



**jnd**

a students' journal of psychology

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**OCT 30 1970**

**SAINI MARY'S UNIVERSITY  
HALIFAX, CANADA**

**published by**

**the department of psychology at**

**saint mary's university**

**halifax, nova scotia**

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**VOL. 1 - NO. 2**

**SEPTEMBER 1970**

**HALIFAX, N. S.**

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## Editorial

Welcome to the second issue of j.n.d. - the journal of undergraduate psychology students, with a special hello to all the new freshmen! We hope you enjoy your first year and benefit socially and intellectually from your university environment.

In the present issue of j.n.d. a new strategy was adopted insofar as papers are concerned. We accepted articles dealing with the theoretical as well as the applied approaches to psychology. This change was guided by the view that the addition of applied psychology will contribute to the journal's being as representative as possible. Consequently, in this issue sections are devoted to research, and testing -- its interpretation and evaluation.

The field of applied psychology, being a more practical one, provides the means whereby the student can explore and attempt to understand psychological processes. The theoretical approach to psychology, however, should not be neglected, for many of the general principles are established through theories. Theories provide the means by which one is able to organize factual information while simultaneously serving as research guides. Thus, students can go

beyond the sphere of isolated experiments into a new world of general psychological principles.

We hope that the section on tests will add to your reading enjoyment. Feel free to let us know about any other areas of psychology that you would like to see investigated by j.n.d. Remember that the journal can only be as successful as you make it!

In closing, the encouragement and assistance given to us by the members of the Department of Psychology have been invaluable. A special salute goes to Dr. Gerald Gordon and to his secretary, Miss Dora Warren, for their kind cooperation.

Editors: Carol White  
Frank Hickey

LETTERS TO THE EDITOR

j.n.d.  
Psychology Department  
Saint Mary's University

Herewith one buck, - subscription for one year.

I wish you luck beyond the threshold.

M. W. Burke-Gaffney, S.J.  
Halifax

Editor  
j.n.d.  
Psychology Department

Congratulations on your first edition of the students' journal in Psychology.

This is one more example of the dynamic spirit in your Department.

With every best wish for success in this undertaking,

Henry J. Labelle  
President  
Saint Mary's University  
Halifax

LETTERS TO THE EDITOR (continued)

j.n.d.  
Psychology Department  
Saint Mary's University  
Halifax, Nova Scotia

This publication seems to be a good idea and I wish the students luck with it.

Irene MacLeod  
Halifax

Dr. Gerry Gordon  
Department of Psychology  
Saint Mary's University

Dear Dr. Gordon:

I'm an elementary school teacher and mother, still working toward a degree in psychology, and the studies of children in schools are of particular interest to me. Congratulations to your students, and, I'm sure, to you as well, for fostering that kind of spirit.

Lisa Park  
Winnipeg, Manitoba

IT'S ALL IN ADJUSTING TO COLLEGE

You say you love college and you're getting D's in all your courses?  
You say you cut three classes today so you could play pinocle?  
You say you have halitosis, because everytime you go to brush your  
teeth your tooth brush is missing?  
You say your roommate has a pet snake, and expects you to love it  
as a brother?  
You say you were running down the hall in your pants and bra . . .  
and ran right into the janitor  
while he was yelling: "Man on the floor!"?  
You say you were going to the "U" for a big, spectacular dance with  
the grooviest guy, and you've been counting  
the days, and it snowed 80 inches on Friday?

You say you were starving, but the machine wouldn't change your  
last fifty cent piece?  
And you say your room faces the men's dorm and the window shade  
broke?  
And you have to change in the closet . . . so this morning the  
closet door fell off?  
Is that all that's on your mind?

You say you got campussed because you were caught in the attic  
of the Sigma Chi house?  
You say you stayed up all night to study for an exam, and slept  
right through the class the next day?  
And you say your roommate tried on your new dress, fell down  
the stairs and broke the heels off your best pair of shoes,  
besides ripping your dress to pieces?

You say you're having room check, and it's a race to ditch all the beer cans, pizza boxes, coke bottles, dirty clothes, and the rest of your junk under the bed?

And you say you used tampax for the first time, and now you're using it permanently 'cause the string broke?

And you say you were in the shower, head full of soap when the fire alarm went off?

And when you finally got back in the shower and got it adjusted and everything, someone flushed the john and you were scalded to death?

You say the house mother knocked on the door collecting for the campus chest drive just as your boyfriend was climbing out the window, and you were forced to hit him over the head with a coke bottle?

You say you went to dinner, got hit with a dinner roll, and still haven't recovered?

You say you got a call from the libe . . . saying you owe \$2.50 in book fines?

And now you have to clean the johns because you were noisy during quiet hours?

You say your ceiling fell and now everybody keeps "dropping in" on you?

You say when you're ready to doze off, your roommate charges in and insists she has to study for a gym test?

You say your room is next to the lounge, and a jazz band is performing at 12:30 a.m. on the only night you can get to bed early?

And, of course, they play peaceful music, like "When the Saints Go Marching In" and "Jailhouse Rock?"

Well, don't despair . . .

Keep your chin up . . .

It's all in adjusting to college,

And we're all having . . . the same trouble.



## PSYCHOLOGICAL REPORTS

The following three articles deal with psychological testing. Although highly subject specific, they are included here as representing one of the diverse areas of applied psychology.

Written by senior psychology students in a Tests and Measurements course as practicum exercise, these reports are intended to facilitate decisions about individuals and to aid the classroom teacher in understanding and classifying some of the factors behind the students' level of academic functioning, and interpersonal relations.

A list of reference sources in psychological assessment is included below in addition to a brief explanation of each test used here.

The Minnesota Multiphasic Personality Inventory (MMPI) by Hathaway and McKinley can be considered the one personality test which enjoys a uniquely popular place in psychological circles in spite of a tremendous amount of controversy and ensuing research it has created. First devised in 1942 and restandardized in 1951, the MMPI is based on exclusively empirical methodology rather than on a

specific personality theory. Under ten psychiatric classifications, preferably referred to by numbers instead of diagnostic names, the 550 items cover a wide range of areas including: general health, physical ailments, mood fluctuations, delusions, hallucinations, attitudes toward family, religion, and society, etc. In addition, four validity scales serve as a check on the individual's test taking attitude. The individual records his answers as "true", "false", or "cannot say" on a record sheet. Following scoring, a profile is plotted, indicating the individual's standing and the extent of his deviations from the average. The distribution of scores expressed in T-score units, has a mean of 50 and a standard deviation of 10. Raw scores falling between  $\pm 1$  standard deviation about the mean, i.e. between 60 and 40 T-scores, are considered average, whereas those falling above a T-score of 70 are considered as pathological indicators.

The ten clinical scales of the MMPI are:

1. Hs: Hypochondriasis
2. D: Depression
3. Hy: Hysteria
4. Pd: Psychopathic deviate
5. Mf: Masculinity-femininity
6. Pa: Paranoia
7. Pt: Psychasthenia

8. Sc: Schizophrenia
9. Ma: Hypomania
10. Si: Social introversion

For a detailed description of the scales and evaluation of the test, refer to Anastasi (1968), and Hathaway and Meehl (1951).

Developed through intensive research efforts of R. B. Cattell at the Institute for Personality and Ability Testing in California, the 16 Personality Factor Questionnaire represents another promising personality test for adults. The 187 items in the 16PF were based on factor analysis of personality trait names isolated from psychiatric and psychological sources, and a dictionary of 18,000 adjectives describing personality characteristics. With further research, the highly technical level of construction of this instrument can only become more precise.

In contrast to these self-report inventories, another type of personality testing is by means of projective instruments such as the pictures used in the Thematic Apperception Test (TAT) and the Children's Apperception Test (CAT), depicting structured but ambiguous situations, through which the individual projects his attitudes, needs, motives, drives, and conflicts. The stories the individual is asked to tell about each stimulus picture are organized into the past, present,

and future happenings, connected with each presentation. Devised by Henry A. Murray in 1935, the TAT can be interpreted on the basis of Murray's "needs" and "presses" revolving around the central character or the "hero".

The CAT, similar in nature to TAT, but using animal pictures, was developed by Ballak (1949 to 1961) with the underlying assumption that children would identify more easily with animal pictures. Their interpretation is based on Freud's psychoanalytic theory.

The Goodenough-Harris Draw-A-Man Test (DAM) represents a rapid screening device determining the intellectual maturity level of children by means of qualitative differences in their human drawings.

The Bender Visual-Motor Gestalt Test (1938 to 1964) consists of 9 simple geometric designs which the individual reproduces. Although initially developed as a test of motor coordination based on principles of Gestalt psychology, it has also been standardized to assess brain damage, mental retardation, and emotional adjustment. For an excellent source of information, refer to Koppitz (1964).

In the following reports, the assessment of intellectual capabilities is represented with the tests devised by David Wechsler-- Wechsler Adult Intelligence Scale (WAIS) (1955) and Wechsler Intell-

igence Scale for Children (WISC) (1949). Twelve tests, divided into two groups as Verbal and Performance, assess that facet of the individual's personality called intelligence. A global intelligence quotient is obtained representing the person's level of achievement in both groups of tests combined. The reader is referred to Anastasi (1968) and Wechsler (1958) among other sources for a highly detailed discussion of these scales.

Anastasi, Anne. Psychological Testing (3rd ed.). New York: Macmillan, 1968.

Bellak, Leopold. The Thematic Apperception Test and the Children's Apperception Test in Clinical Use. New York: Grune & Stratton, 1954.

Bender, Lauretta. A Visual Motor Gestalt Test and its Clinical Use. Res. Monogr. Amer. Orthopsychiat. Ass., 1938, No. 3.

Buros, Oscar K. (ed.) The Mental Measurements Yearbooks. Highland Park, N.J.: The Mental Measurements Yearbook, 1941.

Hathaway, Starke R., & Meehl, Paul E. An Atlas for the Clinical Use of the MMPI. Minneapolis: University of Minnesota Press, 1951.

Kleinmuntz, Benjamin. Personality Measurement, An Introduction. Homewood, Ill.: The Dorsey Press, 1967.

Koppitz, Elizabeth M. The Bender Gestalt Test for Young Children. New York: Grune & Stratton, 1964.

Pascal, Gerald R., & Suttell, Barbara J. The Bender-Gestalt Test: Quantification and Validity for Adults. New York: Grune & Stratton, 1951.

Wechsler, David. The Measurement & Appraisal of Adult Intelligence (4th ed.). Baltimore: The Williams & Wilkins Co., 1958.

PSYCHOLOGICAL REPORT  
Linda Hansen  
Saint Mary's University

NAME: B. N.

SEX: Male

AGE: 20-2

EDUCATION: University level

RACE: Caucasian

RESIDENCE: Nova Scotia

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TESTS ADMINISTERED: Wechsler Adult Intelligence Scale (WAIS)

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I. GENERAL OBSERVATIONS

Mr. N. is a 20 year old male born in England. He has been residing in Canada for the major part of his life. He is employed by the Armed Forces working as a mechanic. He is married and has two children, a son one year, and a daughter two years old.

He has never taken an I. Q. test and his main objective for taking this one was to see what it was like to prove to his own satisfaction that they were not adequate measurements of intelligence. He used this defense mechanism of rationalization whenever he did not know the answer to a question. He did not like to appear "dumb". He degraded himself and when reinforcement was given he said he did not need to be reassured. He would not guess at any answer but would

say to "skip it". He appears to have motivation to better himself in life and this can be noted by his attempts to better his education but on the other hand, he has no particular goal in view. He does not like to feel inferior and this along with his lack of patience with something he does not know may prove to be an obstacle in his achievement of a university education. Overall, his main objective in taking this I.Q. was to prove that it was invalid.

## II. INTELLECTUAL FUNCTIONS

Verbal I.Q.	120	90th percentile
Performance I.Q.	105	60th percentile
Full Scale I.Q.	114	82nd percentile

Results indicate that Mr. N. is bright normal with better abstract thinking ability than concrete. He performed best on test items dealing with common sense, judgment and moral development, rote memory, word knowledge, abstract thinking ability, and perceptual organization. His major weakness is his rigid attitude toward the environment. However, broad interests and curiosity as well as a large fund of knowledge to solve practical social problems are his assets.



The presence of a stop watch strengthened his rigid attitude on tests dealing with numerical calculations, indicating his lack of patience under pressure. His overall performance indicates a lack of cooperation, a possible rebellion to authority, and poor motivation. He also shows an inability to size up a problem and adapt to it readily. This indicates poor planning and perception as well as an anxiety reaction in perceptual organization tasks.

Overall, his performance on the Wechsler indicates his ability at abstract thinking rather than concrete thinking. His main difficulty is in the area of association and planning. He does not logically think out a problem but attempts to reach conclusions without adequate planning. He does not break things down into parts before assembling them.

### III. SUMMARY AND DISCUSSION

Mr. N. is a twenty year old man of bright normal intelligence. Although his work requires assembly, he did very poorly on the performance section of the Wechsler I.Q. Test. His major difficulty is that he becomes frustrated easily. He flings himself headlong into a task without first thinking it out. He finds it difficult to work

under pressure and this was noted as soon as he noticed the stop watch being used. His motivation to take this test was low. He seems to have ambivalence about his future. Although he is attending university, he has not fully convinced himself of a university education as being beneficial. This appears to be a defense mechanism in case he does not succeed. He expressed a desire to take an aptitude test. If the results did not agree with him, he would reject them. He seems in a conflict about his future. He wants to better himself but, at the same time, is resisting education. The resolution of this conflict will have to be his decision.

PSYCHOLOGICAL REPORT  
Glenn Neary  
Saint Mary's University

NAME: S. P.

EDUCATION: Primary

AGE: 6 - 1

ORDINAL POSITION: 1st

RACE: Caucasian

SIBLINGS: 1 sister, 3 1/2 years

RESIDENCE: Nova Scotia

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TESTS ADMINISTERED:

Wechsler Intelligence Scale for Children (WISC)

Child's Apperception Test (CAT)

Goodenough-Harris Draw-A-Man Test (DAM)

Bender-Gestalt Visual-Motor Test (B-G)

---

I. GENERAL OBSERVATIONS

When first brought to the lab, S. appeared to be slightly shy, hanging close to his mother and somewhat apprehensive in talking. After a short while to get accustomed to the surroundings, S. was able to talk freely and rapport was easily maintained through the test period. S. is of average height and weight for his age and was wearing glasses. He had attended nursery school before starting his formal schooling and was in the major work class. He talked freely saying

that he enjoyed school work. S., whose parents are professional people and who has a three and a half year old sister, enjoyed the testing sessions and wanted more tests given.

## II: INTELLECTUAL FUNCTIONS

### Wechsler Results

		Percentile
Verbal IQ	115	84th
Performance IQ	122	93rd
Full Scale	120	91st

### Bender Results

Percentile  
Above 85th

### Goodenough-Harris Results

	Percentile
Picture of Man	91st
Picture of Woman	79th

## Interpretation:

S's results on the WISC place him in the superior range of intelligence. There is no great difference between verbal and performance scores. The subject scored poorly on items dealing with general information obtained from one's home and school environment and high on vocabulary items and others dealing with perceptual organization and visual-motor coordination. These results are confirmed by the Bender-Gestalt test and also by the Goodenough-harris Draw-A-Man test.

S's high scores on the performance portion of the WISC show good planning ability and foresight.

The results of the Bender indicate: 1) compared to other six year olds, this child's test performance on the Bender falls just outside 1 S.D above the mean test score for this age group, that is; the level of his Bender score is around the 85th percentile for this age range and is in the bright-average or superior level.

2) the child's maturation in visual-motor perception as reflected in his Bender score is on the level of a seven-year-old child.

3) the Bender score of this six-year-old child is similar to that of the average beginning second grade student. S., therefore, is a rather bright child, and can apply himself well.

### III PERSONALITY ORGANIZATION

S's results on the Bender Gestalt indicate that the subject is impulsive and uses acting out behaviour. The use of fine line, as in the first figure, indicates that S. appears shy and unsure of himself in new surroundings initially. The subject was not particularly aggressive during testing, but during the Good-enough-Harris, left his seat while vocalizing and assumed the positions of the pictures. This was in response to questioning about what the people were doing.

The CAT shows that the child is brought up in a strict environment where an individual is consistently punished for wrong doing. The child does not identify with one main hero in the pictures, instead, he tells a simple story relating to the situation

arising out of the picture. He realizes that the parents are the authority figures and he accepts this fact.

One story where the old lion creates a boy and then a robot is of interest, showing a subconscious desire for a brother. This was brought out further by talking to the child where he said he would rather have a baby brother than a sister.

#### IV SUMMARY AND DISCUSSION

S. is a bright boy, somewhat shy at first, but then easy-going and well liked. He should have no difficulty with his school work, but he is impulsive and acts out his activities. Although aware of an element of competition, he gets along well with his younger sister and should be a good achiever.

His CAT stories are reported on the following pages.

## C.A.T. STORIES

Picture #1: Chicks seated around a table on which is a large bowl of food.

Off to one side is a large chicken, dimly outlined.

Once upon a time there was a farm, and on the farm lived a mother hen and her three little chicks. They were eating something good, I don't know what the good thing was and the mother hen said it was sweet porridge and you'd better eat it all up. Then she said, "Eat it up". They didn't eat it, so she sent them to bed. And they lived happily ever after.

Picture #2: One bear pulling a rope on one side while another bear and a baby bear pull on the other side.

I'll tell you a story, but I don't know what these are (pointing to bears). I think they are bears, (asks:) are they bears? (Receives an affirmative nod from examiner.) Once upon a time there were three bears. One bear was after another bear so they decided to have a contest with the rope. The little bear helped one bear and they won. They returned to their cave to have hot porridge and the other bear sent a giant robot into the cave. They destroyed the robot.



Picture #3: A lion with pipe and cane, sitting in a chair; in the lower right corner a little mouse appears in a hole.

There's a mouse and a giant lion. One day there was a big old lion-a grandpa giant. He had a pipe. The tiny mouse was looking after him. He sat on his chair and he thought and thought. He was a lonely lion so he got some wood (subject laughed and said, "This is like Pinocchio") and he carved out a little boy and made it into a robot and they lived happily ever after.

Picture #4: A kangaroo with a bonnet on her head, carrying a basket with a milk bottle; in her pouch is a baby kangaroo with a balloon; on a bicycle, a larger kangaroo child.

There lived three kangaroos. One lived in a pocket and one came out 'cause he was too big. They were going shopping one day. There was a big bad wolf who lived in a house nearby. Had a friend called hippopotamus. The hippopotamus wanted to eat the mother up. They attacked them one day and the hippopotamus ate the mother and the fox ate the little kangaroo. The hippopotamus and the fox lived happily ever after with big, fat tummies.

(What happened to the one in the pocket?)

It wanted to get out but it couldn't and got ate up by the hippopotamus.

Picture # 8: Two adult monkeys sitting on a sofa drinking from tea cups. One adult monkey in foreground sitting on a hassock talking to a baby monkey.

Once upon a time there lived four monkeys. Didn't like each other, telling secrets. Lady tells man a big secret. Lady--I think she's a lady 'cause she's got an earring--tells the little boy not to be bad. Boy didn't obey the lady and got in trouble. Told everybody what the secret was. All lived happily ever after.

(What happened to the boy?)

He got a spanking for being bad.

Picture #5: A darkened room with a large bed in the background; a crib in the foreground in which are two baby bears.

Well, I don't know.

Can't tell you any story.

(Well describe what you see in the picture.)

I see two teddies in one bed and a giant bed and I see three windows and it's night; see floor, wall and curtains. Can't understand the picture.

Picture #10: A baby dog lying across the knees of an adult dog; both figures with a minimum of expressive features. The figures are set in the foreground of a bathroom.

Once upon a time, there were two dogs, one was a mother and one was a baby. Little dog had to go to the bathroom and instead he was licking the water. Mother said: "Tony, you're a bad boy" and Tony said: "I'm sorry, mom". Tony got a spanking. They all lived happily ever after. Tony never did the bad thing again. Mother said: "Tony you'll get a harder one".

(Who is Tony:)

The girl who lives beside me has a cousin named Tony and her grandfather is also named Tony.

PSYCHOLOGICAL REPORT

PERSONALITY INVENTORIES

M.M.P.I. 16 P.F.

Barbara Candow  
Dalhousie University

NAME: B. C.	RELIGION: Protestant
AGE: 23	SIBLINGS: 1 sister, age 25
RACE: Caucasian	ORDINAL POSITION: 2nd
SEX: Female	EDUCATION: University level

TEST RESULTS

The M.M.P.I. scales would be listed as follows, from the highest to the lowest: 2 3 8 4 1 7 0 6 5 9. Among the validity scales, L and F were average, while K was high, with a T-score of 68. This is to be expected of a college or professional person and may indicate either defensiveness and lack of insight or simply independence, ego strength and an ability to handle one's own problem.

Among the clinical scales, the highest was D (just over 60) and the lowest Ma (just under 40). This combination yields a general impression of lack of energy, apathy, aloofness, and timidity.

The Hy score also approached 60. Again, higher scores are common in college and professional persons, but may indicate some lack of insight.

A moderate T-score of 57 was obtained on the Sc scale; however, the raw score is only 5, and the subject's personality is more consistent with the characteristics attributed to low Sc than to moderate Sc, that is, conservative, thrifty, timid, friendly and mannerly rather than deceitful, dissatisfied or impulsive.

Only one other score was markedly deviant from the mean; this was Mf, with a T-score of 41. Women with low Mf scores are described as submissive, dependent, weak, hesitant and fault finding and to a certain extent, these characteristics are true of the subject.

The 16 P.F. yielded a profile with only four of sixteen scores in the average range; 1967-68 college norms were used to calculate the standard scores. The most extreme scores were intelligence and expediency. Next were imagination and self-sufficiency, followed by

radicalism, adaptability (trust) and relaxation. Five trait scores were just outside the average range: submissiveness, emotional stability, shyness, tender-mindedness (sensitivity) and shrewdness.

As all sixteen factor scores are on continua between extremes, each of which is given a name (for example expedient versus conscientious, imaginative versus practical), it may be said that the subject is above average in each of the traits named above.

It might be added that at least one scale was grossly in error in describing the subject - that of expediency. The extreme score would indicate a weak conscience and lack of adherence to rules, whereas in general the opposite is the case.

In general, some conflicting results are obtained both within and between tests. M.M.P.I. results would indicate normality, but would describe the subject as both self-accepting and self-critical, dependent and independent. The 16 P.F. indicates that the subject is conforming but radical, imaginative but worldly and so on.

The two tests agree in describing this subject as reserved, self-sufficient, submissive, timid and un-energetic. The choice of adjectives is interesting, however, and may point out some differences in the focus of the test. The M.M.P.I. Manual uses such words as

listless, apathetic and lethargic whereas the 16 P.F. uses relaxed, and tranquil to describe essentially similar qualities.

Perhaps the contradictions obtained are reasonable in view of the fact that people are not totally consistent in their behaviour, they may be, for instance, independent in working situations and dependent in social contacts or conservative in actual behaviour and radical in beliefs and attitudes.

A further comment is that personality tests such as these ought to be restandardized frequently, especially in periods of rapid social change. Many questions on the M.M.P.I. might be answered differently by normal people than they were by the standardization sample, particularly those regarding law enforcement, religion and masculine versus feminine interests. College norms should be provided for comparison with a peer group as well as with the general population.

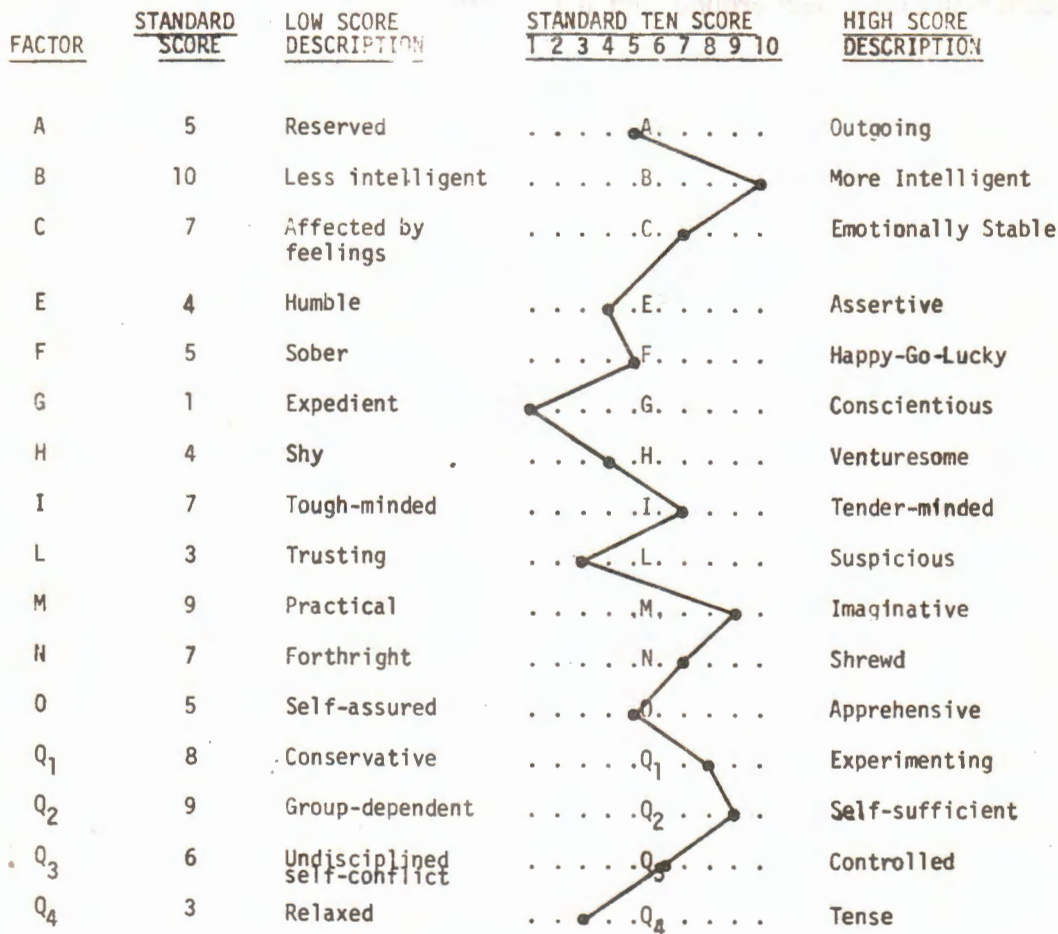
Even the 16 P.F.'s new (1967-68) norms, helpful though they may be, are still not quite in touch with the breathless pace of change in the college population. This subject is far from radical within a college group yet her score is in the upper 16% of radicalism.

The inconsistencies obtained with these tests point sharply to the need for extreme caution in interpreting personality test scores and a considerable need for thorough familiarity with the construction, background and use of the tests.



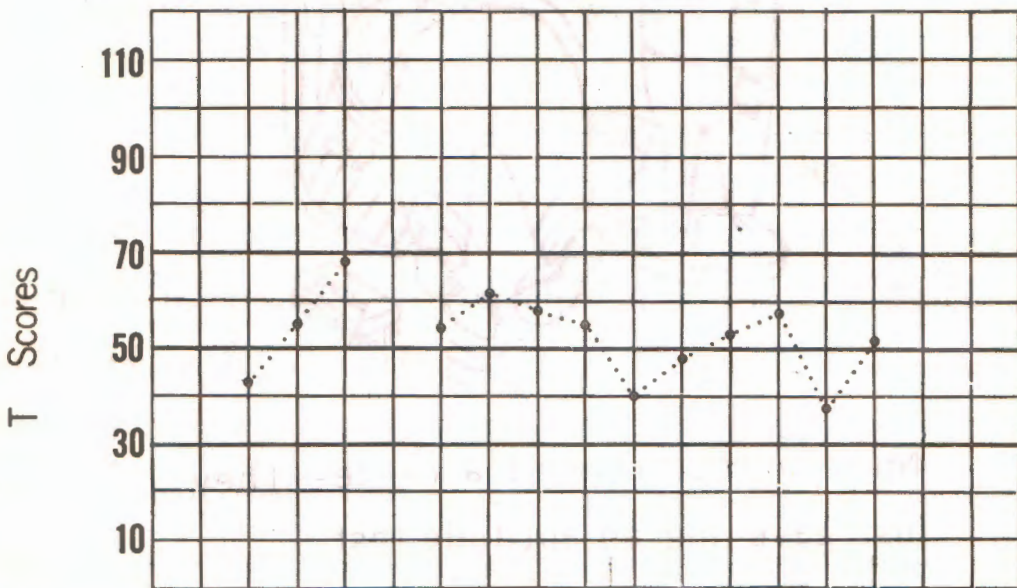
16 P F. TEST PROFILE

NAME: B. C.



# MMPI Profile

? L F K 1 2 3 4 5 6 7 8 9 0



Raw Scores: 2 5 22 15 25 24 21 41 7 27 27 12 26



No, I did not commit a crime — they just gave me an aptitude test.

ON THE FILIAL ORIGIN OF GOD  
George MacDonald  
Saint Mary's University

Religion as an aspect of man's survival apparatus is examined, including its effects on both the individual and collective psyche of society. Reference is made to Freud who believed that the child-parent relationship and man's relationship to the transcendental God are analogous. A statistical correlational analysis was carried out on a sample of fifty persons to determine if there, indeed, is a relationship between parental and theistic attitudes. Results indicate that 74% of the persons exemplified such a relationship, with positive attitudes toward both parents and God shown in the majority of the subjects used.

The twentieth century era has witnessed cataclysmic upheavals in all areas basic to the structure of society. We have seen two world wars, political institutions have come and gone and we are presently in an age of what McLuhan terms "electricalization". Indeed, the manic environment of contemporary man has led many of the more pessimistic writers to describe life as a "seventy-five year marathon of stresses and strains". As in other ages, man is forced to stave off the consequences of his own mistakes, and inevitably, Mother Nature and her unvarying laws. Perhaps more so than

any other of man's elaborate schemes to make life more livable, religion is the most pervasive. It is the purpose of this paper to take a close look at this aspect of man's survival apparatus and to evaluate its effects on the individual psyche and the collective psyche of society.

Man is a very different creature from his animal counterparts and as Erich Fromm says, "Self-awareness, reason and imagination have disrupted the harmony which characterizes animal existence. Their emergence has made man into an anomaly, the freak of the universe. He is part of nature, subject to her physical laws and unable to change them, yet he transcends the rest of nature. He is set apart while being apart; he is homeless yet chained to the home he shares with all creatures. Cast into this world at an accidental place and time, he is forced out of it, again accidentally. Being aware of himself, he realizes his powerlessness and the limitations of his existence. He visualizes his own end: death." (Fromm, 1968)

Realizing the perversity of life, man is forced to bank together with other men in a concentrated effort to protect themselves and to ward off the supremacy of their common and insurmountable foe, nature. This banding together or union of men is known as culture.

The question is raised, how does man sustain a culture? According to Sigmund Freud, one of the most important parts of the psychical inventory of a culture, is in its broadest sense, "its religious ideas". (Freud, 1957) It is upon these ideas that man resolves the insoluble dichotomy of life itself.

The purpose of this paper is to examine specifically Judaeo-Christian supernaturalism, not as Stark and Glock point out "to determine whether it is theologically valid" but rather, to evaluate its social and psychological consequences. In order to do this, I have chosen to utilize Freud's Future of An Illusion to pinpoint the genesis of theistic religions. The subsequent discussion shall deal with Freud's ideas on this topic plus an analysis of what value they are to mankind and to society.

It is Freud's theory that man's relationship to the callous moods of nature has its prototype in the infant stages of every man. "For once before", says Freud, "one has been in such a state of helplessness: as a little child in one's relationship to one's parents. For one had reason to fear them, especially the father, though at the same time one was sure of his protection against the dangers then known to one... Similarly, man makes the forces of

nature not simply in the image of men with whom he can associate as equals - that would not do justice to the overpowering impression they make on him - but he gives them the characteristics of the father, makes them into gods, thereby following not only an infantile but also a phylogenetic prototype." (Freud, 1957)

Freud, in stating that the origin of God derives from "the longing for the father" relationship, states that the dogmas of monotheistic religions unconsciously condone this collective psychology in three ways. "Theistic religions state they deserved to be believed 1) because our ancestors already believed them 2) because we possess proofs that have been handed down from antiquity 3) it is forbidden to raise the question of their authenticity at all." (Freud, 1957)

'Christianity', basing itself on rules such as these, appears at the outset to be a masochistic submission of the individual to an all supreme and powerful God. Illustrating this point is this quotation from Calvinist theology, "For I do not call it humility, if you suppose that we have anything left... We cannot think of ourselves as we ought to think without utterly despising everything that may be supposed an excellence in us. This humility is unfeigned

submission of a mind overwhelmed with a weighty sense of its own misery and poverty." (Fromm, 1968)

Freud's greatest grudge against the advocates of theistic religions was their "early application of religious influence. The doctrines of religion are unassailable by the time the child's mind awakens. Thus the menace of hell pains closes the mind into any further inquiry into religious doctrine." (Freud, 1957)

To briefly summarize then, Freud believed that man's relationship to the transcendental God is analagous to the child-parent relationship and he says, "Man being confronted with dangerous and uncontrollable forces within and outside of himself, the child, as it were, remembers and regresses to an experience he had as a child when he felt protected by a father whom he thought to be of superior wisdom and strength and whose love and protection he could win by obeying his commands and avoiding transgressions of his prohibitions." (Freud, 1957).

Thus, a Freudian analysis suggests that the dogmas of theistic religions are not the residue of experience or the final result of reflection but, as Freud states, "they are illusions, fulfillments of the oldest, strongest and most insistent wishes



of mankind; the secret of their strength is the strength of these wishes." (Freud, 1957.) It is my belief that organized religion, in basing dogma on the infantile prototype will have deleterious results for not only the individual but also for religion itself.

Here is what Jean Piaget says about the thought of primitive childhood. "A child will elude a difficult question by means of an improvised myth to which he will give momentary credence, so from a moral point of view, a difficult question will give rise to a pseudo-lie. This involves merely an application of primitive child thought which is always directed towards its own satisfaction rather than to objective truth. As long as the child remains egocentric, truth, as such, will fail to interest him and he will see no harm in transposing the facts in accordance with his desires." (Piaget, 1965).

The purpose of the present research is to determine just what the harm is "in transposing the facts in accordance with one's desires." Behaviourally, a religion should aid man in relating to his environment by unifying the social group. The question posed then is, how well does religion perform its function?

Accepting the Freudian theory, that the man-God relationship is analagous to the child-parent relationship, the weaknesses of contemporary religion become quite obvious.

Eric Erickson in Childhood and Society states that, "the absence of focused attention and care, in early childhood promotes the absence of basic trust in the individual. The frustration of this innate psychological need lays the groundwork for infantile schizophrenia." (Erickson, 1963) If we can assume however, that there are gradations of "basic mistrust" we would not see the bizarre forms of schizophrenia, but rather a suspicious attitude on the part of the child towards his parents which would generalize to the omnipresent God in later life. Thus, a child who has had an extremely thwarted and frustrating life with a father who only succeeded in making the forces of nature more intolerable could be expected to disregard religion as he grows older and even vociferously attack it. Religion, in such a state of circumstances would prove dysfunctional for the individual and would be self-defeating in that it makes it self dependent on the amount of love present in the nuclear family.

Another salient defect of religion's "wish-fulfillment" mechanism is the indoctrination of the individual. Of those who do

become members of "the fold" so to speak, can be observed all the symptoms of that widespread cultural sickness known as "narrow-mindedness". This proves to be, in the end result, one of the most divisive factors in the workings of religion.

We have, thus far, isolated two flaws in the religious organization which render it, as a unifying force, completely impotent. Again, assuming that contemporary Judaeo-Christian religions are of a filial origin, we might do well to look at man and his relationship with God in terms of what Piaget has discovered in children and parent interaction. "Moral realism," according to Piaget, "possesses three features 1) any act that shows obedience to a rule is good. 2) Moral realism in a child demands that the letter rather than the spirit of the law shall be observed. 3) The preceding two rules induces an objective conception of responsibility." (Piaget, 1965). If the analogy holds true then, we could possibly conclude that one of religion's worst imperfections lies in the fact that actions are evaluated in terms of material consequences and independently of motives. i. e. if you commit such and such a sin, you have lost the love of God. In essence then, it leads to a childish preoccupation with one's own soul and a

lack of "care" for our fellow-man.

Having discussed what Freud believes to be at the heart of man's search for God i.e. the infantile prototype I have pinpointed three ways in which this childish fixation contributes to the impotence of religion as a unifying force. To avoid relying on mere plausibility for support, however, I have decided to do a statistical correlational analysis on a sample of persons to determine whether Freud's wish-fulfillment mechanism is at work in the recruitment of organized religion. In effect, I am attempting to ascertain if there is a relationship between parental attitudes and theistic attitudes.

## METHOD

### Hypothesis

Utilizing Freud's belief that the genesis of God in man, is analagous to the parent-child relationship, the specific correlation to be studied in this experiment will be the measure of agreement between one's parental attitude and the theistic attitude, be they positive or negative.

### Subjects

All subjects were students of Saint Mary's University and the majority completed the attitude scale in a psychology class. The fifty persons needed to complete the sample were chosen at random.

52% of sample was made up of Catholics

36% was Protestant

12% indicated no religion or agnosticism

58% was male, 42% female (total - 50)

### Procedure

An attitude scale was devised consisting of twenty-eight questions, seven of which indicated positive parental attitudes,

seven negative parental attitudes, seven positive theistic attitudes and seven negative theistic attitudes. Categorically then, a person could fall into one of four groups. These are:

Positive parental - positive God  
Positive parental - negative God  
Negative parental - negative God  
Negative parental - positive God

Directions were on the scale and subjects were asked to make their judgements on the basis of what each statement meant to them, by circling either strongly agree, agree, indifferent, disagree or strongly disagree. Each individual's score was calculated by subtracting the negative responses from the positives, thus, if a person had a high negative score he would receive a negative score.

The coefficient of correlation was calculated by using the Pearson's method. Level of significance was determined by administration of the t test. Separate correlation coefficients were calculated on first, the study taken as a whole, and separate r's were calculated for both Catholic and Protestant subjects, since these may be relevant to our study.

Due to the "a priori" judging of the attitude scale questions, I did not attempt to analyze any other aspects of the quantitative data. Considering the ambiguities, vagueness, and variations in

individuals it would not have been justified to make any definitive statements about the results. It may be sufficient to say that possibly the only thing the scale did do, was to suggest what a specific individual's attitude was towards his parents and the conception of God. The wide variations in raw scores are indicative of this aspect.

### Results

The first Pearson's  $r$  calculated on all the raw data shows a significant  $r$  of .49 at the 1% level. Thus it appears that the individual's attitude towards his father closely correlates with that same individual's conception of a supernatural deity.

The correlation analysis of strictly Catholic subjects was the highest, being .61. This  $r$  has added interest to this study since Catholics are possibly a bit more concerned with 'the rules and regulations', of their religion. They are also more guilty of what Freud terms "the early educative influence".

Upon close scrutiny of the Catholic data, we discover a significant finding. Four of the Catholic subjects indicated a negative attitude towards their family, yet expressed a positive attitude towards God. Indeed, these four Catholics were the only subjects in the whole study who fell into this category.

Stark and Glock suggest that religious commitment may result from the individual's failure to find satisfaction and reward from his participation in the larger society. (Stark, 1968)

This concept of relative deprivation might lead one to refer himself to an omnipresent God, however, conversely, a person who feels relatively deprived may adopt an indifferent or even hostile attitude towards the sentient God, who appears to be an outside cause for his relative deprivation. The small percentage of persons who fell in this category suggests that the latter is more true than the former and it is more in keeping with the Freudian hypothesis. As was stated previously, the four persons who fell into this category were all Catholics. We can possibly conclude as did Greely, that the impact of Catholic education can be significantly observed in adult behaviour irrespective of how deprived the individual is. (Greely, 1966)

Comparatively speaking, the correlation for strictly Protestant subjects, of which there were eighteen, came out to .44 which was significant, yet much lower than the Catholic subjects. This could possibly be due to the differences in numbers of subjects for each, however it was not unexpected that the Catholics received a higher correlation.



An analysis of the data places the subjects of this study in each of four categories. The percentage of persons is as follows.

+parent+God	-parent-God	+parent-God	-parent+God
50%	24%	18%	8%

Thus we see that 74% of this study showed a relationship between parental attitudes and God attitudes, the majority of persons showing positive attitudes toward both. The runner-up, however, were the individuals who showed negative attitudes toward both, again in keeping with Freud's hypothesis.

The third category which was high in percentage of persons were those who expressed a positive parental attitude and a negative God attitude, this category being 18% of the subjects. This of course is exactly contrary to what I am attempting to show and it suggests the effect of some extraneous variable. These are possibly the persons who have been most influenced by the changing values of our rapidly accelerating society.

The last group are what Stark and Glock term the "poor in spirit", who because of their relative deprivation find comfort in the omnipresent God. Again, on the basis of Freud's hypothesis

one would expect these persons to be in the negative God-negative parent category. This analysis reveals that the percentage of persons who indicated negative parent-positive God attitudes is very small.

## DISCUSSION

On the basis of my findings, we cannot rule out the possibility of the parent-child relationship being a significant factor in the individual's conception of a supernatural Deity. We might even go out on the limb and state as did Freud, that the longing for the father is identical with man's need for God. "The child's defensive reaction to his helplessness gives the characteristic features to the adult's reaction to his own state of helplessness, i.e. the formation of religion". (Freud, 1957)

Since my study suggests that this "wish-fulfillment" mechanism is an inherent quality of religious teaching, religion is therefore subject to the three weaknesses already stated theoretically in the introduction, these are:

- 1) It provides no emotional aid for an individual from an

unstable family relationship and is self-defeating in that it makes itself dependent on the amount of love present in the nuclear family, i.e. the individuals falling in the negative parent - negative God category.

2) The "early educative influence" closes the mind to further inquiry at the expense of intellectual freedom.

3) Motives are a consideration of material consequences - going to hell, purgatory etc. The emphasis on an otherworldly orientation amounts to a tacit endorsement of a "survival of the fittest" philosophy.

Piaget suggests a way in which a child can better understand the spirit of the law and thus become a better person. His formula becomes very relevant when applied to the man-God relationship. "Subjective responsibility or the consideration of intentions requires religions not to impose on man any duties," properly so-called and placing mutual sympathy above everything else. It is when man is accustomed to act from the point of view of those around him, when he tries to please rather than to obey, that he will judge in terms of intentions". (Piaget, 1965)

It is my belief that an inventory of modern Christian religion reveals debits. These debits may, in a large part be products of an

outmoded theological system. My task was to point out what I feel to be a major pernicious factor in the workings of organizational religion. I am not so naive as to wish to completely eliminate law and order in the church, rather laws should be completely restructured so that man might find hope in religion. The church, as an institution, has a great potential for instituting social reforms and clarifying goals. Unfortunately, it has remained static and inflexible in an age of dynamic change.

The underlying theme of this paper is the conviction that the problem of religion is not the problem of God, but the problem of man. I do not pretend that this is the only variable that is injurious to the progress of religion however, I do feel that it is a factor, and if we have named only one factor, then we have made some headway in furthering the cause of religion. Fromm best expresses the essence of this paper, when he says, "We must unite in firm negation of idolatry and find perhaps more of a common faith in this negation than in any affirmative statements about God. Certainly we shall find more of humility and of brotherly love". (Fromm, 1968)

ATTITUDE SCALE

Sex \_\_\_\_\_

Age \_\_\_\_\_

Religion \_\_\_\_\_ Occupation of father \_\_\_\_\_ of mother \_\_\_\_\_

In taking this test, please make your judgements on the basis of what each statement means to you, by circling either strongly agree, agree, indifferent, disagree or strongly disagree.

1. My father is the head of our family.

SA    A    ?    D    SD

2. I believe in God as a heavenly father, who watches over me and to whom I am accountable.

SA    A    ?    D    SD

3. I hope to have a much happier family, than did my parents.

SA    A    ?    D    SD

4. The idea of God, is a dogmatic conceptualization of an unscientific era.

SA    A    ?    D    SD

5. My parents have had a profound, positive effect on my attitude towards life.

SA    A    ?    D    SD

6. God responds to man's prayers.

SA    A    ?    D    SD

7. My father would not be considered the strong link in our family chain.

SA    A    ?    D    SD

8. To maintain that there is a "God", is to labor under an illusion that in this day and age has become completely unworkable.  
SA    A    ?    D    SD
9. My family life could be rated as more than averagely happy.  
SA    A    ?    D    SD
10. I think of the church as a place where I can hear God's word for me.  
SA    A    ?    D    SD
11. Utilizing the mistakes of my parents, as a lesson to me, I hope to have a much happier family life aimed in a more positive direction.  
SA    A    ?    D    SD
12. Science proves that Christ's resurrection was impossible, therefore many parents have been perpetrating a useless myth.  
SA    A    ?    D    SD
13. I guide my conduct according to the standards set by my parents.  
SA    A    ?    D    SD
14. If a person receives a succession of "blows" in life, all he needs is basic trust in God, and one can be happy.  
SA    A    ?    D    SD
15. My family having had a somewhat pessimistic attitude towards life in general, leads me to believe that the "family way of life" should be eliminated, since many parents are temperamental and insufficiently motivated to bring up their own children.  
SA    A    ?    D    SD
16. We do not need God, since the individual is master of his own fate.  
SA    A    ?    D    SD
17. My family has had its ups and downs yet my parents always remained optimistic and happy.  
SA    A    ?    D    SD

18. I know that I need God's continual love and care.  
SA A ? D SD
19. I consider my father somewhat of a hypocrite, since he talks alot about God, yet his outward reactions to life suggest that he does not believe a word he's saying.  
SA A ? D SD
20. If there is a God, He must be ignoring mankind.  
SA A ? D SD
21. Stemming from the extremely satisfactory conditions in which I was raised, I feel well prepared to lead a full and happy life.  
SA A ? D SD
22. Since God gives you the week, then it is only right that you give Him an hour on Sunday morning.  
SA A ? D SD
23. My family life has left much to be desired.  
SA A ? D SD
24. The idea of having a God, that will help us out in times of difficulty, is strictly for people who haven't the stamina to face up to the trials and tribulations of life.  
SA A ? D SD
25. My family has impressed upon me a positive attitude towards life, in the fear and love of God, therefore it is important for my child to secure training in religion.  
SA A ? D SD
26. God is much like a heavenly father.  
SA A ? D SD
27. The negative things that have happened to my family throughout life, have enabled me to face reality.  
SA A ? D SD
28. The idea of God as a supernatural deity is merely an illusion.  
SA A ? D SD

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THE EFFECT OF ALTERNATE EXITS ON HUMAN MAZE LEARNING  
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This experiment is a subsequent study to the work of Tolman (1948) and its purpose is to study the effect of alternate exits on human maze learning in relation with the Cognitive Map Theory versus the Stimulus Response Connection Theory of maze learning. The experiment consists of having subjects run two mazes, one with a single exit and the other with several exits, to a certain criterion of learning. The results indicate that alternate exits inhibit maze learning and that the Stimulus Response Connection Theory of maze learning best explains the maze learning behavior.

The effect of alternate maze learning is a subject about which there is little information available. There have been experiments done and theory evolved by E. C. Tolman (Tolman, 1948) that do have some relation to the present experiment and the present experiment could be considered to be an extension of the work done by Tolman.

Tolman suggests that there are two basic theories concerning maze learning behavior of rats and that these theories are also applicable to maze learning behavior of humans. The first of these theories holds that maze behavior is a simple matter of stimulus response connections. That is, the subjects go through the maze responding to the stimuli of the senses, the viscera, and the skeletal muscles. These external and internal stimuli evoke behavior of turning, retracing etc. Tolman refers to this theory as comparing the central nervous system of the subject to a telephone switchboard. According to this theory:

Learning consists in the respective strengthening and weakening of various of these connections; those connections which result in the animals going down the true path become relatively more open to the passage of nervous impulses, whereas those which lead him into the blinds become relatively less open. (Tolman, 1948).

Tolman does not agree with this theory and expresses another which I shall term the Cognitive Map theory.

According to this theory the central nervous system is more like a map control room. It holds that there is much more taking place than just forming stimulus response connections; rather there is taking place the formation of a type of conceptual map of the layout of the maze. Tolman points out that the map starts out with

wide paths that become more specific and narrower as the trials progress.

The present experiment is designed to test these theories with humans as Tolman limited his experiment to rats. According to this design when a person is confronted with a maze that had several exits, learning of the maze will be inhibited due to the confusion caused when more than one set of responses are reinforced.

If the Stimulus Response Connection Theory holds it could be assumed that this reinforcement of several sets of responses would lead to the confusion of the sets and thus to the inhibition of learning of the maze.

The Cognitive Map theory would lead one to expect that once the map is formed it would lead to learning of the several exit maze as quickly as a single exit maze. Even though the cognitive map is thought to be broad in the early trials it would be expected that any confusion caused by the acquisition of more than one map would be less than the confusion caused by the acquisition of a large number of single stimulus response connections. As the cognitive map becomes more specific with each trial it would be expected that any confusion would occur early in the trials and be quickly eliminated. Any difference between the several exit maze

and the single exit maze would not be very great.

## METHOD

### Subjects

There were two groups of subjects, the criterion group of six subjects and the experimental group, also of six subjects. All subjects were undergraduate students from Saint Mary's University and were chosen randomly from the university population.

### Apparatus

The apparatus consisted of two different mazes designed by the experimenter, one having several exits, the other only one exit, which were printed in bulk on colored paper, pencils, and a Kodak timer. (See figures 1 and 2).

### Procedure

1. The criterion group. Each subject was presented with the two mazes, one at a time, and in alternating order. Each subject (S) was given the following instructions by the experimenter (E):

Your task is to trace a course with a pencil through the maze starting at any opening on the lower plane and ending at any opening on the upper plane. You are to go as fast as possible but also try to make as few

mistakes as possible. You are not to cross any lines or lift your pencil off the paper. Are there any questions? Place your pencil on the paper.

The maze was then presented and the time required to get through the maze was taken and recorded. After a minute rest period the second maze was presented.

2. The experimental group. The instructions given to each S in this group were as follows:

The purpose of this experiment is not to test intelligence. Your task is to trace a course with a pencil through the maze starting at any opening on the lower plane and ending at any opening on the upper plane. You are to go as fast as possible. You are not to cross any lines or to lift your pencil off the paper. When you have completed two successive correct trials in less than 8 seconds each, your test will cease. Are there any questions? Place your pencil on the paper.

Each S was then presented with a copy of a maze. The time required to get through it was taken and recorded. After a minute rest period the S was given another copy of the same maze and this was repeated until the criterion in the instruction was reached. After a brief non-testing period the whole procedure was repeated with the other maze. The order of presentation of the mazes was alternated from one S to the next.

## RESULTS AND DISCUSSION

Table 1 indicates that the two mazes are of equal difficulty. The t test (Table 2) indicates that there is a significant difference between the number of trials necessary to learn the two mazes. This t score indicates that the significance is better than 5 percent level of probability. This in turn indicates that several exits to a maze inhibit learning as compared to a single exit control maze.

The results of Table 3, however, show that in the majority of cases only one path was followed through the maze with several exits, maze B. It might be said that this indicates that the S behavior could be best explained by the Cognitive Map Theory. It is important to note, however, that unlike the rats the human Ss tend to follow the maze with their eyes rather than with the pencil suggesting that the other routes may or may not have been followed by the eyes. The fact remains that the difference is very significant. This suggests that the eyes also may accumulate extra stimulus-response connections that were not followed with the pencil. A cognitive map followed by the eyes as opposed to a cognitive map followed

by a pencil would soon lose its specificity as the one followed by the pencil would become specific and so there would not be a very great number of trials necessary to establish only one. This would lead to little difference between the single exit maze results and those of the several exit maze.

Therefore, it can be concluded from this experiment that several exits to a maze inhibit maze learning and that this inhibition can be best explained by the stimulus-response connection theory where the stimulus response connections are acquired by the S following with his eyes rather than with the pencil.

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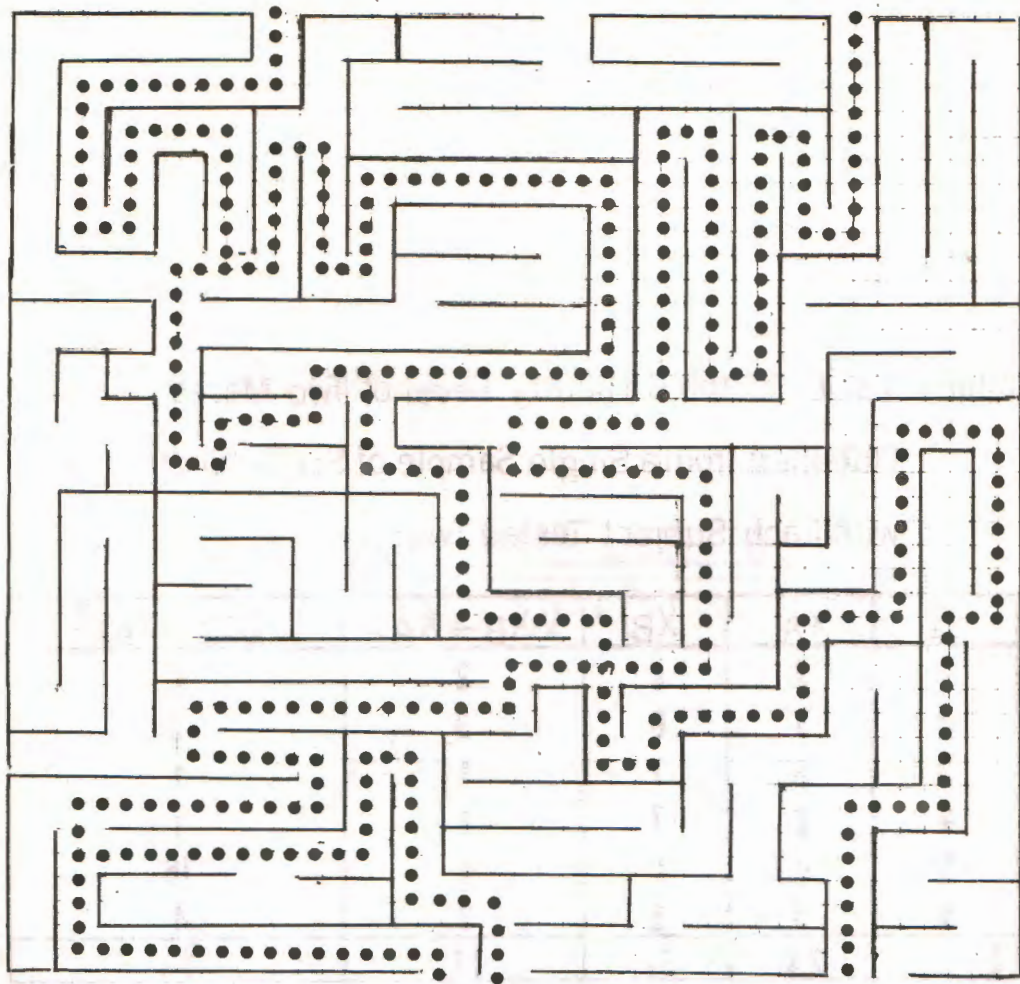


Figure 2.  
Maze B

Table 1. Values of the Difficulty Level of Two Mazes  
 Obtained from a Single Sample of Six Subjects  
 with Each Subject Tested Twice.

<u>S</u>	$X_A$	$X_B$	$X_B - X_A$	$(X_B - X_A)^2$
1	2	4	2	4
2	3	6	3	9
3	6	7	1	1
4	6	7	1	1
5	4	8	4	16
6	3	5	2	4
$\Sigma$	24	37	13	35

Table 2. Calculation of the Value of t.

$$t(n-1) = \frac{(\bar{X}_B - \bar{X}_A) \cdot \sqrt{n(n-1)}}{\sqrt{\frac{\sum (\bar{X}_B - \bar{X}_A)^2 \cdot [\sum (\bar{X}_B - \bar{X}_A)]^2}{n}}}$$

$$t(6-1) = \frac{(37 - 24) \cdot \sqrt{6(6-1)}}{\sqrt{\frac{35}{6} \cdot (13)^2}}$$

$$t_5 = 27.29 \quad (\text{one tailed})$$

Table 3. Number of Routes Taken by Each Subject  
Until Criterion on Maze B.

Subject	1	2	3	4	5	6
Number of Routes on Maze B	1	3	2	1	1	1

# A COMPARISON OF BLIND AND SIGHTED SUBJECTS ON A VERBAL RECALL TASK

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This study tested the hypothesis that blind subjects will perform at a higher level than sighted subjects when the task is the recall of meaningful material. Students ranging from 11 to 14 years of age acted as subjects in the study. The results were tested for a significant difference. The hypothesis was not supported rather the opposite was found to be true. That is blind subjects did not perform at a higher level than sighted subjects on a recall task of meaningful material.

An experiment, dealing with learning and remembering by Hebb (1949), examined the processes that underlie a subject's reproduction of a story. It looked at the properties which hinder or facilitate the recovery of a story and it considered if there existed systematic differences in the ways that different subjects retain and reproduce a story. This study plus the theory of some psychologists, that studies utilizing meaningful material as opposed to nonsense syllables, have more relevant findings, led to the present study.

Extensive research resulted in the knowledge that very little, if any experimentation has been carried out in the area of recall in blind people. A few studies with blind children have shown that those blind early in life tended to do less well on reasoning tasks than sighted children. (Rubin 1963).

A study run by Dr. S. Blau (1961), supported the hypothesis that sighted subjects are more accurate judges of feelings and that blind and sighted subjects show no difference in abilities to identify sounds accurately. Blau observed that "blind subjects displayed a significantly greater tendency to note affect in spoken dialogue heard via tape recording, as well as a greater tendency to be more specific than sighted subjects in their reporting of tape-recorded sounds." But in this study, correctness was not a criterion in the measures, so the results could not be interpreted as indicating greater accuracy among blind subjects in perceiving affect and reporting specific detail.

The present study investigates the ability of blind persons to recall meaningful material. It tests accuracy and the ability of blind subjects to report specific detail. It is hypothesized that the ability of a blind subject to recall meaningful

material will exceed the ability of a sighted subject to recall the same material. It is further hypothesized that the ability to see, interferes with concentration and the retention and recall processes.

## METHOD

### Subjects

Eight boys and girls, ranging from ages 11 to 14 and all attending grade 6, served as subjects (Ss) in this experiment.

The total of eight students was made up of four blind Ss and four sighted Ss. In each group of four there were two boys and two girls.

All Ss came from the same socio-economic background, that being the lower middle to middle class. All Ss were free of any emotional or physical handicaps but for the blind group, whose only handicap was the inability to see. All blind Ss were able to tell day from night which was the extent of their sight.

The sighted Ss all attended a local public school. The blind Ss, during the school months of the year, lived at the local School for the Blind.



The boys in the blind group had at one time, guidance vision but this was considered medically blind. Girls in the blind group had been blind since birth-- 'congenitally blind'.

### Apparatus

The Ss only had to listen, so no apparatus was needed for them. The experimenter (E), had a story and data sheets for each S.

### Procedure

At the beginning of each session, each S was seated in a chair opposite the E, and was given the following instructions:

'I am going to read a story to you and I want you to listen to it carefully because afterward I will ask you to repeat the story for me.'

E then read the story, taking approximately ten minutes.

At the completion of the story, the S was questioned about his personal likes and dislikes, to prevent rehearsal between reading and testing periods. Only brief answers were allowed so as to fill a five minute interval.

Each S was then asked to retell the story from beginning to end including details. The twenty-three 'questions on the story' were used to 'prompt' responses from the S. Throughout the testing

period, responding was scored under three categories.

1. Succeed: spontaneous information.
2. Prompt: information given as the result of a prompt question.
3. Fail: information which S could not remember.

The twenty-three questions acted as the guideline for the amount of information required to recall the complete story.

Each S was run separately and each session lasted thirty minutes.

#### DISCUSSION

The analysis of variance calculated and tabulated in Table 3, resulted in there being no significant difference, above the chance level when succeed and prompt categories are combined and compared for the blind and sighted groups.

Table 4 illustrates the results of calculations run when the succeed-only scores were submitted to a variance test. The resulting between groups, F-score of 4.40 (df-1, 6; p less than .05) was established. Therefore the sighted group reached a significantly higher level of spontaneous responding than did the blind group at the .05 level.

The results of the analysis of variance are graphically illustrated in Figures 1 and 2. Figure 1 corresponds to the data

for the first three categories of Table 2. It is clearly seen that the sighted group had many more succeed responses for their recall task than did the blind group. Further, the sighted group relied on fewer prompt questions for the recall task and they recalled details of the story to a lesser extent than did the blind group.

Figure 2 draws its data from Table 2, the last two categories. It can be seen that when succeed and prompt categories are combined and compared, the sighted group continues to hold a higher level of responding. However, as the analysis of variance determined, this difference does not exist in favor of either group, for the difference is not significant.

The hypothesis presented at the beginning of this study was not supported. The ability of the blind subject to recall meaningful material did not exceed the ability of the sighted subject to recall the same material. Sight does not appear to impair concentration or the retention-recall processes.

Results may have been different if the method of story presentation had been via a tape recorder rather than by the experimenter reading the story to each S herself. Voice inflection may be an important variable.

## RESULTS

Table 1 illustrates the total number of responses made by each subject over the three categories of succeed, prompt and fail.

Table 1. Tabulation of Responses Made by all Ss Over Three Categories

Condition	Ss	Succeed	Prompt	Fail
Blind	I	13	9	1
	II	9	8	6
	III	2	10	11
	IV	12	5	5
Sighted	I	17	4	2
	II	17	3	3
	III	10	6	7
	IV	18	4	1

Table 2 results from calculations run on the data in Table 1. The mean number of responses are shown for all the subjects in both groups over four categories. The categories in this table are; succeed, prompt, fail and S+P which is the combination of succeed and prompt responses over both groups.

Table 2. Tabulation of the Mean Number of Responses Over Both Groups

Condition	Succeed (S)	Prompt (P)	Fail (F)	S+P
Blind	9	8	5.75	8
Sighted	15.5	4.25	3.25	9.87

Tables 3 and 4 show analysis of variance resulting from extensive calculations. Total sum of squares ( $\Sigma x^2$ ) was computed using the formula: ( $\Sigma x^2 = \Sigma x^2 - \frac{(\Sigma x)^2}{N}$ ). Degrees of freedom were calculated from ( $df = N-1$ ). The total sum of squares equals the within sum of squares plus the between sum of squares. The analysis of variance table was evaluated by making the following F-test:

$$F = \frac{\text{mean square for between groups}}{\text{mean square for within groups}}$$

To interpret the resulting F ratio, an F-table must be consulted. (R. E. Walpole, 1968).

Table 3. Analysis of Variance with Succeed and Prompt Categories Combined Over Both Groups

Succeed and Prompt Scores Combined					
Variation Source	Sum of Squares (SS)	Degrees of Freedom (df)	Means Squared (Ms)	F-test (F)	Probability (p)
Total Sum of Squares	85.875	7			
Group Sum of Squares	15.125	1	15.125	1.28	Not better than chance
Error	70.75	6	11.79		

Table 3 is the analysis of variance for both succeed and prompt categories, combined. The analysis determines whether a significant difference in responding occurred when the blind group is compared to the sighted group.

Table 4 is the analysis of variance for succeed scores only. It determines whether a significant difference occurred when the blind group is compared to the sighted group for one category.

Table 4. Analysis of Variance, Looking at the Succeed Category Only Over Both Groups

Succeed Scores Only					
Variation Source	SS	df	Ms	F	p
Total SS	199.5	7			
Group SS	84.5	1	84.5	4.40	< .05
Error	115	6	19.16		

Figure 1 graphically illustrates the mean number of responses as a function of the three categories for both blind and sighted groups. Table 2 provided data for this graph.

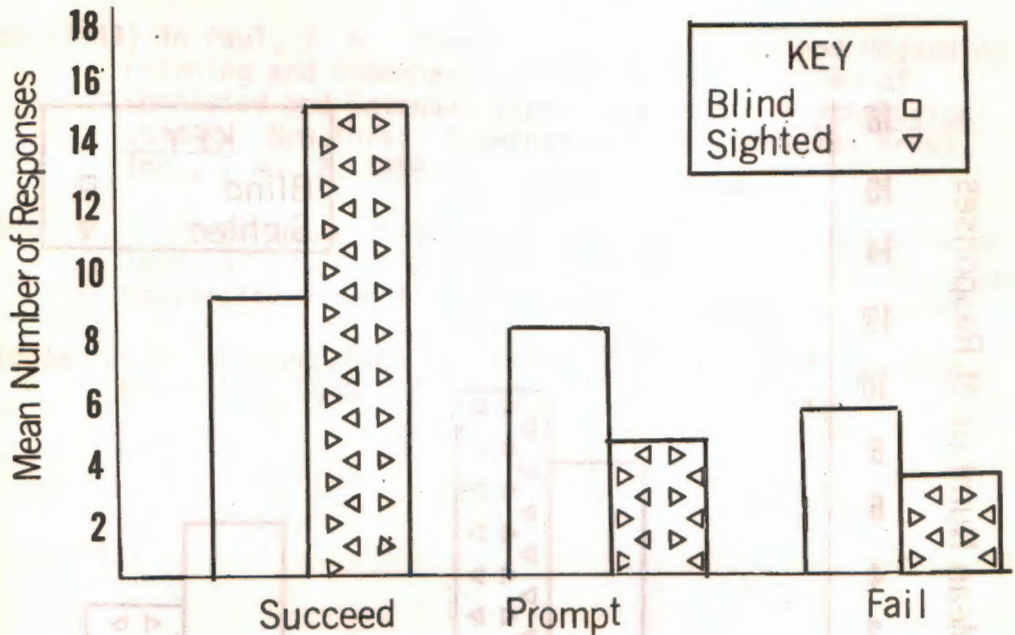


Figure 1. The Mean Number of Responses as a Function of the Three Categories Over Both Groups.



Figure 2 graphically illustrates the mean number of responses as a function of two categories (succeed and prompt) combined, as compared with the fail category over both blind and sighted groups. Table 2 provided data for this graph.

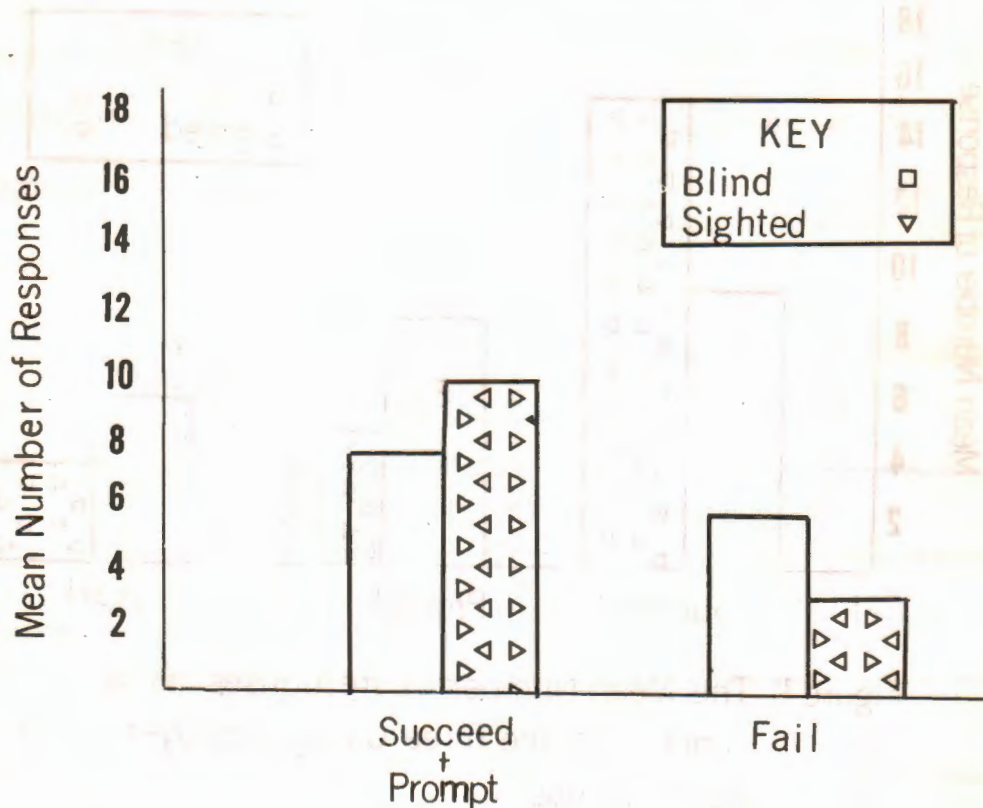


Figure 2. The Mean Number of Responses as a Function of Two Categories, Combined, Compared With a Third Category Over Both Groups

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Published by the Department of Psychology, Saint Mary's University.

Printed at Saint Mary's University Printing Department.