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# Birth order and social personality characteristics in college upperclassmen

James Stevens Robertson

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BIRTH ORDER AND SOCIAL  
PERSONALITY CHARACTERISTICS  
IN COLLEGE UPPERCLASSMEN

JAMES STEVENS ROBERTSON

A THESIS  
SUBMITTED TO THE GRADUATE FACULTY  
OF THE UNIVERSITY OF RICHMOND  
IN CANDIDACY  
FOR THE DEGREE OF  
MASTER OF ARTS IN PSYCHOLOGY

JUNE, 1969

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Birth Order and Social  
Personality Characteristics  
in College Upperclassmen

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Birth Order and Social  
Personality Characteristics  
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James S. Robertson

Over the past few decades, many research articles have accumulated linking birth order with different psychological variables. Much of the research was inspired by an interest developed in Alfred Adler's theory of birth order position. Historically, Adler (1931) considered birth order in the family an important psychological variable. He was strongly interested in the social determinants of personality and observed that the personalities of the oldest, middle, and youngest child in a family were likely to be quite different. These differences were attributed to the distinctive experiences that each child has as a member of a social group.

Hall and Lindzey (1962) considered the distinct personality differences of these three birth order positions as Adler postulated them. The first-born or oldest child is given a good deal of attention until the



second child is born. At this point, he is suddenly "dethroned" from his favored position and must share parental attention with the newly born infant. As the first-born child grows older, he generally exercises the power of authority and usually exaggerates the importance of rules and restrictions. Altus (1965a) has stated that Adler once characterized the first-born as a "power-hungry conservative." Adler also considered the first-born to be socially maladjusted.

For Adler, the second or middle child is characterized as being ambitious. He is constantly trying to surpass his older sibling. He also tends to be rebellious and envious but, by and large, he is better adjusted than either his older or younger sibling.

The youngest child is the spoiled child. Next to the oldest child, he is most likely to become a problem child and a neurotic maladjusted adult.

In accord with Adler's theory, Warren (1966) suggested the later-born tends toward more successful adjustment. In explanation, he stated the later-born experiences more competition for parental attention and has older siblings as well as adults for models, whereas, the first-born has

only adult models. The greater amount of competition for the later-born results in a more successful manner of handling stressful situations.

Adler's theory of birth order position has been tested in a number of studies and generally, the findings have not lent support to it (Hall & Lindzey, 1962). However, the purpose of stating Adler's theory in the present text was his concern over birth order as a psychological determinant of personality and the historical significance of this position. His theory has given impetus to the study of birth order in the family.

The majority of birth order studies have, in the past, compared the first-born to all later-born ss. The assumption underlying this design is that birth order effects have their origins in family interaction. For instance, the differences in family environment for later-born versus first-born children are generally acknowledged.

Warren (1966) recently stated that the attitude of the mother toward the child tends to be more relaxed and less anxious with later-born children than with first-born children. Hurlock (1964) has also reported that the first-born is the victim of overprotection, the relative

inexperience of the parent, and the economic and financial anxiety of the parent. The parent-child relationship with later-born children becomes warmer, more relaxed, and less anxious.

Past birth order studies have investigated the connection between birth order and three main psychological and sociological correlates. These are: intellectual and academic traits, affiliative behavior, and conformity-dependency.

Fischer, Wells and Cohen (1968) reported that in 1925, L. M. Terman found that first-born compared to later-born individuals were overrepresented among the intellectually gifted. Terman found that 56.1% of his gifted sample was among the first-born group. Koch (1955) found in a sample of six year old children that the first-born exhibited better articulation in speech. In the same article, he stated that the first-born Ss were more concerned about their status. In another study, Koch (1956) stated that his first-born sample was more fluent in verbal usage. Sampson (1962) found a significant tendency for first-born persons to have a higher need for achievement than later-born persons. Altus (1965b) reported that first-born freshmen college students had higher scores on

the Verbal Aptitude test of the College Entrance Examination Board than did later-born students. Altus suggested that the first-born in college may be verbally more able than the later-born. Fischer et al. (1968) found that in a sample of 496 upperclassmen representing two colleges and two universities first-born women expressed greater interest in a teaching career than did later-born women. In the same study, first-born and later-born male Ss showed about the same degree of interest.

Warren (1966) reported that the overrepresentation of the first-born in college populations is the stablest, most often replicated finding on birth order. Schachter (1963), in a review article, summarized data on students from the University of Minnesota, Columbia College, a national sample of college students, and a large sample of medical school students. In each sample, the first-born student was overrepresented. Altus (1965a) found that among the student population from the University of California, Santa Barbara, over 60% of all entering students were first-born.

In The Psychology of Affiliation, Schachter (1959) emphasized the group orientation of the first-born when

under anxiety-producing conditions. He suggested that first-born individuals are more vulnerable to stress than later-born individuals and that under stressful conditions, the first-born tends to seek the company of others while the later-born tends to withdraw from social contact. Sampson (1962) found higher need for affiliation among first-born undergraduates of both sexes than among later-born undergraduates. Staples and Walters (1961), studying susceptibility to group pressure as a function of birth order, induced stress in their Ss by convincing them they were likely to receive an electric shock during the course of an autokinetic experiment. First-born Ss apprehensive about being shocked, perceived greater movement in the autokinetic situation and perceived it more quickly than did later-born Ss.

Some time ago, Sears (1950) described tentative evidence that first-born children are more dependent than later-born children. Mothers, in one study, described their first-born children as more dependent than their later-born children. Teachers, in another study, rated first-born children as more dependent than later-born children. Schachter (1964) found in the natural setting

of college fraternities and sororities that first-born, more than later-born, students preferred to associate with popular peers. Thus, first-born college students chose their associates more in conformity with normative choices than did later-born college students. The autokinetic study by Staples and Walters (1961), previously cited, also indicated that first-born individuals were more responsive to the suggestions of others than were later-born individuals. Moran (1967) found that within a sample of 349 introductory psychology students the first-born Ss were significantly higher in need for approval than were later-born Ss. Need for approval motivation was measured by the Marlowe-Crown Social Desirability Scale (M-C SDS). Smith and Goodchild (1963) found from a sample of 165 firemen that first-born Ss conformed more than did later-born Ss. Carrigan and Julian (1966) recently found that first-born Ss conformed more than later-born Ss within a population of sixth grade elementary students.

The present investigation related birth order to different personality characteristics. These characteristics were measured by the California Psychological Inventory (CPI). The CPI measures social personality traits, which in

past studies have been related to birth order. It was developed in the hope that it would measure some characteristics of personality which have a wide and pervasive application to human behavior and which are related to the favorable and positive aspects of personality rather than to the morbid and pathological (Gough, 1964c). The test is a self-report instrument intended primarily for use with normal adults and adolescents. In a separate article, Gough (1964a) stated that the CPI is a test designed especially for use in educational settings. The function of the profile of scores on this test is to give a summary picture of an individual, viewed from the social interaction standpoint.

The CPI is a multidimensional inventory of normal personality characteristics and contains 18 separate scales grouped into four classes of adjustment and development (Gough, 1964c). Class I describes aspects of social functioning and measures poise, ascendance, and self-assurance. It contains six scales: Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Social Presence (Sp), Self-Acceptance (Sa), and Sense of Well-Being (Wb).

Gough (1964c, pp. 10-11) reported the characteristic descriptions of high and low scores on each of the 18 scales. High scorers on the Do scale are described as aggressive, confident, persistent, planful, verbally fluent, and having potential leadership. Low scorers are described as inhibited, commonplace, unassuming, slow in thought and action, and lacking in confidence.

High scorers on the Cs scale are described as ambitious, active, insightful, ascendent, and effective in communication. Low scorers are described as apathetic, shy, conventional, stereotyped in thinking, and uneasy and awkward in new and unfamiliar social situations.

High scorers on the Sy scale are described as outgoing, enterprising, ingenious, competitive, and original and fluent in thought. Low scorers are described as awkward, conventional, submissive, and suggestible and overly influenced by others' reactions and opinions.

High scorers on the Sp scale are described as clever, imaginative, quick, informal, spontaneous, and having an expressive and ebullient nature. Low scorers are described as moderate, self-restrained, and literal and unoriginal in thinking and judging.



High scorers on the Sa scale are described as intelligent, aggressive, persuasive, verbally fluent, and possessing self-confidence and self-assurance. Low scorers are described as conservative, conventional, self-critical, and passive in action and narrow in interests.

High scorers on the Wb scale are described as enterprising, alert, ambitious, and valuing work and effort for its own sake. Low scorers are described as unambitious, leisurely, conventional, and constricted in thought and action.

Class II concerns emotional and social development and measures socialization, maturity, and responsibility. It contains six scales: Responsibility (Re), Socialization (So), Self-Control (Sc), Tolerance (To), Good Impression (Gi), and Communality (Cm).

High scorers on the Re scale are described as playful, responsible, progressive, capable, and conscientious. Low scorers are described as immature, lazy, awkward, changeable, and under-controlled and impulsive in behavior.

High scorers on the So scale are described as serious, honest, industrious, conscientious, and responsible. Low scorers are described as opinionated, resentful, stubborn,

rebellious, and undependable.

High scorers on the Sc scale are described as calm, patient, practical, self-denying, thoughtful, deliberate, and conscientious. Low scorers are described as impulsive, excitable, irritable, and overemphasizing personal pleasure and self-gain.

High scorers on the To scale are described as tolerant, resourceful, intellectually able, and verbally fluent. Low scorers are described as retiring, passive, overly judgmental in attitude, and disbelieving and distrustful in personal and social outlook.

High scorers on the Gi scale are described as cooperative, enterprising, outgoing, sociable, concerned with making a good impression. Low scorers are described as inhibited, cautious, resentful, and cool and distant in their relationship with others.

High scorers on the Cm scale are described as dependable, tactful, reliable, and conscientious. Low scorers are described as changeable, nervous, restless, deceitful, inattentive, and forgetful.

Class III relates to actual and potential achievement in educational and occupational pursuits and measures

achievement potential and intellectual efficiency. It contains three scales: Achievement via Conformance (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie).

High scorers on the Ac scale are described as capable, cooperative, responsible, and valuing intellectual activity and achievement. Low scorers are described as coarse, stubborn, awkward, opinionated, and disorganized.

High scorers on the Ai scale are described as mature, dominant, foresighted, and having superior intellectual ability and judgment. Low scorers are described as inhibited, anxious, cautious, dissatisfied, dull, and wary.

High scorers on the Ie scale are described as efficient, clear-thinking, capable, intelligent, progressive, thorough, and resourceful. Low scorers are described as easygoing, unambitious, conventional, stereotyped in thinking, and lacking in self-direction and self-discipline.

Class IV, which measures intellectual and interest modes, contains three scales: Psychological-Mindedness (Py), Flexibility (Fx), and Femininity (Fe). High scorers on the Py scale are described as observant, spontaneous,

quick, perceptive, resourceful, verbally fluent, and socially ascendent. Low scorers are described as apathetic, peaceable, serious, cautious, and unassuming.

High scorers on the Fx scale are described as insightful, informal, adventurous, confident, rebellious, idealistic, and assertive. Low scorers are described as deliberate, cautious, guarded, rigid, and formal and pedantic in thought.

High scorers on the Fe scale are described as appreciative, patient, helpful, moderate, sincere, conscientious, and sympathetic. Low scorers are described as outgoing, ambitious, masculine, active, restless, impatient, opportunistic in dealing with others, and blunt and direct in thinking and action.

The adequacy of a testing instrument is largely dependent upon two requirements: reliability and validity. Two reliability studies using the test-retest method are available (Gough, 1964c). In one of these, two high school junior classes ( $N = 226$ ) took the CPI and again one year later as seniors. In the other, 200 male prisoners took the test twice with a lapse of from 7 to 21 days between testings. The correlation in the prisoner

group were as high as those generally found in personality measurement; the coefficients generally ranged from .71 to .87. In the sample of high school students, the coefficients were more modest; coefficients generally ranged from .57 to .77. Gough suggested this to reflect in part the differing rates of maturation among these adolescents during the year between testings. There were two scales which fell rather low in the reliability check: the Cm and Py scales. Both scales contain a relatively low number of items, and because of this shortness, they are susceptible to marked changes in individual standing from fluctuations in only one or two items.

Gough (1964c) has correlated a number of CPI scores with ratings of students made by a staff of psychological assessors. Granting these subjective ratings can be themselves inexact and fallible, Cronbach (1960) has stated that they provide a reasonable criterion to test the statement that persons with certain scores tend to be seen in certain ways. The correlations between CPI scores and the ratings to which they relate ranged from .21 to .48 and are interpreted as being modest.

In additional cross-validation studies reported by

Gough (1964c) using more objective forms of criteria the coefficients were more respectable. In a sample of 419 college students, the To scale correlated  $-.48$  with the California F scale (authoritarian personality). In a sample of 152 adult males, the Gi scale correlated  $.60$  with the Minnesota Multiphasic Personality Inventory K scale. For 220 Kansas State College agriculture freshmen tested upon admission, the Ai scale correlated  $.44$  with first semester grades. In a sample of 70 University of California medical school applicants, the Py scale correlated  $.44$  with the Psychologist key on the Strong Vocational Interest Blank. In a college class of 180 students, the Fx scale correlated  $-.58$  with the California F scale.

There were a few studies in the literature which can be considered relevant in the use of CPI scales with the present study problem. These studies related three areas of behavior to the CPI: academic achievement, need for approval, and conformity-dependency.

Gough (1964a), using a sample of 571 males and 813 females from 14 high schools in 11 states, found three CPI scales (Re, Ie, and Ac) to be most effective in

predicting academic achievement. In this study, Gough correlated CPI scores with cumulative grade point averages. The coefficients ranged from .40 to .48 for the three scales having the highest predictive value. In another study, Gough (1964b) correlated CPI scores with introductory psychology course grades in a sample of male and female college students. He found the Ai scale to be the best predictor of achievement (.36 for males; .35 for females).

Recently Lichtenstein and Bryan (1966) related need for approval to the CPI. Need for approval was measured by the M-C SDS, previously cited by Moran (1967). They considered high need for approval Ss to be presumably concerned about their effects on others and to behave in ways that will assure them of favorable evaluations. In a sample of 108 college males, they found six of the 18 CPI scales to yield significant (.01 level) positive correlations with the M-C SDS. These were Wb, Re, So, Sc, Gi, and Ac. The CPI scales measuring dependability, self-restraint, and conformity were most strongly related to the M-C SDS, particularly Gi and Sc.

Tuddenham (1958) reported a study of the personality correlates of yielding to a distorted norm, using a sample

of college women. Comparing scores on the 18 CPI scales with conformity scores, he found that four scales were related to yielding in the negative direction. These were Cs, Sp, Ai, and Fx. In a similar study by Harper (1964), using a sample of 135 nursing students, two scales (Cs and Ai) had significant (.025 level) negative correlations with conformity scores. The coefficients for both scales were, however, extremely low (Cs,  $-.17$ ; Ai,  $-.19$ ), and therefore were interpreted as evidence for a low or zero relationship between CPI scales and conformity.

The present investigation related different personality characteristics to birth order--first born with siblings and all later-born with siblings. The personality characteristics were measured by the CPI. An empirical hypothesis was constructed for each of the different personality characteristics and a prediction was made about scoring patterns on the CPI. This was done on the basis of relevant research findings and the empirical descriptions of high and low scorers on the scales, given by Gough (1964c).

It is hypothesized that first-born individuals are more (1) dominant and superior in leadership ability;



(2) ascendent and ambitious; (3) outgoing, sociable, and competitive; (4) spontaneous and self-confident in personal and social interaction; (5) self-accepting and independent in thinking and action; and (6) relatively free from self-doubt and disillusionment than later-born individuals. It was predicted that first-born Ss would score higher on the six CPI scales contained in Class I (Do, Cs, Sy, Sp, Sa, and Wb) than later-born Ss for both sexes.

It is hypothesized that first-born individuals are more (1) responsible, conscientious, and dependable; (2) socially mature; (3) self-controlled and lacking in impulsiveness; (4) permissive, accepting, and non-judgemental in social beliefs and attitudes; (5) capable of creating a favorable impression; and (6) honest, conscientious, and capable of showing good judgement than later-born individuals. It was predicted that first-born Ss would score higher on the six CPI scales contained in Class II (Re, So, Sc, To, Gi, and Cm) than later-born Ss for both sexes.

It is hypothesized that first-born individuals are more (1) persistent, industrious, and interested in intellectual activity and intellectual achievement; (2) superior in intellectual ability and judgement; and (3) attained in

intellectual efficiency than later-born individuals. It was predicted that first-born Ss would score higher on the three CPI scales contained in Class III (Ac, Ai, and Ie) than later-born Ss for both sexes.

It is hypothesized that first-born individuals are more (1) interested in, and responsive to, the inner needs, motives, and experiences of others; (2) flexible and adaptable in thinking and social behavior; and (3) feminine in interests than later-born individuals. It was predicted that first-born Ss would score higher on the three CPI scales contained in Class IV (Py, Fx, and Fe) than later-born Ss for both sexes.

## Method

### Variables

The independent variable was birth order. As defined by Warren (1966), birth order is the sequential position of a person among his or her siblings with respect to order of birth. The present investigation compared different personality characteristics of first-born with siblings to all later-born with siblings in each sex group. The sample was made up of 40 first-born and 40 later-born college upperclassmen taking advanced psychology courses. In each of these birth order groups, there was an equal number of male Ss (n=20) and female Ss (n=20). All only born and adopted individuals were excluded from the study.

The dependent variable was a number of personality characteristics. The personality characteristics were measured by the CPI. The CPI was empirically developed by H. G. Gough.

There were a number of population characteristics placed under experimental control. The sample was selected from a college population. The underlying assumption is that college students are within our middle class culture. The

Ss were all caucasians. The sample contained only junior and senior undergraduates. There were 56 juniors (25 males, 31 females) and 24 seniors (15 males, 9 females) in the sample. Ss having 60 to 90 semester hours of college course credit were considered to be juniors; Ss having 90 and above were considered to be seniors. The age range of the Ss was from 20 to 22, considered to be standard for college juniors and seniors. The age disparity between the first-born groups and their next youngest sibling ranged between one to five years ( $M = 3.06$ ). The sex differences between siblings were not considered due to the small N.

### Subjects

The sample of Ss was selected from a total of 286 students taking advanced psychology courses. A brief birth order questionnaire (Figure 1) was administered to these 286 students by the professor in charge. The questionnaire determined if a S was either a first-born with siblings, later-born with siblings, or an only child. The investigator chose the criteria for study selection. Ss were selected for study if they were juniors or seniors, within the standard age for juniors and seniors, and first-born with siblings or later-born with siblings.

Figure 1  
Birth Order Questionnaire

---

Name \_\_\_\_\_ Age \_\_\_\_\_

Class Standing \_\_\_\_\_

Indicate one of the following:

\_\_\_\_\_ First and only born

\_\_\_\_\_ First-born with siblings

\_\_\_\_\_ Later-born with siblings

Age difference between you and the next youngest  
sibling \_\_\_\_\_

---

### Procedure

After a span of two weeks, the selected Ss were notified to participate in an experimental study. Without informing them of the connection between this study and the birth order questionnaire, they were administered the complete CPI. Groups of 20 were tested over a period of one week. It was also explained that if requested the results of each student's CPI scoring pattern would be interpreted to them individually on a later date.

### Design and Statistical Analysis

Ss were divided with respect to birth order and sex. Differences in personality characteristics and the direction of these differences were measured by the 18 CPI scales. On the basis of previous birth order research a number of empirical hypotheses were constructed. Due to the fact that the investigator predicted a difference plus a direction of difference, it was possible to test with a number of one-tailed t tests (Downie & Heath, 1959). The statistical hypothesis being tested for each of the 18 scales was that the first-born group has a mean score equal to or less than that of the later-born group. The alternative hypothesis for each of the 18 scales was that

the first-born group has a mean score higher than that of the later-born group. The region of rejection was set in the right-hand tail of the sampling distribution, as determined by the alternative hypothesis. The level of significance was set at .05. The hypothesis being tested was rejected if the observed mean fell within the region of rejection; otherwise, it was not rejected. Thus, if the hypothesis being tested was not rejected, the evidence indicated that the first-born group had a mean score equal to or less than that of the later-born group. On the other hand, if the hypothesis being tested was rejected, the evidence indicated that the first-born group had a mean score higher than that of the later-born group (Winer, 1962). Such evidence confirms the empirical hypothesis.

It was necessary to analyze birth order differences within the two sex groups separately. There were separate sex norms on the CPI profile sheet, and also the standard scores for each scale differs between sexes. A total of 36 one-tailed  $t$  tests were calculated in analyzing the data. It should be noted that when using this many  $t$  tests on the same sample, some of the power is lost. In other words, there is probability the decision to reject the

hypothesis being tested is a Type I error. The magnitude of such an erroneous decision is equal to the level of significance. The investigator would expect, therefore, 2 significant observed t scores to occur by chance.



## Results

The analysis of data for the male Ss appears in Table 1. A t score of 1.68, when the degrees of freedom are 38, indicates significance at .05; a t score of 2.42, significance at .01. From an inspection of this table it can be noted that the 18 CPI scales are grouped into four areas or classes.

In Class I, which is defined as measuring poise, ascendancy, and self-assurance (Gough, 1964c), the mean scores for the Do, Cs, Sy, and Sp scales were significantly higher in the first-born group. The differences between the mean scores for the Do, Sy, and Sp scales were significant at the .01 level; the difference between the mean scores for the Cs scale was significant at the .05 level. The differences between the mean scores for the Sa and Wb scales were not significant. For the Do, Cs, Sy, and Sp scales, it was possible to reject the hypothesis under test and accept the alternative hypothesis. The significantly higher mean scores in the first-born group on the Do, Cs, Sy, and Sp scales is evidence for supporting the hypothesis that first-born individuals are more (1) dominant and

Table 1  
 Mean Scores, Standard Deviations, and t Tests for Male Ss  
 on the CPI Scales

| Scale     | First-born<br>( <u>n</u> = 20) |           | Later-born<br>( <u>n</u> = 20) |           | <u>t</u> |
|-----------|--------------------------------|-----------|--------------------------------|-----------|----------|
|           | <u>M</u>                       | <u>SD</u> | <u>M</u>                       | <u>SD</u> |          |
| Class I   |                                |           |                                |           |          |
| Do        | 30.28                          | 3.92      | 25.61                          | 5.72      | 3.01**   |
| Cs        | 21.65                          | 2.91      | 20.03                          | 3.11      | 1.68*    |
| Sy        | 27.07                          | 3.60      | 22.53                          | 6.57      | 2.71**   |
| Sp        | 42.79                          | 4.28      | 37.44                          | 5.60      | 3.40**   |
| Sa        | 22.21                          | 3.76      | 20.70                          | 3.72      | 1.26     |
| Wb        | 37.67                          | 3.47      | 35.60                          | 4.98      | 1.52     |
| Class II  |                                |           |                                |           |          |
| Re        | 28.11                          | 5.50      | 29.03                          | 4.50      | .55      |
| So        | 34.21                          | 4.76      | 36.80                          | 6.33      | 1.43     |
| Sc        | 26.04                          | 8.03      | 26.38                          | 7.97      | .18      |
| To        | 23.44                          | 5.56      | 23.16                          | 5.12      | .16      |
| Gi        | 15.21                          | 6.04      | 15.42                          | 6.72      | .10      |
| Cm        | 25.73                          | 1.80      | 25.16                          | 2.08      | .29      |
| Class III |                                |           |                                |           |          |
| Ac        | 27.63                          | 4.32      | 25.36                          | 5.63      | 1.30     |
| Ai        | 20.69                          | 5.03      | 21.67                          | 3.80      | .65      |
| Ie        | 41.50                          | 3.71      | 38.91                          | 4.80      | 1.76*    |
| Class IV  |                                |           |                                |           |          |
| Py        | 13.48                          | 2.83      | 12.82                          | 3.37      | .67      |
| Fx        | 13.42                          | 4.56      | 11.06                          | 5.60      | 1.45     |
| Fe        | 13.88                          | 5.04      | 16.50                          | 3.54      | 1.78*    |

\* Significant at the .05 level.

\*\* Significant at the .01 level.

superior in leadership ability; (2) ascendent and ambitious; (3) outgoing, sociable, and competitive; and (4) spontaneous and self-confident in personal and social interaction than later-born individuals. For the Sa and Wb scales, it was not possible to reject the hypothesis under test.

Of the six scales in Class II, which measures socialization, maturity, and responsibility (Gough, 1964c), there was no significant differences. It was, therefore, not possible to reject the hypothesis under test.

In Class III, which measures achievement potential and intellectual efficiency (Gough, 1964c), there was only one scale (Ie) which yielded a significantly higher mean score in the first-born group. The difference was significant at the .05 level. It was possible to reject the hypothesis under test for the Ie scale and accept the alternative hypothesis. The significantly higher mean score in the first-born group on the Ie scale is evidence for supporting the hypothesis that first-born individuals are more attained in intellectual efficiency. For the Ac and Ai scales, it was not possible to reject the hypothesis under test.

In Class IV, which measures intellectual and interest modes (Gough, 1964c), there was only one significant difference. The Fe scale yielded a significantly higher (.05 level) mean score in the later-born group; this was, however, contrary to prediction. The significantly higher mean score in the later-born group on the Fe scale indicates the probability that the later-born male Ss are more feminine in interests. For all of the Class IV scales, it was not possible to reject the hypothesis under test.

The analysis of data for the female Ss appears in Table 2. There were no significant mean score differences in Class I. For all of the Class I scales, it was not possible to reject the hypothesis under test.

There were no significant mean score differences yielded by any of the six scales in Class II. For these scales, it was not possible to reject the hypothesis under test.

There were no significant mean score differences yielded by the three scales in Class III. For these scales, it was not possible to reject the hypothesis under test.

Class IV also yielded no significant mean score

Table 2  
 Mean Scores, Standard Deviations, and t Tests for Female Ss  
 on the CPI Scales

| Scale     | First-born<br>( <u>n</u> = 20) |           | Later-born<br>( <u>n</u> = 20) |           | <u>t</u> |
|-----------|--------------------------------|-----------|--------------------------------|-----------|----------|
|           | <u>M</u>                       | <u>SD</u> | <u>M</u>                       | <u>SD</u> |          |
| Class I   |                                |           |                                |           |          |
| Do        | 30.29                          | 5.88      | 28.37                          | 5.35      | 1.43     |
| Cs        | 22.53                          | 2.75      | 21.40                          | 3.60      | 1.11     |
| Sy        | 27.85                          | 5.51      | 25.27                          | 10.10     | 1.01     |
| Sp        | 39.50                          | 4.82      | 37.07                          | 7.24      | 1.25     |
| Sa        | 23.94                          | 3.99      | 22.00                          | 4.70      | 1.41     |
| Wb        | 35.13                          | 4.48      | 34.70                          | 4.79      | .29      |
| Class II  |                                |           |                                |           |          |
| Re        | 31.88                          | 4.03      | 32.34                          | 4.22      | .35      |
| So        | 38.03                          | 5.90      | 37.87                          | 3.88      | .10      |
| Sc        | 25.41                          | 7.23      | 27.20                          | 6.29      | .81      |
| To        | 23.13                          | 5.17      | 23.94                          | 3.42      | .58      |
| Gi        | 14.97                          | 5.22      | 14.10                          | 5.42      | .52      |
| Cm        | 26.38                          | 1.53      | 25.60                          | 2.50      | 1.20     |
| Class III |                                |           |                                |           |          |
| Ac        | 26.69                          | 4.37      | 26.44                          | 4.74      | .10      |
| Ai        | 20.13                          | 4.23      | 20.60                          | 3.20      | .35      |
| Ie        | 40.91                          | 4.00      | 39.37                          | 5.01      | 1.07     |
| Class IV  |                                |           |                                |           |          |
| Py        | 10.72                          | 2.83      | 9.87                           | 3.33      | .87      |
| Fx        | 10.13                          | 4.04      | 11.47                          | 3.88      | 1.07     |
| Fe        | 22.10                          | 5.65      | 21.64                          | 5.13      | .26      |

\* Significant at the .05 level.

\*\* Significant at the .01 level.

differences. For the three scales in Class IV, it was not possible to reject the hypothesis under test.

## Discussion

One of the main findings in the present study was that among male upperclass college students first-born Ss scored significantly higher on scales measuring dominance, capacity for status, sociability, and social presence. These findings support the conclusion that first-born college upperclassmen are more (1) dominant and superior in leadership ability; (2) ascendent and ambitious; (3) outgoing, sociable, and competitive; and (4) spontaneous and self-confident in personal and social interaction than later-born college upperclassmen.

The first-born male upperclassmen appears, therefore, to be advantaged in the competition for power within a dynamic college setting. These findings are in accord with past studies relating birth order with academic traits. Central to the present findings, Warren (1966) reported that first-born students are overrepresented in college populations. It is reasonable to suggest that high competition for power would likely be requisite for college overrepresentation. The present findings are also in accord with findings that first-born Ss were more concerned

about their status (Koch, 1955) and had a higher need for achievement (Sampson, 1962). It is reasonable to suggest that persons with these traits are successful in competing for power and would be seen as more dominant, ascendent, ambitious, competitive, and superior in leadership ability.

Lichtenstein et al. (1966) related need for approval to the CPI. Need for approval motivation was measured by the M-C SDS, previously cited. From a sample of 108 college students who averaged 1.9 years of college experience, they found eight of the 18 CPI scales to yield significant correlations with the M-C SDS. Consistent with their theoretical expectations, they found the M-C SDS most strongly related to scales in Class II, which measures socialization, maturity, and responsibility. Moran (1967) related birth order to need for approval. Similar to the Lichtenstein study, Moran measured need for approval motivation with the M-C SDS. From a sample of 349 introductory psychology students, Moran found first-born Ss higher in need for approval. Due to the overlap of these findings, the present investigator predicted the first-born college upperclassman to score higher on the scales in Class II.



Contrary to prediction, there were no significant differences in Class II for both sex groups. The present investigation used a different subject population than that used by the Lichtenstein and Moran studies. The present sample of Ss had greater years of college experience to their credit. Owing to this greater amount of experience, it appears reasonable to suggest that upperclass college students with greater prestige, achievement, and poise are less motivated toward approval and acceptance. In particular, the first-born male Ss appeared to be well adjusted in their feelings of self-worth, as demonstrated in Class I. It seems probable that exposure to the more advanced college courses would both allow and encourage stronger opinions and less conformance. People who are adjusted socially and have greater insight and feelings of self-worth would be expected to shape their behavior along such lines.

In Class III, birth order status differentiated Ie scores. First-born male Ss scored significantly higher on this scale. This finding supports the conclusion that first-born college upperclassmen are more attained in intellectual efficiency than later-born college upperclassmen.

This finding is in accord with the Terman findings that first-born Ss were overrepresented among the intellectually gifted (Fischer et al., 1968). In addition, this finding lends support to studies relating birth order to verbal fluency (Koch, 1955, 1956; Altus, 1965b) and college overrepresentation (Warren, 1966). It is reasonable to suggest that college overrepresentation and verbal fluency would lead toward attaining intellectual efficiency.

In Class IV the Fe scale yielded the only significant difference between birth order groups. High scorers on the Fe scale are described as helpful, sincere, respectful, and conscientious (Gough, 1964c). In other words, high scorers have feminine interests. These qualities appear to overlap the traits measured in Class II, which are strong predictors of need for approval motivation. A prediction was made on the basis of this empirical description and past findings relating birth order to need for approval (Moran, 1967). The first-born group was expected to score higher on the Fe scale.

Contrary to prediction, the first-born male Ss scored significantly lower on the Fe scale. It appears probable that the first-born male upperclassman has more active,

ambitious, and outgoing personalities showing an increase in direct thinking and action. The present finding appears reasonable since first-born male Ss scored significantly higher in areas of poise, ascendancy, self-assurance, and intellectual efficiency on the CPI. It is in accord with studies relating birth order to college overrepresentation (Warren, 1966). It appears reasonable to suggest that persons having active, ambitious, and outgoing personalities showing an increase in direct thinking and action would be overrepresented in college populations.

There were no significant mean score differences found between the female birth order groups on any of the 18 CPI scales. It is reasonable to suggest that in the female subject population under study there exists no real differences in social personality, as measured by the CPI. By explanation, it appears that middle class females are stereo-typical in their young adult roles. They are less likely than middle class males to be independent and active initiators; thus, leading to a varied range of personality types. Witkin et al. (1954) has stated that our middle class culture fosters and rewards females

manifesting "field dependent behaviors." Witkin et al. defined "field dependent behavior" as a submissive, conforming, and ladylike type of behavior. The female in our middle class culture who identifies with this role gains acceptance from her peer group and from people in authority. The tentative suggestion that in the female subject population under study there exists no real social personality differences is a potential stimulus for the formulation of a new hypothesis to test this conclusion in future studies.

The investigator can generalize his findings with confidence only to the population adequately sampled. It is suggested, therefore, that the present study needs further replications in order to increase the range of generalization. Further studies should investigate the possibility of an interaction between population characteristics and birth order. In addition, the use of larger subject populations and more rigid sets of criteria is suggested. Only through such an experimental approach, can science gain valuable and needed information.

### Summary

Past research findings have related birth order to different social personality correlates. The present investigator attempted to relate birth order to different personality characteristics as measured by the California Psychological Inventory (CPI). From a population of male and female college upperclassmen, six significant differences were found between male birth order groups on the CPI. Six conclusions were suggested by the results drawn from the male group. First-born male upperclassmen are more (1) dominant and superior in leadership ability; (2) ascendent and ambitious; (3) outgoing, sociable, and competitive; (4) spontaneous and self-confident in personal and social interaction; (5) attained in intellectual efficiency; and (6) active, ambitious, and outgoing in personality showing an increase in direct thinking and action. These conclusions were held in accord with the generally accepted findings of past birth order research. There were no significant differences found between female birth order groups on the CPI. It was suggested that there exists no real social personality differences in

female upperclassmen. The formulation of a new hypothesis to test results suggesting this conclusion was advised. The investigator sees a need for further study on the relation between birth order and social personality in the college upperclassman.

## References

- Adler, A. What life should mean to you. Boston: Brown, 1931.
- Altus, W. D. Birth order and academic primogeniture. Journal of Personality and Social Psychology, 1965, 2, 872-876.
- Altus, W. D. Birth order and scholastic aptitude. Journal of Consulting Psychology, 1965, 29, 202-205.
- Carrigan, W. C., & Julian, J. M. Sex and birth order differences in conformity as a function of need affiliation arousal. Journal of Personality and Social Psychology, 1966, 3, 479-483.
- Cronbach, L. J. Essentials of psychological testing. (2nd ed.) New York: Harper and Row, 1960.
- Downie, N. M., & Heath, R. W. Basic statistical methods. New York: Harper and Row, 1959.
- Fischer, E. H., Wells, C. F., & Cohen, S. L. Birth order and expressed interest in becoming a college professor. Journal of Counseling Psychology, 1968, 15, 111-116.

- Gough, H. G. Academic achievement in high school as predicted from the California Psychological Inventory. Journal of Educational Psychology, 1964, 55, 174-180.
- Gough, H. G. Achievement in the first course in psychology as predicted from the California Psychological Inventory. Journal of Psychology, 1964, 57, 419-430.
- Gough, H. G. Manual for the California Psychological Inventory. (Rev. ed.) Palo Alto, Calif.: Consulting Psychologists Press, 1964.
- Hall, C. S., & Lindzey, G. Theories of personality. New York: John Wiley and Sons, 1962.
- Harper, F. B. The California Psychological Inventory as a predictor of yielding behavior in women. Journal of Psychology, 1964, 58, 187-190.
- Hurlock, E. B. Child development. (4th ed.) New York: McGraw-Hill, 1964.
- Koch, H. L. Some personality correlates of sex, sibling position, and sex of sibling among five and six-year-old children. Genetic Psychological Monographs, 1955, 52, 3-50.



- Koch, H. L. Sibling influence in children's speech.  
Journal of Speech Disorders, 1956, 21, 322-328.
- Lichtenstein, E., & Bryan, J. H. CPI correlates of need for approval. Journal of Clinical Psychology, 1966, 22, 453-455.
- Moran, G. Ordinal position and approval motivation.  
Journal of Consulting Psychology, 1967, 31, 319-320.
- Sampson, E. E. Birth order, need achievement, and conformity. Journal of Abnormal and Social Psychology, 1962, 64, 155-159.
- Schachter, S. The psychology of affiliation. Stanford: Stanford University Press, 1959.
- Schachter, S. Birth order, eminence, and higher education.  
American Sociological Review, 1963, 28, 757-768.
- Schachter, S. Birth order and sociometric choice.  
Journal of Abnormal and Social Psychology, 1964, 68, 453-456.
- Sears, R. R. Ordinal position in the family as a psychological variable. American Sociological Review, 1950, 15, 397-401

- Smith, E. E., & Goodchild, J. D. Some personality and behavioral factors related to birth order. Journal of Applied Psychology, 1963, 47, 300-303.
- Staples, F. R., & Walters, R. H. Anxiety, birth order, and susceptibility to social influences. Journal of Abnormal and Social Psychology, 1961, 62, 716-719.
- Tuddenham, R. D. The influence of a distorted group norm upon individual judgment. Journal of Psychology, 1958, 46, 227-241.
- Warren, J. R. Birth order and social behavior. Psychological Bulletin, 1966, 65, 38-49.
- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.
- Witkin, H. A., Lewis, H. B., Hertzman, M., Machover, K., Meissner, P. B., & Wapner, S. Personality through perception. New York: Harper, 1954.

Appendix

Table 3  
Raw Scores of Junior and Senior First-born Male Ss

| Junior    | CPI Scales |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <u>Ss</u> | Do         | Cs | Sy | Sp | Sa | Wb | Re | So | Sc | To | Gi | Cm | Ac | Ai | Ie | Py | Fx | Fe |
| 1         | 26         | 23 | 32 | 45 | 27 | 39 | 31 | 36 | 27 | 21 | 23 | 27 | 31 | 22 | 38 | 11 | 11 | 16 |
| 2         | 28         | 21 | 24 | 35 | 22 | 37 | 33 | 33 | 32 | 27 | 19 | 28 | 27 | 23 | 42 | 15 | 5  | 18 |
| 3         | 26         | 20 | 27 | 39 | 21 | 42 | 37 | 37 | 41 | 30 | 30 | 21 | 34 | 20 | 41 | 17 | 9  | 16 |
| 4         | 34         | 22 | 28 | 42 | 23 | 32 | 26 | 30 | 11 | 21 | 10 | 28 | 20 | 13 | 41 | 9  | 17 | 9  |
| 5         | 31         | 20 | 27 | 44 | 21 | 38 | 34 | 41 | 31 | 32 | 21 | 25 | 32 | 26 | 47 | 14 | 14 | 11 |
| 6         | 31         | 20 | 25 | 47 | 22 | 35 | 31 | 34 | 18 | 29 | 10 | 27 | 26 | 24 | 44 | 11 | 18 | 16 |
| 7         | 35         | 24 | 29 | 36 | 24 | 39 | 36 | 41 | 36 | 30 | 23 | 27 | 34 | 27 | 43 | 13 | 10 | 13 |
| 8         | 28         | 21 | 24 | 35 | 12 | 37 | 34 | 33 | 35 | 25 | 17 | 27 | 28 | 22 | 42 | 15 | 12 | 13 |
| 9         | 37         | 24 | 29 | 44 | 29 | 39 | 27 | 29 | 22 | 21 | 17 | 27 | 29 | 21 | 43 | 12 | 15 | 17 |
| 10        | 24         | 18 | 22 | 44 | 23 | 40 | 27 | 40 | 32 | 26 | 11 | 28 | 31 | 25 | 41 | 12 | 13 | 20 |
| 11        | 33         | 24 | 28 | 47 | 21 | 40 | 31 | 33 | 30 | 29 | 16 | 27 | 31 | 23 | 47 | 14 | 16 | 14 |
| 12        | 26         | 17 | 23 | 41 | 21 | 36 | 26 | 35 | 25 | 21 | 6  | 24 | 25 | 18 | 38 | 14 | 8  | 14 |
| Senior    |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <u>Ss</u> |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13        | 33         | 25 | 32 | 46 | 27 | 41 | 26 | 36 | 31 | 24 | 15 | 25 | 31 | 24 | 45 | 14 | 18 | 15 |
| 14        | 26         | 24 | 27 | 45 | 24 | 40 | 26 | 32 | 29 | 28 | 14 | 25 | 25 | 21 | 46 | 16 | 18 | 15 |
| 15        | 29         | 24 | 29 | 44 | 20 | 40 | 29 | 38 | 26 | 22 | 18 | 23 | 29 | 21 | 42 | 17 | 17 | 14 |
| 16        | 29         | 17 | 31 | 43 | 24 | 28 | 21 | 37 | 11 | 11 | 10 | 25 | 21 | 10 | 34 | 10 | 6  | 10 |
| 17        | 26         | 16 | 18 | 40 | 20 | 37 | 15 | 24 | 19 | 14 | 10 | 26 | 23 | 15 | 34 | 13 | 11 | 10 |
| 18        | 35         | 24 | 25 | 44 | 24 | 37 | 32 | 28 | 27 | 31 | 16 | 25 | 30 | 31 | 45 | 18 | 20 | 16 |
| 19        | 35         | 25 | 29 | 40 | 17 | 39 | 29 | 38 | 30 | 21 | 18 | 27 | 30 | 17 | 40 | 10 | 10 | 15 |
| 20        | 32         | 22 | 30 | 50 | 22 | 38 | 23 | 33 | 17 | 24 | 7  | 25 | 21 | 16 | 40 | 13 | 16 | 9  |

Table 4  
Raw Scores of Junior and Senior First-born Female Ss

| Junior    |    | CPI Scales |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------|----|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <u>Ss</u> | Do | Cs         | Sy | Sp | Sa | Wb | Re | So | Sc | To | Gi | Cm | Ac | Ai | Ie | Py | Fx | Fe |
| 1         | 31 | 23         | 34 | 42 | 23 | 41 | 29 | 41 | 31 | 21 | 23 | 25 | 27 | 19 | 41 | 14 | 13 | 22 |
| 2         | 34 | 20         | 24 | 40 | 24 | 35 | 36 | 39 | 22 | 26 | 10 | 27 | 29 | 23 | 43 | 12 | 9  | 27 |
| 3         | 32 | 22         | 31 | 41 | 29 | 37 | 35 | 40 | 25 | 24 | 16 | 28 | 30 | 19 | 44 | 7  | 11 | 20 |
| 4         | 25 | 21         | 17 | 33 | 22 | 36 | 34 | 27 | 23 | 18 | 17 | 24 | 17 | 21 | 39 | 14 | 11 | 20 |
| 5         | 27 | 20         | 28 | 37 | 27 | 26 | 29 | 35 | 13 | 11 | 14 | 28 | 22 | 15 | 30 | 7  | 8  | 23 |
| 6         | 27 | 18         | 29 | 39 | 26 | 41 | 32 | 42 | 30 | 18 | 13 | 28 | 32 | 25 | 42 | 13 | 10 | 25 |
| 7         | 37 | 26         | 33 | 38 | 26 | 31 | 35 | 40 | 25 | 20 | 22 | 27 | 34 | 21 | 45 | 13 | 10 | 24 |
| 8         | 16 | 18         | 20 | 29 | 19 | 35 | 25 | 45 | 32 | 26 | 13 | 25 | 28 | 21 | 38 | 10 | 15 | 29 |
| 9         | 25 | 20         | 25 | 41 | 21 | 41 | 33 | 42 | 26 | 27 | 16 | 25 | 21 | 23 | 43 | 14 | 13 | 24 |
| 10        | 34 | 24         | 28 | 46 | 30 | 33 | 30 | 38 | 15 | 19 | 9  | 26 | 25 | 13 | 34 | 7  | 16 | 21 |
| 11        | 30 | 23         | 23 | 34 | 22 | 35 | 35 | 43 | 24 | 31 | 12 | 26 | 26 | 24 | 47 | 10 | 9  | 24 |
| 12        | 32 | 26         | 31 | 45 | 23 | 43 | 33 | 45 | 41 | 30 | 28 | 24 | 32 | 27 | 43 | 15 | 16 | 20 |
| 13        | 27 | 23         | 22 | 40 | 21 | 37 | 36 | 31 | 31 | 27 | 23 | 24 | 24 | 27 | 42 | 14 | 18 | 24 |
| 14        | 25 | 18         | 17 | 33 | 16 | 31 | 29 | 42 | 30 | 20 | 15 | 27 | 21 | 16 | 37 | 8  | 8  | 24 |
| 15        | 38 | 25         | 30 | 41 | 28 | 35 | 36 | 39 | 29 | 26 | 19 | 28 | 32 | 24 | 45 | 10 | 10 | 25 |
| 16        | 33 | 22         | 23 | 41 | 25 | 31 | 28 | 24 | 20 | 16 | 13 | 24 | 26 | 22 | 44 | 11 | 11 | 19 |
| Senior    |    |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <u>Ss</u> | Do | Cs         | Sy | Sp | Sa | Wb | Re | So | Sc | To | Gi | Cm | Ac | Ai | Ie | Py | Fx | Fe |
| 17        | 21 | 19         | 22 | 36 | 17 | 37 | 33 | 40 | 39 | 28 | 17 | 25 | 26 | 26 | 39 | 12 | 18 | 25 |
| 18        | 36 | 23         | 33 | 44 | 29 | 38 | 33 | 38 | 22 | 26 | 14 | 28 | 29 | 16 | 41 | 11 | 7  | 21 |
| 19        | 37 | 26         | 32 | 41 | 26 | 29 | 27 | 34 | 19 | 19 | 16 | 27 | 27 | 15 | 41 | 10 | 5  | 18 |
| 20        | 35 | 25         | 32 | 40 | 24 | 35 | 33 | 39 | 19 | 22 | 7  | 27 | 25 | 19 | 42 | 8  | 4  | 20 |

Table 5  
Raw Scores of Junior and Senior Later-born Male Ss

| Junior | CPI Scales |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|        | <u>Ss</u>  | Do | Cs | Sy | Sp | Sa | Wb | Re | So | Sc | To | Gi | Cm | Ac | Ai | Ie | Py | Fx | Fe |
| 1      | 34         | 18 | 31 | 40 | 23 | 32 | 29 | 36 | 18 | 21 | 6  | 27 | 19 | 16 | 38 | 11 | 3  | 19 |    |
| 2      | 15         | 16 | 18 | 30 | 15 | 31 | 25 | 31 | 32 | 25 | 12 | 24 | 19 | 21 | 37 | 14 | 16 | 14 |    |
| 3      | 38         | 20 | 25 | 35 | 24 | 38 | 33 | 43 | 31 | 24 | 22 | 26 | 32 | 20 | 41 | 13 | 5  | 20 |    |
| 4      | 26         | 25 | 23 | 44 | 25 | 36 | 26 | 40 | 30 | 28 | 19 | 28 | 27 | 23 | 40 | 16 | 9  | 12 |    |
| 5      | 32         | 18 | 32 | 42 | 24 | 40 | 29 | 41 | 23 | 26 | 15 | 28 | 27 | 19 | 38 | 13 | 4  | 12 |    |
| 6      | 25         | 20 | 21 | 38 | 21 | 41 | 29 | 38 | 32 | 28 | 19 | 25 | 29 | 28 | 43 | 14 | 18 | 19 |    |
| 7      | 27         | 20 | 18 | 37 | 22 | 26 | 30 | 22 | 12 | 15 | 11 | 21 | 23 | 23 | 30 | 13 | 12 | 18 |    |
| 8      | 29         | 21 | 22 | 38 | 22 | 38 | 35 | 34 | 34 | 24 | 21 | 22 | 33 | 22 | 47 | 16 | 4  | 18 |    |
| 9      | 24         | 20 | 20 | 42 | 21 | 32 | 22 | 28 | 15 | 21 | 8  | 25 | 21 | 19 | 33 | 11 | 15 | 11 |    |
| 10     | 26         | 24 | 25 | 41 | 21 | 40 | 38 | 40 | 36 | 30 | 28 | 27 | 27 | 25 | 43 | 16 | 17 | 18 |    |
| 11     | 26         | 27 | 30 | 50 | 27 | 42 | 32 | 35 | 31 | 29 | 22 | 23 | 31 | 27 | 49 | 15 | 19 | 15 |    |
| 12     | 22         | 20 | 27 | 41 | 22 | 38 | 25 | 31 | 29 | 27 | 13 | 25 | 29 | 26 | 43 | 14 | 19 | 13 |    |
| 13     | 35         | 21 | 32 | 46 | 28 | 42 | 36 | 42 | 36 | 31 | 21 | 28 | 36 | 25 | 43 | 15 | 11 | 19 |    |
| Senior |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|        | <u>Ss</u>  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14     | 25         | 16 | 19 | 28 | 20 | 29 | 30 | 40 | 19 | 11 | 13 | 26 | 21 | 13 | 33 | 10 | 8  | 20 |    |
| 15     | 18         | 18 | 21 | 37 | 19 | 37 | 27 | 41 | 19 | 25 | 13 | 25 | 19 | 20 | 35 | 8  | 7  | 16 |    |
| 16     | 27         | 20 | 23 | 36 | 20 | 41 | 37 | 50 | 42 | 27 | 29 | 26 | 35 | 22 | 41 | 17 | 3  | 20 |    |
| 17     | 24         | 19 | 15 | 31 | 18 | 29 | 24 | 30 | 25 | 21 | 6  | 22 | 22 | 22 | 39 | 14 | 15 | 16 |    |
| 18     | 27         | 23 | 27 | 42 | 24 | 37 | 29 | 33 | 19 | 22 | 14 | 24 | 18 | 26 | 40 | 15 | 16 | 19 |    |
| 19     | 23         | 24 | 20 | 35 | 17 | 36 | 28 | 38 | 29 | 24 | 15 | 25 | 26 | 22 | 40 | 12 | 10 | 17 |    |
| 20     | 19         | 15 | 16 | 33 | 13 | 33 | 22 | 35 | 23 | 17 | 9  | 27 | 24 | 20 | 34 | 6  | 14 | 11 |    |

Table 6  
Raw Scores of Junior and Senior Later-born Female Ss

| Junior    | CPI Scales |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <u>Ss</u> | Do         | Cs | Sy | Sp | Sa | Wb | Re | So | Sc | To | Gi | Cm | Ac | Ai | Ie | Py | Fx | Fe |
| 1         | 38         | 26 | 34 | 41 | 28 | 42 | 37 | 32 | 37 | 26 | 27 | 28 | 35 | 25 | 44 | 14 | 14 | 24 |
| 2         | 27         | 19 | 19 | 31 | 24 | 24 | 25 | 32 | 14 | 18 | 8  | 28 | 24 | 20 | 27 | 9  | 12 | 28 |
| 3         | 36         | 27 | 33 | 43 | 27 | 38 | 38 | 35 | 29 | 30 | 13 | 26 | 27 | 27 | 45 | 14 | 16 | 26 |
| 4         | 27         | 17 | 22 | 32 | 18 | 42 | 38 | 41 | 37 | 26 | 21 | 26 | 29 | 24 | 40 | 10 | 12 | 20 |
| 5         | 27         | 24 | 27 | 44 | 24 | 32 | 20 | 33 | 22 | 23 | 16 | 26 | 26 | 19 | 41 | 14 | 16 | 23 |
| 6         | 28         | 18 | 25 | 45 | 22 | 36 | 32 | 36 | 28 | 27 | 11 | 27 | 24 | 22 | 44 | 14 | 15 | 17 |
| 7         | 23         | 25 | 26 | 43 | 20 | 42 | 28 | 41 | 36 | 24 | 17 | 23 | 27 | 26 | 43 | 14 | 16 | 22 |
| 8         | 37         | 19 | 22 | 32 | 25 | 36 | 32 | 46 | 25 | 22 | 9  | 28 | 33 | 18 | 32 | 11 | 7  | 26 |
| 9         | 31         | 21 | 27 | 37 | 19 | 32 | 36 | 42 | 27 | 22 | 18 | 27 | 28 | 18 | 34 | 11 | 7  | 25 |
| 10        | 36         | 22 | 29 | 37 | 31 | 32 | 33 | 39 | 14 | 20 | 12 | 28 | 25 | 20 | 35 | 7  | 11 | 18 |
| 11        | 27         | 23 | 28 | 38 | 27 | 37 | 35 | 38 | 32 | 23 | 16 | 28 | 34 | 21 | 41 | 11 | 8  | 26 |
| 12        | 27         | 24 | 31 | 41 | 28 | 37 | 30 | 39 | 27 | 26 | 16 | 27 | 27 | 20 | 42 | 4  | 7  | 19 |
| 13        | 25         | 22 | 21 | 36 | 20 | 36 | 33 | 42 | 30 | 26 | 10 | 27 | 25 | 22 | 38 | 11 | 17 | 19 |
| 14        | 23         | 17 | 19 | 31 | 18 | 36 | 33 | 42 | 25 | 16 | 7  | 26 | 29 | 19 | 34 | 8  | 9  | 21 |
| 15        | 22         | 14 | 23 | 26 | 23 | 32 | 33 | 40 | 28 | 26 | 12 | 27 | 28 | 26 | 41 | 9  | 12 | 29 |
| Senior    |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <u>Ss</u> |            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16        | 27         | 20 | 24 | 43 | 18 | 37 | 27 | 35 | 27 | 25 | 4  | 24 | 24 | 20 | 44 | 13 | 11 | 22 |
| 17        | 28         | 25 | 27 | 31 | 25 | 37 | 35 | 42 | 32 | 21 | 16 | 18 | 34 | 15 | 42 | 8  | 6  | 27 |
| 18        | 24         | 18 | 16 | 20 | 14 | 26 | 31 | 36 | 23 | 22 | 14 | 27 | 20 | 19 | 34 | 4  | 7  | 17 |
| 19        | 30         | 20 | 22 | 42 | 23 | 35 | 35 | 34 | 24 | 25 | 15 | 25 | 19 | 24 | 40 | 12 | 14 | 22 |
| 20        | 35         | 25 | 35 | 49 | 27 | 39 | 36 | 39 | 29 | 28 | 21 | 28 | 32 | 19 | 45 | 8  | 17 | 19 |

### Vita

Mr. Robertson has been a staff member of the Centralized Testing Service, Salem VA Hospital, for the past year. His main duties under the testing service include test administration and diagnostic report writing. He earned the BA degree in psychology from Roanoke College in 1965, and has since been working toward the MA degree in psychology at the University of Richmond. During the school year 1967-1968, he was a full-time faculty member with the Department of Psychology, Roanoke College. While there, he instructed introductory and experimental courses.