CHAPTER V

SUMMARY AND CONCLUSIONS

SUMMARY:

This study consisted of an analysis of the test scores made by fifty verified organic patients on the Wechsler-Bellevue Intelligence Scale. The group tested were all military personnel in a United States Army General Hospital. The sample upon which the investigation was made consisted of five women and forty-five men. Twenty-two of the subjects had an I.Q. score of 99 or below, while twenty-eight had an I.Q. score of 100 and above. The patients selected were routine cases of organic brain damage found in the wards of Brooke General Hospital.

An electroencephalogram record was made for each subject. Thirty-eight subjects had abnormal EEG patterns, while twelve had normal EEG records.

A control group of 110 subjects from Wechsler's standardization group in the 30-34 year age level was compared with the fifty verified organic patients.

Another control group consisting of the thirty-two well-adjusted normal men from Rapaport's standardization of the Wechsler-Bellevue Intelligence Scale as a diagnostic instrument was compared with the military organic group with I.Q. levels of 100 and above. They were compared from the standpoint of the significance of the difference in weighted

scores and the differences in their scatter patterns.

The abnormal EEG patients were compared with the normal EEG patients. These groups were compared from the standpoint of the significance of the differences in weighted scores and the differences in their scatter patterns as measured from the vocabulary mean.

The findings of the study are summarized briefly as follows:

(1) An analysis of the sub-test results comparing the verified organic group with the control groups indicates that no significant differences exist at the .01 level of confidence.

(2) An analysis of the sub-test results comparing the abnormal EEG subjects with those subjects having normal EEG records indicates that no significant differences exist. See Tables VI and VII.

(3) An analysis of the sub-test results of the control groups and the organic group indicates that there are no significant differences in the scatter patterns of the normal person and those of the organic patient.

CONCLUSIONS:

The Wechsler-Bellevue Intelligence Scale, insofar as this investigation is concerned, is not a statistically valid instrument for differentiating between organic brain

damaged subjects with abnormal or normal EEG; nor is it a statistically valid instrument for differentiating between the verified organic brain damaged patients' results on the Wechsler-Bellevue Intelligence Scale and the results made by normals.

An analysis of the sub-test results of the control groups and the organic group indicates that there are no significant differences in the scatter pattern of the normal person and the organic patient.

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APPENDICES

TABLE I

A STUDY OF FIFTY ORGANIC BRAIN DAMAGED PATIENTS IN A U.S. GENERAL HOSPITAL USING THE WECHSLER-BELLEVUE SCALE, FORM ONE

CASE#	AGE	SEX	DET.	I.Q.	VOC.	D.S.	BLKS.	D.SYM.	O.A.	INF.	COMP.	ARITH.	SIM.	P.A.	P.C.
400	39	M	23%	119	14	10	11	6	12	15	11	12	14	13	13
370	42	F	16%	100	9	7	9	6	12	7	8	7	8	10	10
62	26	M	17%	111	13	10	9	11	9	14	13	10	11	11	13
156	41	M	22%	100	9	10	7	4	9	10	11	7	7	7	12
32	31	M	10%	112	11	11	9	10	12	10	12	10	13	11	12
249	30	M	0%	100	10	13	11	6	9	8	10	9	11	9	10
425	29	M	15%	116	12	9	14	9	16	12	10	13	10	14	14
432	36	F	7%	115	12	13	10	9	12	11	12	9	13	11	12
165	55	M	13%	116	13	7	10	8	9	14	15	7	11	12	9
270	55	M	0%	120	14	10	7	9	12	11	14	13	12	12	8
287	37	M	19%	124	14	13	8	11	13	14	10	18	13	12	13
293	33	M	20%	104	13	6	8	7	11	12	12	12	11	11	7
307	32	M	0%	104	10	11	12	8	12	8	11	12	7	7	10
357	26	M	4%	122	14	13	14	12	10	15	12	10	16	14	12
367	27	M	22%	118	14	9	12	8	12	15	17	12	12	13	12
8	25	M	17%	117	12	11	12	10	15	14	11	10	12	11	12
91	22	M	19%	116	11	7	11	11	12	15	14	12	14	11	13
234	21	M	10%	132	13	14	14	9	14	18	14	15	15	18	13
209	18	M	14%	116	9	10	14	8	14	13	13	9	10	15	12
109	24	M	4%	128	13	14	14	13	14	13	10	10	14	16	13
52	20	M	0%	112	14	13	14	13	13	11	8	7	15	9	12
385	46	M	1%	96	10	11	8	2	5	10	10	9	8	4	8
404	37	M	18%	77	4	3	7	6	12	4	4	1	3	4	7
273	22	M	9%	87	8	9	8	3	7	9	10	9	9	8	8
17	25	F	24%	82	8	6	4	5	5	10	9	10	5	4	10
241	27	M	25%	94	10	3	12	7	12	10	7	9	8	9	9
51	18	M	18%	87	11	10	7	7	8	10	12	9	8	11	12
150	48	M	0%	82	6	9	3	4	0	6	9	7	7	3	4
170	25	M	24%	82	8	6	4	5	5	10	9	10	5	4	10
274	20	M	3%	79	7	6	9	5	4	9	6	10	9	4	7
286	24	M	0%	90	9	9	9	9	6	10	6	10	9	7	9
298	22	M	18%	86	6	4	9	7	9	8	8	7	8	8	10
308	23	M	15%	71	7	6	9	5	10	4	5	3	5	4	6
321	20	M	0%	55	5	0	5	5	0	6	5	4	4	4	1
344	25	M	23%	93	7	6	9	6	11	10	11	7	7	9	9
79	22	M	14%	96	10	9	10	9	12	8	9	9	6	7	13
131	29	M	34%	74	6	4	6	3	8	8	8	3	8	5	3
454	33	M	0%	98	9	6	5	9	11	10	12	18	9	5	4
325	35	F	18%	117	16	11	10	10	10	15	14	10	15	7	12
305	35	F	0%	111	11	9	9	10	13	10	10	9	10	5	8
217	33	M	0%	117	10	10	13	10	11	10	15	13	12	11	12
83	25	M	29%	103	8	7	5	10	13	8	9	7	10	14	12
149	29	M	0%	101	7	7	10	7	8	7	11	13	10	11	13
163	39	M	22%	110	12	7	9	10	9	13	15	7	13	11	10
39	29	M	0%	114	10	14	11	10	10	12	16	12	11	10	9
355	36	M	28%	94	8	7	6	5	8	10	11	6	8	6	10
294	30	M	23%	87	8	6	4	7	10	9	9	6	10	8	3
216	24	M	13%	96	6	9	12	10	13	8	8	3	4	13	12
271	28	M	0%	73	4	6	7	5	7	4	2	10	8	3	3
505	36	M	28%	99	12	7	8	7	10	11	9	7	8	9	10
MEAN	30.68		12.78%	101.2	9.9	8.56	9.16	7.72	9.98	10.38	10.28	9.24	9.72	9.1	9.7
DEV. VOC.						-1.3	-.7	-2.22	-0.0	+.44	+.34	-.70	-.22	-.8	-.2
STANDARD DEVIATION					2.9	3.12	2.94	2.60	3.35	3.09	3.10	3.40	3.16	3.7	2.4

TABLE II

ORGANIC BRAIN DAMAGED CASES WITH I.Q. OF 99 AND BELOW IN A U.S. ARMY GENERAL HOSPITAL

CASE#	AGE	SEX	ED.	V.M.	P.M.	DET.	I.Q.	VOC.	DIGITS FWD.	DIGITS REVERSED	DIGIT SPAN	BLKS.	D.SYM.	O.A.	INF.	COMP.	ARITH.	SIM.	P.A.	P.C.	AB.EEG.	NOR.EEG.
385	46	M	9	9.6	5.2	1%	96	10	7	6	11	8	2	5	10	10	9	8	4	8	x	
404	37	M	8	3.0	7.2	18%	77	4	4	3	3	7	6	12	4	4	1	3	4	7	x	
273	22	M	8	9.2	6.8	9%	87	8	6	5	9	8	3	7	9	10	9	9	8	8	x	
17	25	F	7	8.0	5.6	24%	82	8	5	4	6	4	5	5	10	9	10	5	4	10	x	
241	27	M	6	7.4	9.8	23%	94	10	4	3	3	12	7	12	10	7	9	8	9	9	x	
51	18	M	10	9.8	9.0	18%	97	11	8	4	10	7	7	8	10	12	9	8	11	12	x	
150	48	M	7	7.6	2.8	0%	82	6	6	5	9	3	4	0	6	9	7	7	3	4	x	
170	25	M	7	8.0	5.6	24%	82	8	5	4	6	4	5	5	10	9	10	5	4	10	x	
274	20	M	8	7.8	5.8	3%	79	7	5	4	6	9	5	4	9	6	10	9	4	7	x	
286	24	M	8	8.0	8.8	9%	90	9	6	5	9	9	9	6	10	6	10	9	7	9	x	
298	22	M	8	7.0	8.6	18%	86	6	5	3	4	9	7	9	8	8	7	8	8	10	x	
308	23	M	2	4.6	6.8	15%	71	7	4	5	6	9	5	10	4	5	3	5	4	6	x	
321	20	M	9	3.8	3.0	0%	55	5	3	2	0	5	5	0	6	5	4	4	4	1	x	
344	25	M	6	8.2	8.8	23%	93	7	6	3	6	9	6	11	10	11	7	7	9	9	x	
355	36	M	8	8.4	7.0	28%	94	8	6	4	7	6	5	8	10	11	6	8	6	10		x
294	30	M	6	8.0	6.4	23%	87	8	5	4	6	4	7	10	9	9	6	10	8	3		x
216	24	M	8	6.6	12.0	13%	96	6	6	4	9	12	10	13	8	8	3	4	13	12		x
271	28	M	6	6.0	5.0	0%	73	4	5	4	6	7	5	7	4	2	10	8	3	3		x
505	36	M	10	8.4	8.8	28%	99	12	6	4	7	8	7	10	11	9	7	8	9	10		x
79	22	M	7	8.2	10.2	14%	96	10	6	5	9	10	9	12	8	9	9	6	7	13	x	
131	29	M	7	6.2	11.2	34%	74	6	5	3	4	6	3	8	8	8	3	8	5	3	x	
464	33	M	16	11.0	6.8	0%	98	9	5	4	6	5	9	11	10	12	18	9	5	4	x	
MEAN	28.18		7.7	7.49	7.82	14.3%	85.8	7.68	5.36	4.0	6.45	7.31	5.55	7.86	8.36	8.13	7.59	7.09	6.31	8.09		
DEV. VOC.											-1.23	-.37	-1.73	∱.18	∱.18	∱.46	-.09	-.59	-.37	-.41		
STANDARD DEVIATION								2.104			2.95	2.37	2.20	3.57	2.16	2.92	3.53	1.91	2.20	1.84		

TABLE III

ORGANIC BRAIN DAMAGED CASES WITH I.Q. OF 100 AND ABOVE IN A U.S. ARMY GENERAL HOSPITAL

CASE#	AGE	SEX	ED.	V.M.	P.M.	DET.	I.Q.	VOC.	DIGITS FWD.	DIGITS REVERSED	DIGIT SPAN	BLKS.	D.SYM.	O.A.	INF.	COMP.	ARITH.	SIM.	P.A.	P.C.
400	39	M	16	12.4	11.0	23%	119	14	6	6	10	11	6	12	15	11	12	14	13	13
370	42	F	8	7.4	9.4	16%	100	9	6	4	7	9	6	12	7	8	7	8	10	10
62	26	M	13	11.6	10.6	17%	111	13	7	5	10	9	11	9	14	13	10	11	11	13
156	41	M	7	9.0	7.8	22%	100	9	8	4	10	7	4	9	10	11	7	7	7	12
32	31	M	12	11.2	10.8	10%	112	11	6	7	11	9	10	12	10	12	10	13	11	12
249	30	M	8	10.2	9.0	0%	100	10	8	6	13	11	6	9	8	10	9	11	9	10
425	29	M	14	10.8	12.8	15%	116	12	7	4	9	14	9	16	12	10	13	10	14	14
432	36	F	8	11.6	10.8	7%	115	12	7	7	13	10	9	12	11	12	9	13	11	12
165	55	M	16	10.8	9.6	13%	116	13	6	4	7	10	8	9	14	15	7	11	12	9
270	55	M	18	12.0	9.6	0%	120	14	7	5	10	7	9	12	11	14	13	12	12	8
287	37	M	10	13.6	11.4	19%	124	14	7	7	13	8	11	13	14	10	13	13	12	13
293	53	M	15	10.6	8.8	20%	104	13	4	5	6	8	7	11	12	12	12	11	11	7
307	32	M	8	9.8	9.8	0%	104	10	8	5	11	12	8	12	8	11	12	7	7	10
357	26	M	16	13.2	12.4	4%	122	14	8	6	13	14	12	10	15	12	10	16	14	12
367	27	M	16	13.0	11.4	22%	118	14	7	4	9	12	8	12	15	17	12	12	13	12
8	25	M	10	11.6	12.0	17%	117	12	7	6	11	12	10	15	14	11	10	12	11	12
91	22	M	12	11.6	12.4	19%	116	11	6	4	7	11	11	12	15	14	12	14	11	13
234	21	M	10	15.2	13.6	10%	132	13	8	7	14	14	9	14	18	14	15	15	13	13
209	18	M	10	11.0	12.6	14%	116	9	6	6	10	14	8	14	13	13	9	10	15	12
109	24	M	14	13.4	14.0	4%	128	13	8	7	14	14	13	14	13	13	10	14	16	13
52	20	M	12	10.8	12.2	0%	112	14	8	6	13	14	13	15	11	8	7	15	9	12
325	35	F	12	13.0	9.8	18%	117	16	7	6	11	10	10	10	15	14	10	15	7	12
305	55	F	12	9.6	9.0	0%	111	11	6	5	9	9	10	13	10	10	9	10	5	8
217	33	M	11	12.0	11.4	0%	117	10	7	5	10	13	10	11	10	15	13	12	11	12
83	25	M	10	8.2	10.8	29%	103	8	6	4	7	5	10	13	8	9	7	10	14	12
149	29	M	7	9.6	9.8	0%	101	7	4	6	7	10	7	8	7	11	13	10	11	13
163	39	M	9	11.0	9.8	22%	110	12	6	4	7	9	10	9	13	15	7	13	11	10
39	29	M	9	13.0	10.0	0%	114	10	9	6	14	11	10	10	12	16	12	11	10	9
MEAN	32.64	11.53				11.46%	113.39	11.71	6.78	5.39	10.17	10.42	9.1	11.64	11.96	12.28	10.53	11.78	11.28	11.35
DEV. VOC.											-1.54	-1.11	-2.61	-.07	+.25	+.57	-1.18	-.07	-.43	-.46
STANDARD DEVIATION								2.0			2.16	3.14	2.32	2.02	2.80	2.43	2.69	2.33	2.79	1.84

TABLE IV

ORGANIC BRAIN DAMAGED CASES WITH NORMAL EEG. IN A U.S. ARMY GENERAL HOSPITAL

CASE#	AGE	SEX	ED.	V.M.	P.M.	DET.	I.Q.	VOC.	DIGITS FWD.	DIGITS REV.	DIGIT SPAN	BLKS.	D.SYM.	O.A.	INF.	COMP.	ARITH.	SIM.	P.A.	P.C.
325	36	F	12	13	9.8	18%	117	16	7	6	11	10	10	10	15	14	10	15	7	12
305	55	F	12	9.6	9.0	0%	111	11	6	5	9	9	10	13	10	10	9	10	5	8
217	33	M	11	12	11.4	0%	112	10	7	5	10	13	10	11	10	15	13	12	11	12
83	25	M	10	8.2	10.8	29%	103	8	6	4	7	5	10	13	8	9	7	10	14	12
149	29	M	7	9.6	9.8	0%	101	7	4	6	7	10	7	8	7	11	13	10	11	13
163	39	M	9	11	9.3	22%	110	12	6	4	7	9	10	9	13	15	7	13	11	10
39	29	M	9	13	10.0	0%	114	10	9	6	14	11	10	10	12	16	12	11	10	9
355	36	M	8	8.4	7.0	28%	94	8	6	4	7	6	5	8	10	11	6	8	6	10
294	30	M	6	6.0	6.4	23%	87	8	5	4	6	4	7	10	9	9	6	10	8	3
216	24	M	8	6.6	12.0	13%	96	6	6	4	9	12	10	13	8	8	3	4	13	12
271	28	M	6	6.0	5.0	0%	73	4	5	4	6	7	5	7	4	2	10	8	3	3
505	36	M	10	8.4	6.8	28%	99	12	6	4	7	8	7	10	11	9	7	8	9	10
MEAN	33.25		9	9.48	9.3	13.41%	101.8	9.33	6.08	4.66	8.33	8.66	8.41	10.16	9.75	10.75	8.5	9.9	9.0	9.5
DEV. VOC.											-1	-.67	-.92	+.83	+.42	+1.42	-.83	+.6	-.33	-.17
STANDARD DEVIATION								3.07			2.29	2.67	2.007	1.98	2.77	3.74	3.21	2.75	3.16	3.22

TABLE V

ORGANIC BRAIN DAMAGED CASES WITH ABNORMAL EEG. IN A U.S. ARMY GENERAL HOSPITAL

CASE#	AGE	SEX	ED.	V.M.	P.M.	DET.	I.Q.	VOC.	DIGITS FWD.	DIGITS REV.	DIGIT SPAN	BLKS.	D.SYM.	O.A.	INF.	COMP.	ARITH.	SIM.	P.A.	P.C.
400	39	M	16	12.4	11.0	23%	119	14	6	6	10	11	6	12	15	11	12	14	13	13
370	42	F	8	7.4	9.4	16%	100	9	6	4	7	9	6	12	7	8	7	8	10	10
62	26	M	13	11.6	10.6	17%	111	13	7	5	10	9	11	9	14	13	10	11	11	13
156	41	M	7	9.0	7.8	22%	100	9	8	4	10	7	4	9	10	11	7	7	7	12
32	31	M	12	11.2	10.8	10%	112	11	6	7	11	9	10	12	10	12	10	13	11	12
249	30	M	8	10.2	9.0	0%	100	10	8	6	13	11	6	9	8	10	9	11	9	10
425	29	M	14	10.8	12.8	15%	116	12	7	4	9	14	9	16	12	10	13	10	14	14
432	36	F	8	11.6	10.8	7%	115	12	7	7	13	10	9	12	11	12	9	13	11	12
165	55	M	16	10.8	9.6	13%	116	13	6	4	7	10	8	9	14	15	7	11	12	9
270	55	M	13	12.0	9.6	0%	120	14	7	5	10	7	9	12	11	14	13	12	12	8
287	37	M	10	13.6	11.4	19%	124	14	7	7	13	8	11	13	14	10	16	13	12	13
293	33	M	15	10.6	8.8	20%	104	13	4	5	6	8	7	11	12	12	12	11	11	7
307	32	M	8	9.8	9.8	0%	104	10	8	5	11	12	8	12	8	11	12	7	7	10
357	26	M	16	13.2	12.4	4%	122	14	8	6	13	14	12	10	15	12	10	16	14	12
367	27	M	16	13.0	11.4	22%	118	14	7	4	9	12	8	12	15	17	12	12	13	12
8	25	M	10	11.6	12.0	17%	117	12	7	6	11	12	10	15	14	11	10	12	11	12
91	22	M	12	11.6	12.4	19%	116	11	6	4	7	11	11	12	15	14	12	14	11	13
234	21	M	10	15.2	13.6	10%	132	13	8	7	14	14	9	14	18	14	15	15	18	13
209	18	M	10	11.0	12.6	14%	116	9	6	6	10	14	8	14	13	13	9	10	15	12
109	24	M	14	13.4	14.0	4%	128	13	8	7	14	14	13	14	13	16	10	14	16	13
52	20	M	12	10.8	12.2	0%	112	14	8	6	13	14	13	13	11	8	7	15	9	12
385	46	M	9	9.6	5.2	1%	96	10	7	6	11	8	2	5	10	10	9	8	4	8
404	37	M	8	8.0	7.2	18%	77	4	4	3	3	7	6	12	4	4	1	3	4	7
277	22	M	8	9.2	6.8	9%	87	8	6	5	9	8	3	7	9	10	8	9	8	8
17	25	F	7	8.0	5.6	24%	82	8	5	4	6	4	5	5	10	9	10	5	4	10
241	27	M	6	7.4	9.8	25%	94	10	4	3	3	12	7	12	10	7	9	8	9	9
51	18	M	10	9.8	9.0	15%	97	11	8	4	10	7	7	8	10	12	9	8	11	12
150	48	M	7	7.6	2.8	0%	82	6	6	5	9	3	4	0	6	9	7	7	3	4
170	26	M	7	8.0	5.6	24%	82	8	5	4	6	4	5	5	10	9	10	5	4	10
274	20	M	8	7.8	5.8	3%	79	7	5	4	6	9	5	4	9	6	10	9	4	7
286	24	M	8	8.0	8.8	0%	90	9	6	5	9	9	9	6	10	6	10	9	7	9
298	22	M	8	7.0	8.6	18%	86	6	5	3	4	9	7	9	8	8	7	8	8	10
300	23	M	2	4.6	6.8	15%	71	7	4	5	6	9	5	10	4	5	3	5	4	6
321	20	M	9	3.8	3.0	10%	55	5	3	2	0	5	5	0	6	5	4	4	4	1
344	25	M	6	8.2	8.8	23%	93	7	6	3	8	9	6	11	10	11	7	7	9	9
79	22	M	7	8.2	10.2	14%	96	10	6	5	9	10	9	12	8	9	9	6	7	13
131	29	M	7	6.2	11.2	34%	74	6	5	3	4	6	3	8	8	8	3	8	5	5
454	33	M	16	11.0	6.8	0%	96	9	5	4	6	5	9	11	10	12	18	9	5	4
MEAN	29.86	10.47				12.57%	101.1	10.13	6.18	4.84	8.63	9.31	7.86	9.92	10.57	10.31	9.44	9.65	9.13	9.78
STANDARD DEVIATION								2.86			3.35	3.02	1.41	3.16	3.25	3.22	3.52	3.32	3.85	3.17

TABLE VI

COMPARISON OF WECHSLER-BELLEVUE VERBAL SCORES OF ABNORMAL AND NORMAL EEG. PATIENTS IN A MILITARY HOSPITAL

	NO.	I.Q.	VOC.	S.D.	INFO.	S.D.	COMP.	S.D.	D.S.	S.D.	ARITH.	S.D.	SIM.	S.D.
NORMAL EEG.	12	101.8	9.33	3.07	9.75	2.77	10.75	3.74	8.33	2.29	8.50	3.21	9.90	2.75
ABNORMAL EEG.	38	101.1	10.13	2.86	10.57	3.25	10.31	3.22	8.63	3.36	9.44	3.52	9.65	3.32
DIFFERENCE		.7	.80		.82		.44		.30		.90		.25	
S.E. DIFFERENCE			1.00		.95		1.21		.95		1.08		.95	
C.R.			.80		.86		.36		.315		.83		.26	

TABLE VII

COMPARISON OF WECHSLER-BELLEVUE PERFORMANCE SCORES OF ABNORMAL AND NORMAL EEG. PATIENTS IN A MILITARY HOSPITAL

	NO.	I.Q.	P.A.	S.D.	P.C.	S.D.	BLKS.	S.D.	O.A.	S.D.	D.SYM.	S.D.
NORMAL EEG.	12	101.8	9.0	3.16	9.50	3.22	8.66	2.67	10.16	1.98	8.41	2.01
ABNORMAL EEG.	38	101.1	9.13	3.85	9.78	3.17	9.31	3.02	9.92	3.16	7.86	1.41
DIFFERENCE		.7	.13		.28		.65		.24		.55	
S.E. DIFFERENCE			1.1		1.06		.28		.24		.201	
C.R.			.118		.264		2.3		.10		2.8	

TABLE VIII

COMPARISON OF MILITARY ORGANIC RECORDS WITH WECHSLER'S STANDARDIZATION OF AGE GROUP 30-34

	NUMBER	AGE	VERBAL	S.D.	PERFORMANCE	S.D.
WECHSLER	110	30-34	9.43	3.15	9.46	3.21
MILITARY ORGANIC	50	30.68	9.64	3.17	9.13	3.0
DIFFERENCE			.21		.33	
S.E. DIFFERENCE			.17		.22	
C.R. OR t			.08		.08	

TABLE IX

A COMPARISON BETWEEN RAPAPORT'S WELL-ADJUSTED PATROL GROUP WITH MILITARY ORGANIC PATIENTS WITH I.Q. SCORES OF 100 AND ABOVE

	NO.	P.A.	S.D.	P.C.	S.D.	BLKS.	S.D.	O.A.	S.D.	D.S.	S.D.
RAPAPORT'S WELL-ADJUSTED PATIENTS	32	10.7	2.83	11.7	2.16	11.8	1.99	11.1	2.72	11.3	1.99
MILITARY ORGANICS WITH I.Q. OF 100/	28	11.28	2.79	11.35	1.84	10.42	3.14	11.64	2.02	9.1	2.32
DIFFERENCES		.58		.35		1.38		.54		2.2	
STANDARD ERROR OF DIFFERENCE		.72		.73		.71		.60		.56	
C.R.		.80		.48		1.94		.90		3.93	

TABLE X

A COMPARISON OF RAPAPORT'S WELL-ADJUSTED PATROL GROUP WITH THE ORGANIC PATIENTS OF 100 AND ABOVE I.Q. SCORES

	NO.	I.Q.	VOC.	S.D.	COMP.	S.D.	INFO.	S.D.	SIM.	S.D.	D.S.	S.D.	ARITH.	S.D.
RAPAPORT'S WELL-ADJUSTED PATIENTS	52	118.3	12.7	1.60	12.7	1.75	13.0	1.93	12.4	1.83	10.70	3.27	11.5	2.5
MILITARY ORGANICS WITH I.Q. OF 100/	28	113.39	11.7	2.0	12.88	2.43	11.96	2.80	11.78	2.33	10.17	2.16	10.63	2.69
DIFFERENCES		4.91	1.0		.42		1.04		.62		.53		.97	
STANDARD ERROR OF DIFFERENCE			.47		.55		.62		.59		.70		.67	
C.R.			2.12		.76		1.67		1.05		.75		1.44	

TABLE XI

A COMPARISON OF THE MILITARY ORGANIC GROUP WITH I.Q. OF 100 AND ABOVE WITH WECHSLER'S STANDARDIZATION OF AGE GROUP, AGE LEVEL 30-34

	NO.	I.Q.	INFO.	S.D.	COMP.	S.D.	ARITH.	S.D.	D.S.	S.D.	SIM.	S.D.
WECHSLER'S CONTROL GROUP, AGE 30-34	110	100	9.8	3.12	9.7	3.15	9.2	3.31	8.95	3.41	9.5	2.76
ORGANIC GROUP WITH I.Q. OF 100+	28	113.39	11.96	2.80	12.28	2.43	10.53	2.69	10.17	2.16	11.78	2.53
DIFFERENCE		13.39	2.16		2.58		1.33		1.22		2.28	
STANDARD ERROR OF DIFFERENCE			.60		.54		.51		.56		.92	
C.R.			3.6		4.8		2.6		2.2		2.5	

TABLE XII

A COMPARISON OF THE MILITARY ORGANIC GROUP WITH I.Q. OF 100 AND ABOVE WITH WECHSLER'S STANDARDIZATION OF AGE GROUP, AGE LEVEL 30-34

	NO.	P.A.	S.D.	P.C.	S.D.	BLKS.	S.D.	O.A.	S.D.	D.S.	S.D.
WECHSLER'S CONTROL GROUP, AGE 30-34	110	9.2	3.28	9.6	3.30	9.7	3.30	9.7	2.86	9.2	3.31
MILITARY ORGANIC GROUP WITH I.Q. OF 100/	28	11.28	2.79	11.35	1.84	10.42	3.14	11.64	2.02	9.1	2.32
DIFFERENCE		2.08		1.75		.72		1.94		.1	
STANDARD ERROR OF DIFFERENCE		.61		.47		.67		.47		.53	
C.R.		3.4		3.7		1.07		4.1		.187	

TABLE XIII

A COMPARISON OF WECHSLER'S STANDARDIZATION GROUP, AGE LEVEL 30-34, WITH THE TOTAL GROUP OF MILITARY ORGANIC PATIENTS ON THE VERBAL TESTS OF THE WECHSLER-BELLEVUE INTELLIGENCE SCALE

	NO.	INFO.	S.D.	COMP.	S.D.	ARITH.	S.D.	D.S.	S.D.	SIM.	S.D.	FULL I.Q.
WECHSLER'S CONTROL GROUP, AGE 30-34	110	9.8	3.12	9.7	3.15	9.2	3.31	8.95	3.41	9.50	2.75	100
TOTAL GROUP OF MILITARY ORGANICS	50	10.38	3.09	10.28	3.10	9.24	3.40	8.56	3.12	9.72	3.16	101.2
DIFFERENCE		.58		.58		.04		.39		.22		1.2
STANDARD ERROR OF DIFFERENCE		.63		.53		.86		.81		.51		
C.R.		1.09		1.09		.046		.48		.43		

TABLE XIV

A COMPARISON OF WECHSLER'S STANDARDIZATION GROUP, AGE LEVEL 30-34, WITH THE TOTAL GROUP OF MILITARY ORGANIC PATIENTS ON THE PERFORMANCE TESTS OF THE WECHSLER-BELLEVUE INTELLIGENCE SCALE

	NO.	P.A.	S.D.	P.C.	S.D.	BLKS.	S.D.	O.A.	S.D.	D.S.	S.D.
WECHSLER'S CONTROL GROUP, AGE 30-34	110	9.2	3.23	9.6	3.30	9.7	3.30	9.7	2.88	9.2	3.31
TOTAL GROUP OF MILITARY ORGANICS	50	9.1	3.70	9.7	2.44	9.16	2.94	9.98	3.35	7.72	2.60
DIFFERENCE		.1		.1		.54		.28		1.48	
STANDARD ERROR OF DIFFERENCE		.60		.46		.52		.54		.49	
C.R.		.166		.217		1.03		.1038		3.02	