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An Analysis of a Test of General Culture.

Delton Clifford Beier

Louisiana State University and Agricultural & Mechanical College

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119
AN ANALYSIS OF A TEST OF GENERAL CULTURE

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in

The Department of Psychology

by Delton Clifford Beier
B.A., University of Wisconsin, 1938
M.A., University of Wisconsin, 1939
May, 1943
ACKNOWLEDGEMENTS

The author gratefully acknowledges the financial support from the J. McKeen Cattell Committee of the Psychological Corporation in the form of the J. McKeen Cattell Grant-in-Aid for the purpose of furthering this investigation. He is also deeply indebted to Dr. Wayne Dennis of the Louisiana State University Psychology Department for his aid and encouragement throughout the progress of this investigation. He also wishes to express his thanks to Dr. Doris A. Cline and the Wayne University Division of Student Personnel for the use of their test results and for their cooperation in this study. For helpful suggestions, the author expresses his appreciation to Dr. C. W. Mann and Mr. R. C. Bain of Louisiana State University.
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This study is an investigation of the Cooperative General Culture Test published by the Cooperative Test Service of the American Council on Education. Its primary purpose is to analyze the performances of two groups of university sophomores on this test; to determine whether one or the other group tests significantly superior on the test as a whole and, if so, whether this superiority is maintained by the group on the various sub-tests and component individual items. It also has as its purpose the examination of the total score of this test as an index of general cultural background. Further, it attempts to examine the suggested values and uses of the Cooperative General Culture Test in the light of the concept of regionalism and regional differences and with respect to the results of the present study.

Probably the most significant analytic approach used in this study consists of an item comparison of the answers of the sophomore students from Wayne University and Louisiana State University. The responses to the individual questions are considered for the total groups as well as for their component sex groups.

In an attempt to control the factor of intelligence, 142 men from each population were matched on the basis of their scores on the American Council on Education Psychological Examination. A similar matching was made for the women students from both
universities. Their responses to individual questions were again compared to determine whether any questions were significantly easier for groups of the same sex at either university.

Among the conclusions drawn from the study are the following:

1. Large significant differences exist between the populations of WU and LSU in total score and in scores on subtests of the Cooperative General Culture Test. The sophomore students of WU secure a higher average rating on the total test and on all subtests except the Mathematics section on which the students of LSU exceed the average of WU students as well as the national norm group. However, the degree of superiority of WU students varied markedly from test to test.

2. The men of WU exceed the men of LSU on total score ratings and on all part score ratings with the exception of the mathematics part. The WU women rate significantly better than LSU women on all of the subtests as well as on the test as a whole. Here, too, the degree of superiority of WU students was not uniform from test to test.

3. Sex differences in performance on the General Culture Test are apparent in both groups of sophomore students. The men of WU test significantly better than the women of the same population on those sections of the test devoted to current social problems, history and social studies, science and mathematics, and the men of WU also receive higher total scores than WU women. The women of WU did not test significantly higher than the men of WU on any of the subtests. The men of LSU test significantly higher than
the women of LSU on the same parts on which the men of WU exceed the
women of WU. However, the women of LSU test significantly better
than the men of the same institution on the literature and fine arts
sections.

4. There are institutional and sex differences in the per-
formances of the groups on a large number of the component individ-
ual items of this test. The test contains 450 items. In the un-
matched total groups, WU was significantly superior on 230 questions;
LSU was superior on 47 items.

5. With groups matched in intelligence, significant differ-
ences between institutions still occur in both sexes in performance
on many individual questions. On some items, WU is superior; on
other items, LSU is superior. From an examination of these items,
it is concluded that, for the LSU and WU groups, many of these dif-
ferences may be accounted for in terms of factors which might be
called curricular, regional or residential as well as those that are
dependent upon interests, values and attitudes that are peculiar to
or characteristic of either institutional group.

6. It is concluded that the total scores on the General
Culture Test are of doubtful meaning since it has been demonstrated
that a group which tests significantly high or low on the test as a
whole exhibits no particular consistency in its ratings on the sub-
tests. It is possible for an institutional group to excel on one
or more parts of the test and rate low on others. There is evidence
to show that a part score is not even a reliable indicator of the
performances of the group on individual items of that subtest.
It follows therefore that with a different selection of items, the relative standing of two institutions on a subtest might be changed considerably and might perhaps even be reversed. Also a different selection of subtests, or a different weighting of subtests, could radically alter institutional standings in regard to total score.

7. The Cooperative General Culture Test does not "measure the cultural background of the individual regardless of his past studies", but is much influenced by the background a group may have in specific course work. This is particularly obvious in regard to mathematics.

8. There are numerous factors which probably influence the performances of a university group and render its scores different from the scores of another institutional group.

9. The Cooperative General Culture Test cannot be used for guidance purposes unless local or regional norms are developed as points of reference for particular populations. In other words, the work of Selover (15), at Minnesota should not be used as a standard for southern, for western or any regional group other than the Minnesota group.

The implications of these and other findings lead to the general conclusion that there are many shortcomings in the Cooperative General Culture Test and that some of the suggested values and uses of this test are questionable. The findings also indicate some of the problems which must be solved by any other attempt to devise a satisfactory test of general culture.
INTRODUCTION

In 1932, the Cooperative Test Service of the American Council on Education made available to colleges and universities in the United States a battery of tests to be used in what is called the "Sophomore Testing Program". Its suggested values were that the tests included in this program would furnish "estimates of relative strengths and weaknesses for the purpose of educational and vocational guidance". In addition the Council felt that such a program would have various curricular, administrative and instructional values and uses. Since its conception, the tests included in this program have been modified and expanded and at present the minimum recommended program includes the following tests:

"Cooperative English Tests. The tests in this area are designed to cover the field of English ability as adequately as possible within the limitations of objective testing techniques. Three tests have been printed in one booklet so that participating colleges may easily and economically test students in the three principal areas in this field. The three tests included are Test A, Mechanics of Expression, which measures various phases of correct English and recognition of acceptable usage; Test B2, Effectiveness of Expression, which measures some of the elements influencing the effective use of English; and Test C2, Reading Comprehension, a reading test on the college level which measures recognition vocabulary, speed of comprehension, and level of comprehension. These examinations require 40 minutes of working time for each test, a total of 120 minutes, and are completely objective in scoring. Responses may be
recorded either in test booklets or on separate answer sheets.

Cooperative General Culture Test. This is a three-hour comprehensive examination which provides a profile of the student's knowledge of current social problems, history and social studies, literature, science, fine arts, and mathematics. Course boundaries are completely disregarded; the test is not intended to serve the same purpose as a course examination in any of these subjects, but rather to measure the cultural background of the individual regardless of his past studies. The test is completely objective in scoring, and responses may be recorded in test booklets or on separate answer sheets.

Cooperative Contemporary Affairs Test for College Students. This examination is designed to measure the student's general knowledge of contemporary affairs and to provide a profile of his functioning interests as indicated by the extent to which he has acquired and retained information concerning happenings of the past year in the fields of political and military events, social and economic events, science and medicine, literature, fine arts, and amusements. This test requires 100 minutes of working time and, like the other tests in the minimum recommended program, is objectively scored. Responses may be recorded in the test booklets or on separate answer sheets.

Cooperative American History Test. This test covers American History from the Explorations to the present time. Emphasis is placed upon a reasoned understanding of the information, ideas, relationships, and generalizations necessary to an appreciation of American institutions and practices, and the ability to use these facts and ideas. The test requires 40 minutes of working time and is objectively scored. Responses may be recorded in test booklets or on separate answer sheets."

These tests have been used by numerous academic institutions. During 1942, they were administered to over 11,000 college students. It is
with the Cooperative General Culture Test that the present investigation will concern itself.

In the report of the 1942 Sophomore Testing Program, page 26, (4), the Cooperative Testing Service reports the following with regard to sex difference in performance on the General Culture Test: "The men are seen to be superior to the women in their knowledge of Current Social Problems, History and Social Studies, Science and Mathematics, as well as on the total test. Women, on the other hand, receive higher scores on the Literature and Fine Arts section of this test. These differences between the performances for the two sex groups are also evident in corresponding areas of the Contemporary Affairs Test". Table I presents the results for the men and women who took the Cooperative General Culture Test in 1942. This material is extracted from two tables included in the report mentioned above.

Table I

Mean Scores on the Cooperative General Culture Test, Form S, for Sophomore Men and Women of the National Norm Group who Recorded their Responses in Test Booklets.

<table>
<thead>
<tr>
<th></th>
<th>Current Social Problems</th>
<th>History and Social Studies</th>
<th>Literature</th>
<th>Science</th>
<th>Fine Arts</th>
<th>Mathematics</th>
<th>General Culture Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>32</td>
<td>25</td>
<td>24</td>
<td>27</td>
<td>26</td>
<td>25</td>
<td>160</td>
</tr>
<tr>
<td>Women</td>
<td>26</td>
<td>19</td>
<td>27</td>
<td>18</td>
<td>29</td>
<td>15</td>
<td>136</td>
</tr>
</tbody>
</table>
Also included in the report of the Sophomore Testing Program are results which indicate the relative standings on the General Culture Test of different colleges classified according to the geographic location of these colleges.

Table II shows the medians of college means on the General Culture Test, Form S, for liberal Arts Colleges classified according to geographic location.

Table II

Median of College Means on the Cooperative General Culture Test, Form S, for 74 Liberal Arts Colleges, classified according to geographic location of college.

<table>
<thead>
<tr>
<th>Region</th>
<th>New England</th>
<th>Middle Atlantic</th>
<th>East North Central</th>
<th>West North Central</th>
<th>South Atlantic</th>
<th>East South Central</th>
<th>West South Central</th>
<th>Far West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median of College Means</td>
<td>153.2</td>
<td>152.2</td>
<td>148.0</td>
<td>147.0</td>
<td>142.0</td>
<td>114.1</td>
<td>124.3</td>
<td>178.3</td>
</tr>
</tbody>
</table>

The college populations which rated lowest on this test are composed of the following district and states: South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida; East South Central: Kentucky, Tennessee, Alabama, Mississippi; West South Central: Arkansas, Louisiana, Oklahoma, Texas.
From Table II, it can be seen that the groups of states having the lowest medians of college means are southern states. Numerous implications may be drawn from such a table, but, as yet, not enough work has been done in the field of differential psychology on regional differences to warrant drawing conclusions with any degree of certainty. However, such findings do stimulate speculation and suggest important and interesting questions.

Although the Cooperative Test Service draws no conclusions from the data presented in Table II, the mere presentation of these data does imply that they have some value or signify something. As previously noted, a majority of the states that are included in the classes which have the lowest medians of mean scores are states that belong to the Southern Region of the United States. Since only total scores are presented in Table II, the question of the ratings of these geographically classified institutions on the sub-parts of the General Culture Test arises. Are the groups which tested low in total score of this examination consistently inferior on all parts of the test or do they show no consistency in their performance on the sub-parts? Is it possible for an institutional group to test above average on one or more component sub-parts of this test and still rate significantly below average on other parts? In other words, is the superiority or inferiority of an institutional group a general condition or can a group excel on some parts of the test and do poorly on other parts?

Since the Cooperative Test Service in its report draws no conclusions and presents only incomplete data, the above questions remain unanswered. It is possible, however, that one reason for the
lower ratings of the institutions in the South may be the inclusion of test material which favors Northern and Far West groups of college students.

Such speculation leads to other questions. Does an institutional group which receives part scores below the national norm exhibit a consistent tendency to test inferior on all of the individual questions that comprise this test? If a group which receives a significantly low total score does test better than average on one or more subtests and answers a number of individual items significantly better than another group which rates superior on the test as a whole, are there any determinable reasons for the superior ratings of an apparently inferior group on specific parts or individual questions? In other words, are significant differences in performance between various groups on individual items or subtests due to factors or characteristics which are peculiar to a particular institutional group? Several such factors that might be mentioned are those which may be termed regional, curricular, vocational and occupational, or those that are related to attitudes, interests, and values.

If it be found that a group is superior on items of a certain type, it may be implied that the inclusion of relatively more of such items would bring about a better showing for that group on the appropriate subtest, and on the total test. Thus, it appears that some groups may be favored by the selection of items and consequently receive ratings which are not legitimately comparable with the rating of other institutional groups on the same test or subtest.
An analysis of the performance of two institutional groups on the whole test, on parts and on component items may provide tentative answers to the foregoing questions.

It is, therefore, the primary purpose of this investigation to analyze the performances of two institutional groups on the Cooperative General Culture Test; to determine whether one group tests significantly superior on the test as a whole and, if so, whether this superiority is maintained by the group on the various subtests. This study also seeks to determine whether a group which receives a significantly higher total score or higher part scores tests significantly better on all of the individual items which comprise the Cooperative General Culture Test. It may also be possible by the method adopted to discover any factors or group characteristics which may account for institutional or group idfferences. Further, this investigation attempts to examine the Cooperative General Culture Test as a test of general culture, and its suggested values and uses in the light of the concept of regionalism and regional differences and with respect to the results of the present study.

The present study differs from traditional investigations in differential psychology in that the results of the two groups are compared not only in terms of total and component part scores, but they are also compared item by item in regard to their responses to the 450 individual questions that comprise this test.
CHAPTER II

DESCRIPTION OF SUBJECTS AND DATA

In an attempt to investigate institutional differences in the manner suggested in Chapter I, the technique adopted is to compare the performances of two populations from geographically separated sections of the United States, on the Cooperative General Culture Test of the Sophomore Testing Program. The two groups compared are sophomore students at Wayne University (WU), Detroit, Michigan, and at the Louisiana State University (LSU) in Baton Rouge, Louisiana. Of the 537 students in the WU group, 334 were women and 203 were men; in the LSU group 225 were women and 448 were men, a total of 703 individuals.

The basic factors which influenced the selection of Wayne University for a comparative study with Louisiana State University were that both institutions participated in the 1942 Sophomore Testing Program and also administered the American Council on Education Psychological Examination to all entering freshmen. Wayne University's Division of Student Personnel was willing to cooperate in this investigation by supplying information and allowing the present investigator to use the original answer sheets of the students taking the Cooperative General Culture Test.

General Background of Subjects

Education.—All students were in their fourth semester in their respective universities at the time they took the tests included in this program. The majority of WU students had completed a twelve-
year-course of elementary and high school training before entering college, but all save a few of the LSU students were the products of only eleven years of pre-college training.

Comparing the two universities, we find that WU is operated under the authority of the Board of Education of the City of Detroit. It is supported financially by the City of Detroit and by Wayne County. LSU is a land grant institution and receives approximately 65 percent of its general income from state appropriations and grants-in-aid. The remainder of its income is secured from various charges, sales, grants, endowments and auxiliary enterprises, (21).

LSU requires the presentation of 16 units of high school credit for admission; WU requires 15 high school entrance units. Although WU has no operationally separate colleges of Commerce, Agriculture or Chemistry and Physics, it does have a considerable number of courses offered in commerce, chemistry and physics. Unlike WU, LSU does not have a College of Pharmacy. Both universities are quite similar in terms of types of courses and in the relative size of the various colleges. No particular form of selective admission programs is used at either institution except in the cases of a very limited number of special students.

Age.—Sophomore students at WU are, on the average, about one half year older than students at LSU. Table III is presented for comparative purposes and gives all salient information for comparisons.
Table III

Mean Ages and Variability of WU Men and Women and LSU Men and Women

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>19.30</td>
<td>19.13</td>
<td>19.20</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.20</td>
<td>1.75</td>
<td>1.60</td>
</tr>
<tr>
<td>LSU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>18.79</td>
<td>18.47</td>
<td>18.67</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.19</td>
<td>1.20</td>
<td>1.19</td>
</tr>
<tr>
<td>CR</td>
<td>4.76</td>
<td>5.42</td>
<td>6.41</td>
</tr>
</tbody>
</table>

Intelligence.— Table IV shows the percentile ratings of entering freshmen of the two universities for the past nine years on the national norms of the American Council on Education Psychological Examination. The 1937 rating for WU is not available.

Table IV

Percentile Ratings of WU and LSU Students on the National Norms of the American Council on Education Psychological Examination

<table>
<thead>
<tr>
<th>Year</th>
<th>WU</th>
<th>ISU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1933</td>
<td>65</td>
<td>25</td>
</tr>
<tr>
<td>1934</td>
<td>67</td>
<td>30</td>
</tr>
<tr>
<td>1935</td>
<td>61</td>
<td>26</td>
</tr>
<tr>
<td>1936</td>
<td>47</td>
<td>26</td>
</tr>
<tr>
<td>1937</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>1938</td>
<td>69</td>
<td>30</td>
</tr>
<tr>
<td>1939</td>
<td>55</td>
<td>31</td>
</tr>
<tr>
<td>1940</td>
<td>51</td>
<td>35</td>
</tr>
<tr>
<td>1941</td>
<td>54</td>
<td>34</td>
</tr>
</tbody>
</table>
It can be seen from this table that the students of both institutions are fairly consistent in their national rating on these tests. WU, however, tends to be slightly above the national norms, whereas LSU is decidedly below the national average.

Place of Residence.—Specific information on the place of residence for individual students is not available; however, from accessible data* several statements may be made. Approximately 67.3 percent of students enrolled in WU are graduates of Detroit public and private high schools, 25.9 percent are from Michigan outside of Detroit and 5.3 percent from the United States outside of Michigan.

From two previous studies, (16 and 17), it is obvious that the urban areas of Louisiana contribute more students to LSU than the rural areas. Over 50 percent of all students come from cities and about a third from towns and less than 17 percent from farms or plantations.

Treatment of Data

The data of this study are the scores of sophomore students on the 1941 American Council on Education Psychological Examination, and on the Cooperative General Culture Tests, of the Sophomore Testing Program for 1942. The data of this study are punched on International Business Machine cards, with all distributions, sortings and countings being made by I. B. M. tabulating equipment. More complete and detailed descriptions of the treatment of the data are to be found in the various chapters dealing with specific comparative and analytic procedures.

*Personal communication from The Division of Student Personnel, Wayne University.
CHAPTER III

INSTITUTIONAL AND SEX DIFFERENCES
IN TOTAL SCORES AND IN SUB-SCORES

It is apparent from the tables and figures presented in this chapter that WU and LSU sophomores differ considerably in their total scores on the Cooperative General Culture Test. It can be seen in Table V that the sophomores of WU receive a mean score of 174.47 while the mean score for LSU sophomores is 136.53. This represents a difference of 37.94 and the critical ratio has been found to be 12.36 indicating a very definite superiority on the test for WU students. Tables VI and VII and Figures 2 and 3 present the ratings made by the men and women of each population. Tables VIII and IX present tested differences between WU men and LSU men and the differences between WU women and LSU women. Figures 4 and 5 show the same results in terms of the national percentile norms. The difference between the WU and LSU women is 44.74, and the WU women have the higher mean score. The WU men surpass the WU women by 21.43 and have a mean total score of 187.88. The men of LSU exceed the women of LSU by better than 20 points and have a mean score of 144.95. Therefore, it is evident that WU sophomore students of both sexes receive higher average total scores on this test than LSU students. It is also evident that the men of both institutions test significantly better on this test than do women when considering the mean total scores.

Upon examining the scores of the subtests which are shown by the same tables and graphs referred to above, we find that the WU
sophomores test significantly better than the sophomores of LSU on five out of six subtests. The most significant differences occur between the scores made by the two groups on the Current Social Problems, Literature, and Fine Arts parts. It can be seen that the LSU group as a whole tests significantly superior to the WU group on the Mathematics test. Figure 1 shows that WU students reach and exceed the average of the nation on all parts of the test. LSU students reach and exceed the national norm averages only on the Science and Mathematics parts of the General Culture Test.

The men of WU test significantly higher than the men of LSU on five out of six parts and the WU women rate significantly superior to the women of LSU on all of the six subtests. It will be noted that the greatest differences in performance between the men of the two populations occur on the Current Social Problems, Literature and Fine Art sections of the test and the most significant differences between the WU and LSU women are in the Current Social Problems, History and Social Studies, and Literature subtests.

The men of both populations test significantly superior to the women on four of the six subtests. The women of WU and LSU rate higher on the Literature and Fine Arts sections while the men secure significantly higher scores on the remaining subtests. The sex differences in performance on the Cooperative General Culture Test exhibited by the WU and LSU students are similar to the normative sex difference data for the nation cited in Table I in the introductory chapter.
Table V
Mean Scores and Variability of LSU sophomores and WU sophomores on the General Culture Test. (1942)

<table>
<thead>
<tr>
<th>Part</th>
<th>WU, N = 532</th>
<th></th>
<th>LSU, N = 703</th>
<th></th>
<th>Diff.</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Score</td>
<td>S.D.</td>
<td>Mean Score</td>
<td>S.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Current Social Problems</td>
<td>35.56</td>
<td>10.92</td>
<td>24.75</td>
<td>10.50</td>
<td>10.81</td>
<td>17.52</td>
</tr>
<tr>
<td>2. History &amp; Social Studies</td>
<td>26.70</td>
<td>13.05</td>
<td>20.37</td>
<td>11.71</td>
<td>6.33</td>
<td>8.22</td>
</tr>
<tr>
<td>3. Literature</td>
<td>33.64</td>
<td>13.80</td>
<td>23.03</td>
<td>12.58</td>
<td>10.61</td>
<td>13.90</td>
</tr>
<tr>
<td>5. Fine Arts</td>
<td>34.98</td>
<td>13.46</td>
<td>25.19</td>
<td>12.60</td>
<td>9.79</td>
<td>13.01</td>
</tr>
<tr>
<td>General Culture Total</td>
<td>174.47</td>
<td>53.69</td>
<td>136.53</td>
<td>51.51</td>
<td>37.94</td>
<td>12.36</td>
</tr>
<tr>
<td>Part</td>
<td>WU Men, N = 199</td>
<td>WU Women, N = 333</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean Scores</td>
<td>S.D.</td>
<td>Mean Scores</td>
<td>S.D.</td>
<td>Diff.</td>
<td>CR</td>
</tr>
<tr>
<td>1. Current Social Problems</td>
<td>37.12</td>
<td>11.14</td>
<td>34.63</td>
<td>10.67</td>
<td>2.49</td>
<td>4.05</td>
</tr>
<tr>
<td>2. History and Social Studies</td>
<td>31.17</td>
<td>13.67</td>
<td>24.03</td>
<td>11.89</td>
<td>7.14</td>
<td>17.90</td>
</tr>
<tr>
<td>3. Literature</td>
<td>33.71</td>
<td>16.54</td>
<td>33.59</td>
<td>13.45</td>
<td>0.12</td>
<td>0.09</td>
</tr>
<tr>
<td>5. Fine Arts</td>
<td>33.95</td>
<td>14.57</td>
<td>35.59</td>
<td>12.72</td>
<td>1.64</td>
<td>1.31</td>
</tr>
<tr>
<td>6. Mathematics</td>
<td>25.03</td>
<td>10.30</td>
<td>17.29</td>
<td>8.55</td>
<td>7.74</td>
<td>8.92</td>
</tr>
<tr>
<td>General Culture Total</td>
<td>187.88</td>
<td>58.38</td>
<td>166.45</td>
<td>48.95</td>
<td>21.43</td>
<td>4.35</td>
</tr>
</tbody>
</table>
Table VII

Mean Scores and Variability of LSU Men and Women on the General Culture Test of the Sophomore Program (1942)

<table>
<thead>
<tr>
<th>Part</th>
<th>Mean Scores LSU Men, N = 448</th>
<th>S.D.</th>
<th>Mean Scores LSU Women, N = 255</th>
<th>S.D.</th>
<th>Diff.</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Current Social Problems</td>
<td>25.82</td>
<td>11.01</td>
<td>22.87</td>
<td>9.23</td>
<td>2.95</td>
<td>3.79</td>
</tr>
<tr>
<td>3. Literature</td>
<td>22.10</td>
<td>12.56</td>
<td>24.66</td>
<td>12.47</td>
<td>2.56</td>
<td>2.61</td>
</tr>
<tr>
<td>4. Science</td>
<td>24.01</td>
<td>10.15</td>
<td>15.92</td>
<td>8.89</td>
<td>8.09</td>
<td>11.01</td>
</tr>
<tr>
<td>5. Fine Arts</td>
<td>23.67</td>
<td>12.68</td>
<td>27.85</td>
<td>12.01</td>
<td>4.18</td>
<td>4.35</td>
</tr>
<tr>
<td>General Culture Total</td>
<td>144.95</td>
<td>52.80</td>
<td>121.73</td>
<td>45.52</td>
<td>23.22</td>
<td>6.13</td>
</tr>
</tbody>
</table>
Figure 3
National percentile equivalents for mean scores on the Cooperative General Culture Test, Form 5, of LSU men and LSU women.

Men ————  Women ————

Current Social Problems | History and Social Studies | Literature | Fine Arts | Mathematics | General Culture | Total

[Graph showing percentile scores for different subjects]
### Table VIII

Mean Scores and Variability of WU Men and LSU Men on the General Culture Test of the 1942 Sophomore Testing Program.

<table>
<thead>
<tr>
<th>Part</th>
<th>WU Men, N = 199</th>
<th>ISU Men, N = 448</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Scores</td>
<td>S.D.</td>
</tr>
<tr>
<td>3. Literature</td>
<td>33.71</td>
<td>16.54</td>
</tr>
<tr>
<td>4. Science</td>
<td>26.90</td>
<td>10.51</td>
</tr>
<tr>
<td>5. Fine Arts</td>
<td>33.95</td>
<td>14.57</td>
</tr>
<tr>
<td>6. Mathematics</td>
<td>25.03</td>
<td>10.30</td>
</tr>
<tr>
<td>General Culture Total</td>
<td>187.88</td>
<td>58.38</td>
</tr>
</tbody>
</table>
Table IX
Mean Scores and Variability of WU Women and LSU Women on the General Culture Test of the 1942 Sophomore Testing Program.

<table>
<thead>
<tr>
<th>Part</th>
<th>Mean Scores</th>
<th>S.D.</th>
<th>Mean Scores</th>
<th>S.D.</th>
<th>Diff.</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. History and Social Studies</td>
<td>24.03</td>
<td>11.89</td>
<td>16.49</td>
<td>9.73</td>
<td>7.54</td>
<td>8.43</td>
</tr>
<tr>
<td>3. Literature</td>
<td>33.59</td>
<td>13.45</td>
<td>24.66</td>
<td>12.47</td>
<td>8.93</td>
<td>8.32</td>
</tr>
<tr>
<td>4. Science</td>
<td>21.32</td>
<td>8.43</td>
<td>15.92</td>
<td>8.89</td>
<td>5.40</td>
<td>7.46</td>
</tr>
<tr>
<td>5. Fine Arts</td>
<td>35.59</td>
<td>12.72</td>
<td>27.85</td>
<td>12.01</td>
<td>7.74</td>
<td>7.55</td>
</tr>
<tr>
<td>6. Mathematics</td>
<td>17.29</td>
<td>8.55</td>
<td>13.94</td>
<td>11.75</td>
<td>3.35</td>
<td>3.84</td>
</tr>
<tr>
<td>General Culture Total</td>
<td>166.45</td>
<td>48.95</td>
<td>121.73</td>
<td>45.52</td>
<td>44.74</td>
<td>11.43</td>
</tr>
</tbody>
</table>
It seems evident from the results presented in this chapter that if a group does test low in terms of total score on the Cooperative General Culture Test, the same group may rate high when compared to the national norm group or a superior institutional group on some of the subtests. It therefore, appears that the presentation of only an average total score on this test is not particularly meaningful nor does it indicate in any way what type or quality of performance might be expected on any of the parts by any group. It also seems logical to assume that if there were a reweighting of the numbers of items on the various subtests, the relative rating of an institution might be considerably changed. For example if there were 90 items related to mathematics instead of 60 and only 60 items dealing with literature in place of 90, the national rating of LSU men on the total score would probably be significantly altered. A reallocation of questions in science and fine arts might also change the standing of the LSU men on the total test. It would appear that the scores of the men of WU would be increased by the addition of more items in the fields of current social problems and history and social studies. Similar examples of the possibility of changing the relative ratings of the women of both populations could be cited. Changes in the contents of the test would not only affect the ratings on national norms but would also change their ratings relative to the men of the same population.

It seems to the present investigator that these findings have important implications not only for the interpretation of the Cooperative General Culture Test but also for test construction and
test interpretation in general. These implications will be considered in the discussion of this study in a later chapter.

Tables A to F in Appendix I of this study present the intercorrelations between age, total score and subtests scores on the Cooperative General Culture Test and the means and standard deviations for age, total and subtests scores for sophomores of WU and LSU and their component sex groups.

Tables H and K present the correlations between age and total score on the Cooperative General Culture Test and the total score on the American Council on Education Psychological examination and its Quantitative and Linguistic scores. Also presented in Tables H and K are the means and standard deviations for age, total General Culture Test scores and the Quantitative and Linguistic and total Psychological Scores for sophomores of WU and LSU and their component sex groups.

The data presented in Appendix I are given for the convenience of the reader who might be interested in the relationships of the subtests to the whole test as well as the interrelationships between the subtests themselves. These data represent an analysis of the General Culture test in terms of correlations and intercorrelations and demonstrate certain relationships which might contribute to a more complete understanding of the General Culture Test as well as its relationships to various measurable factors.

The coefficients of correlation shown in Appendix I were computed from matrices of moments and product-moments arrived at by a variation of the Mendenhall-Warren-Hollerith Correlation Method (1)
on International Business Machine punched card equipment.
CHAPTER IV

ITEM COMPARISONS

In this section, the percent of LSU students and the percent of WU students passing each question are compared to determine which items are significantly easier for the WU sophomores or the students at LSU or for either sex subgroup of these student populations.

Similar, though not identical, analytic techniques have been used by Bruce (2) and Jones (6). Both investigators were interested in uncovering specific environmental handicaps and advantages in specific subtests and test items for different groups. As previously stated, the present investigation adopted the technique of item comparison as the most suitable method of determining and demonstrating any apparent prejudicial effect any of the items may have which would seem to favor either one group or another.

The differences between the performances of the groups on specific items was evaluated by determining the percent of each group which answered the item correctly, finding the differences between these percentages, and determining the critical ratio. In tables X and XI, immediately following, only items whose critical ratio is or exceeds 2.58 are considered differentiating items. In other words, in the present study a $D/\sigma_D$ of 2.58 or higher is taken as indicative of a significant difference between the percents of students of two groups who answered an item correctly. Several other values of this ratio have been suggested as indicating significant differences,
Fisher suggests a critical ratio of 2.00 (5), McCall 2.78 (8), Lindquist 2.576 (7) while Peters and Van Voorhis (14) present evidence for an acceptance of a critical ratio of 1.73 as indicating differences that are statistically significant. The arbitrary selection of 2.58 as a criterion for the difference to be discussed means that differences as great or greater would occur not more than one in one hundred times if the two groups had been selected by chance from the same population.

In the tables presented in this section the following abbreviations are used:

<table>
<thead>
<tr>
<th>General Culture Total Score</th>
<th>GC Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part I: Current Social Problems</td>
<td>CSP</td>
</tr>
<tr>
<td>Part II: History and Social Studies</td>
<td>HSS</td>
</tr>
<tr>
<td>Part III: Literature</td>
<td>L</td>
</tr>
<tr>
<td>Part IV: Science</td>
<td>S</td>
</tr>
<tr>
<td>Part V: Fine Arts</td>
<td>FA</td>
</tr>
<tr>
<td>Part VI: Mathematics</td>
<td>M</td>
</tr>
</tbody>
</table>

Table X presents a summary of the differences between the two groups and between their component sex sub-groups. The differential performance of the WU and LSU sophomore student population of both sexes is again apparent in this table. When the two sexes are combined we find that of 450 items in the test as a whole, WU students tested significantly better on 230 items or 51.11 percent while LSU students were significantly superior on 47 or 10.44 percent of the total number of items.

It may also be seen that, when compared to the men of their respective populations, WU women and LSU women do not test significantly superior on any item in Part VI: Mathematics. On this subtest, the men of WU test significantly superior to WU women on 43 items or
### TABLE X

RESULTS OF GROUP COMPARISONS ON INDIVIDUAL ITEMS

<table>
<thead>
<tr>
<th></th>
<th>CSP Part I</th>
<th>HSS Part II</th>
<th>L Part III</th>
<th>S Part IV</th>
<th>FA Part V</th>
<th>M Part VI</th>
<th>GC Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Items</td>
<td>75</td>
<td>75</td>
<td>90</td>
<td>60</td>
<td>90</td>
<td>60</td>
<td>450</td>
</tr>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>WU Men</td>
<td>8 10.67</td>
<td>21 28.00</td>
<td>3 3.33</td>
<td>23 38.33</td>
<td>4 4.44</td>
<td>43 71.67</td>
<td>102 22.67</td>
</tr>
<tr>
<td>WU Women</td>
<td>3 4.00</td>
<td>1 1.33</td>
<td>4 4.44</td>
<td>2 3.33</td>
<td>23 25.56</td>
<td>0</td>
<td>33 7.33</td>
</tr>
<tr>
<td>LSU Men</td>
<td>18 24.00</td>
<td>24 32.00</td>
<td>5 5.56</td>
<td>36 60.00</td>
<td>3 3.33</td>
<td>56 93.33</td>
<td>142 31.56</td>
</tr>
<tr>
<td>LSU Women</td>
<td>2 2.67</td>
<td>4 5.33</td>
<td>13 14.44</td>
<td>4 6.67</td>
<td>22 24.44</td>
<td>0</td>
<td>45 10.00</td>
</tr>
<tr>
<td>WU Men</td>
<td>39 52.00</td>
<td>36 48.00</td>
<td>37 41.11</td>
<td>15 25.00</td>
<td>41 45.56</td>
<td>3 5.00</td>
<td>171 38.00</td>
</tr>
<tr>
<td>LSU Men</td>
<td>3 4.00</td>
<td>4 5.33</td>
<td>1 1.11</td>
<td>2 3.33</td>
<td>5 5.56</td>
<td>19 31.67</td>
<td>34 7.56</td>
</tr>
<tr>
<td>WU Women</td>
<td>41 54.67</td>
<td>28 37.33</td>
<td>32 35.56</td>
<td>24 40.00</td>
<td>38 42.22</td>
<td>13 21.67</td>
<td>176 39.11</td>
</tr>
<tr>
<td>LSU Women</td>
<td>2 2.67</td>
<td>7 9.33</td>
<td>4 4.44</td>
<td>1 1.67</td>
<td>6 6.67</td>
<td>12 20.00</td>
<td>32 7.11</td>
</tr>
<tr>
<td>WU Total</td>
<td>50 66.67</td>
<td>40 53.33</td>
<td>43 47.78</td>
<td>31 51.67</td>
<td>54 6.00</td>
<td>12 20.00</td>
<td>230 51.11</td>
</tr>
<tr>
<td>LSU Total</td>
<td>4 5.33</td>
<td>11 14.67</td>
<td>3 3.33</td>
<td>1 1.67</td>
<td>6 6.67</td>
<td>22 36.67</td>
<td>47 10.44</td>
</tr>
</tbody>
</table>
71.67 percent, and the LSU men excel LSU women on 56 or 93.33 percent of the items.

From Table X it can be seen that both WU women and LSU women test significantly better than the men of their respective populations on many items in the fine arts section of the Cooperative General Culture Test. LSU women test significantly superior on 13 items of the literature section while LSU men excel them on only 5 items of a total of 90 items. WU men test significantly better than the WU women on 3 items, while WU women test better on 4 items of Part III: Literature, than WU men.

It is interesting to note that the WU men test significantly better than LSU men on 38.00 percent of the 450 items in the total test. Likewise WU women test significantly superior to LSU women on 39.11 percent of the 450 items. LSU men test significantly better on 7.56 percent of the items while LSU women excel on 7.11 when compared to WU sophomores of the same sex.

Table A of the Appendix gives the percentages of correct answers for each of the 450 individual items. This material is presented for each sex group of both populations.

Item Comparisons With Matched Groups

Upon an examination of the previously presented data it became increasingly apparent to the author that intelligence probably played an important part in the performances of the groups on this test. The differences in intelligence between the two groups, presented in Chapter II, represented an uncontrolled factor. The coefficients of correlation indicate that between the Linguistic Score of the
American Council on Education Psychological Examination and the General Culture total score there is a high or marked degree of relationship. These coefficients of correlation are: for WU men .694, for WU women .687, for LSU men .768, and for LSU women .714.

In an attempt to control this additional factor, it was decided to make item comparisons between groups matched on the basis of intelligence. Therefore, 142 men students of WU were matched on total American Council on Education Psychological Examination scores with 142 men students of LSU. The actual matching of the two university groups was accomplished by sorting the individual results of each group in order of total raw score on the American Council on Education Psychological Examination; then, in so far as it was possible, selection was made of identical scores person by person for LSU men and for WU men. When this procedure was impossible, the scores of persons were considered matched if they did not vary more than two points in total raw score. The same matching method was used to match two groups of 142 women students from each population. The men were not matched in intelligence with the women.

The results of these item comparisons are presented in Table XI. From this table it is apparent that, despite the fact that the groups are matched on the basis of scholastic aptitude, WU sophomore students still answer a significantly greater number of questions correctly than do sophomore students at LSU. However, in the section of this test which deals with mathematics, the men of LSU rate significantly better on 36 percent of the items while the men students of WU answer only two items significantly better than LSU men.
TABLE XI

Number and Percentage of Items Answered Correctly by a Significantly Greater Percentage of 142 Sophomore Students of WU or 142 Sophomore Students of LSU Matched on the Basis of Total Score on the American Council on Education Psychological Examination, 1941 Edition.

<table>
<thead>
<tr>
<th></th>
<th>CSP</th>
<th>HSS</th>
<th>L</th>
<th>S</th>
<th>FA</th>
<th>M</th>
<th>GC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Part I</td>
<td>Part II</td>
<td>Part III</td>
<td>Part IV</td>
<td>Part V</td>
<td>Part VI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of Items</td>
<td>75</td>
<td>75</td>
<td>90</td>
<td>60</td>
<td>90</td>
<td>60</td>
<td>450</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>WU Men</td>
<td>28</td>
<td>37.33</td>
<td>15</td>
<td>20.00</td>
<td>21</td>
<td>23.33</td>
<td>5</td>
<td>8.33</td>
</tr>
<tr>
<td>LSU Men</td>
<td>1</td>
<td>1.33</td>
<td>3</td>
<td>4.00</td>
<td>0</td>
<td>2</td>
<td>3.33</td>
<td>2</td>
</tr>
<tr>
<td>WU Women</td>
<td>31</td>
<td>41.33</td>
<td>24</td>
<td>32.00</td>
<td>19</td>
<td>21.11</td>
<td>11</td>
<td>18.33</td>
</tr>
<tr>
<td>LSU Women</td>
<td>1</td>
<td>1.33</td>
<td>3</td>
<td>4.00</td>
<td>4</td>
<td>4.44</td>
<td>2</td>
<td>3.33</td>
</tr>
</tbody>
</table>
In comparing Tables X and XI, it is apparent that matching the institutional groups on the basis of intelligence does, in general, reduce the total number of items showing significant differences between the institutional groups. This confirms the expectation of such a finding which was based upon the coefficients of correlation between intelligence and the General Culture Test total scores. However, matching increases the number of items in the mathematics subtest on which the LSU men test significantly superior and the women of LSU test significantly superior to WU women on one additional items in the section on science.

It is evident from this examination of the performance of the LSU and WU students on individual items of the Cooperative General Culture test, that a group which receives a low total score and some low part scores does not test consistently inferior on all the individual items. Since there are definite differentials in performance between the populations considered on the individual items of this test as well as on the total and subtests it may be that certain questions, by their very nature or composition, may give an advantage to one group which does not prevail for the other or for the national norm group. It appears likely that if there is a sufficient number of questions which are significantly easier for a particular group, that group may be favored excessively on the whole test or on subtests and therefore receive a rating which is not legitimately comparable with the national norm group.

It also seems reasonable to assume that since there are items on which WU and LSU sophomores differ significantly similar results
would be found with other institutional groups. If institutional

groups are, by their nature or unique backgrounds, favored by some

questions, the technique of item selection is of greatest importance
to the validity, meaning and usefulness of this and similar tests.
CHAPTER V

COMPARISON OF SELECTED ITEMS

Since it has been demonstrated in the previous chapter that WU and ISU students differ significantly on individual items, it will be interesting to examine the contents of some of the items. It is the purpose of this section of the study to determine whether there are any plausible reasons which may be suggested for the superior ratings of one or the other group on specific questions. Such an examination might reveal any factors or characteristics, peculiar to a particular group that are operative in the production of significant superiority on various items. Several factors that were mentioned in Chapter I of this study are those which may be called regional, curricular, vocational and occupational, or those that are related to attitudes, interests and values.

An examination of all of the individual items on which LSU and WU were significantly different would lengthen the report of this investigation excessively. The investigator has selected only two items from each subtest on which the sophomore students of WU were significantly superior, and has chosen for discussion practically all of the items on which LSU students were significantly superior. It must be remembered that all comparisons made in this chapter are between the LSU populations and the WU groups of the same sex matched on the basis of intelligence scores. In the examination of the individual items the correct answer is indicated by a line
Part I: Current Social Problems

The WU sophomores of both sexes are significantly superior to the students of LSU in their performance on item 2 of this section. This item reads:

2. In the average small town, the chief disadvantage of the present system of control of education by local school boards lies in the fact that
   1 they are often made up of persons with little knowledge of education.
   2 serious cases of graft and corruption have occurred.
   3 they are likely to be influenced by party politics.
   4 the members draw high salaries for very little work.
   5 they leave all decisions to the principal and take little interest in school affairs.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU Men</td>
<td>73.9%</td>
<td>41.5%</td>
<td>5.85*</td>
</tr>
<tr>
<td>WU Women</td>
<td>67.0%</td>
<td>35.2%</td>
<td>5.66</td>
</tr>
</tbody>
</table>

The significant superiority of WU students on this item may possibly be explained by the fact that the small towns of Louisiana do not have local school boards and, in fact, there are very few city school systems in the state. Louisiana has a highly centralized system of education consisting of Parish (County) School Boards and a powerful State Department of Education. Therefore, it seems probable that since Louisiana possesses no local school board system, the

*The figures presented below this question indicate the percentage of LSU men and Wayne men in the matched groups who answered the question correctly, together with the CR. The same data are given for the two groups of women. Similar data will be given for the other questions presented in this chapter.
disadvantages of such an educational system would be of but little concern to the people of the state.

The students of Wayne University also test significantly superior on item 39:

39. Of the following, the lag in production of defense goods in 1940 and 1941 was caused chiefly by
1 the necessity for first constructing production tools.
2 the great number of strikes.
3 inadequate transportation facilities.
4 the conscription into the Army of workers who would have been more useful in industry.
5 lack of funds.

<table>
<thead>
<tr>
<th>Item</th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU Men</td>
<td>74.6%</td>
<td>45.1%</td>
<td>5.32</td>
</tr>
<tr>
<td>WU Women</td>
<td>65.4%</td>
<td>22.6%</td>
<td>8.06</td>
</tr>
</tbody>
</table>

Since the average citizen of Louisiana and probably the average Southerner has an agrarian sphere of reference, the immediate causes of lags in production are probably not particularly apparent to him. On the other hand, a majority of WU students come from Detroit, a world manufacturing center, and their awareness of the practical problems entailed in the production of defense goods would possibly be more acute and hence contribute to their superiority on this question.

LSU sophomores test significantly better on only one item in the part dealing with Current Social Problems. This item is worded

58. In the past ten years, the replacement of agricultural workers by tractors has had the most serious effect in the
1 New England States.
2 Middle Atlantic States.
3 Southern States.
Northwestern States.

Pacific Coast States.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>24.7%</td>
<td>44.4%</td>
<td>3.57</td>
</tr>
<tr>
<td>Women</td>
<td>28.9%</td>
<td>48.6%</td>
<td>3.48</td>
</tr>
</tbody>
</table>

Since the answer to this question is the third option, the reason for this superiority seems self-evident. The South is by and large an agricultural region and an awareness of agricultural labor problems is to be expected.

Part II: History and Social Studies

Sophomores at WU tested significantly better on item 46.

46. The trusts of the late nineteenth century were usually
1 world-wide in scope.
2 dependent on government contracts.
3 concerned with commodities produced chiefly for export.
4 concerned with a single commodity.
5 limited to a particular part of the country.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>52.1%</td>
<td>27.5%</td>
<td>4.38</td>
</tr>
<tr>
<td>Women</td>
<td>45.0%</td>
<td>28.1%</td>
<td>3.00</td>
</tr>
</tbody>
</table>

The fact that trusts developed first in America in the North and Northeast may account for the superiority of WU students on this question. It is further believed that choice 5 may be considered an acceptable answer since trusts were, by and large, a development of northern and industrial cultures.

WU students also tested superior to LSU students on item 49 which states

49. A trend that has been fairly continuous in American history for the past hundred years is
1 the growth of an industrial proletariat.
2 increasing popular demand for territorial expansion.
3 the draining away of second-generation immigrants from cities to the agricultural frontier.
4 the spread of a constantly growing network of railroads.
5 increasingly cheap money.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>71.8%</td>
<td>39.4%</td>
<td>5.82</td>
</tr>
<tr>
<td>Women</td>
<td>67.7%</td>
<td>34.6%</td>
<td>5.91</td>
</tr>
</tbody>
</table>

The almost complete absence of an industrial proletariat in Louisiana would seem to favor the performance of a population of northern students from an urban manufacturing area. Again it appears that the difference in performance may be due to regional or curricular factors or the characteristics of the place of residence of the populations considered.

Both men and women of LSU appear to be much better acquainted with the information called for on question 10.

10. At the time of the Renaissance, students of Greek and Roman literature were called
1 scholastics.
2 humanists.
3 Hellenists.
4 chroniclers.
5 antiquarians.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
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</thead>
<tbody>
<tr>
<td>Men</td>
<td>25.2%</td>
<td>50.0%</td>
<td>4.44</td>
</tr>
<tr>
<td>Women</td>
<td>26.0%</td>
<td>45.0%</td>
<td>3.41</td>
</tr>
</tbody>
</table>

The reason suggested for the superiority of the LSU group on this item, by members of the LSU History Department, is that a good deal of time is spent on the discussion of this material in the introductory course in history. It was further stated that a very similar question has been included in tests given to students in History 1-2, and this question was answered correctly by a majority of students in the course. It, therefore, seems likely that the superiority of the LSU group on this item may be due to course content emphasis.

Sophomore men of LSU test much better than WU men on item 17
which states:

17. The period of the absolutist kings in France of the sixteenth and seventeenth centuries was marked by
   1. the steady growth of political liberalism.
   2. peace and internal prosperity.
   3. the establishment of French control over the entire Italian peninsula.
   4. French commercial ascendancy in Europe.
   5. many wars.

WU Men 43.7%  LSU Men 61.3%  CR 3.02
WU Women 39.4%  LSU Women 54.2%  CR 2.53

There is no immediately apparent reason for LSU men students to do
better on this question than either women of LSU or students from
another institution. However, this question has to do with the
history of France and since Louisiana has considerable French culture
in its background, the results on this item may be somewhat affected
by this background.

The differential ratios of 2.65 for both men and women on the
following question may perhaps be attributed to the geographic
location of LSU and the home residences of its students. The ques-
tion is:

66. Most of the large cities of Central America and
   northern South America are in the highlands because
   1. the entire surface of these lands is rugged.
   2. mining is the principal industry.
   3. the lowlands are in danger from floods.
   4. highlands are more easily defended.
   5. the climate is more pleasant.

WU Men 40.8%  LSU Men 56.3%  CR 2.65
WU Women 36.7%  LSU Women 52.1%  CR 2.65

The relative proximity of Louisiana to Central America and northern
South America and the number of Latin American students at LSU is
probably the important factor in producing a better informed group
at LSU on this and similar questions.

There is no apparent reason why a significantly greater percent of LSU than WU women should answer the following question correctly.

72. A spirit of social cooperation and a feeling of oneness with the group are most noticeable in
1 periods of prosperity.
2 times of war or catastrophe.
3 periods of territorial expansion.
4 old and stable societies.
5 societies marked by social stratification.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>49.3%</th>
<th>LSU Men</th>
<th>50.7%</th>
<th>CR L2*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WU Women</td>
<td>43.0%</td>
<td>LSU Women</td>
<td>58.4%</td>
<td>CR 263</td>
</tr>
</tbody>
</table>

There was no significant difference between the men of WU and the men of LSU in their performance on this item.

Part III: Literature

The reasons for the superiority of the WU group of students on item 19 are not clear.

19. One of the Paul Bunyan legends tells how Paul straightened out a crooked road by hitching his ox to one end of it and pulling. This story is reminiscent of those told by
1 Baron von Munchausen.
2 Sir Thomas Malory.
3 La Fontaine.
4 Francois Villon.
5 Cervantes

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>80.3%</th>
<th>LSU Men</th>
<th>52.1%</th>
<th>CR 5.26</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WU Women</td>
<td>52.1%</td>
<td>LSU Women</td>
<td>21.9%</td>
<td>CR 5.55</td>
</tr>
</tbody>
</table>

The fact that Paul Bunyan is a legendary character belonging primarily to the northern lumbering sections would seem to favor a northern group of subjects, however, the question could be answered

*L2 indicates a critical ratio of less than 2.00.*
simply by recognition of the relationship between "tall tales" and Baron Munchausen.

There are no reasons apparent to the present investigator which might explain the significant superiority of WU sophomore students on item 26.

26. A Pole who became one of England's best-known writers is
   1 Michael Arlen
   2 Joseph Conrad
   3 Saki
   4 Israel Zangwill
   5 Max Berbohm

   WU Men 69.7%  LSU Men 38.7%  CR 5.52
   WU Women 68.3%  LSU Women 38.0%  CR 5.37

The women of LSU answer correctly four questions on literature significantly more often than do the women of WU. These items are:

6. The first of the following forms to be used in English literature was the
   1 short story.
   2 sonnet.
   3 personal essay.
   4 novel.

   WU Men 62.7%  LSU Men 71.1%  CR L2
   WU Women 59.1%  LSU Women 76.8%  CR 3.25

7. Beowulf is typical of early epics in its emphasis on
   1 the heroic migration of peoples.
   2 the founding of a race by the gods.
   3 physical combat.
   4 the return of the dead.
   5 the fulfillment of a curse.

   WU Men 52.1%  LSU Men 59.9%  CR L2
   WU Women 53.6%  LSU Women 70.4%  CR 2.96

44. Natty Bumppo was also known as
   1 Chingachgook.
   2 Leatherstocking.
   3 Satanstoe.
4 the pilot.
5 the fascist ideal of dictatorship by a strong leader.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR  L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU Women</td>
<td>22.5%</td>
<td>31.7%</td>
<td>CR L2</td>
</tr>
<tr>
<td>LSU Women</td>
<td>14.8%</td>
<td>28.9%</td>
<td>CR 2.92</td>
</tr>
</tbody>
</table>

56. The device used by Chaucer in the Canterbury Tales, of having his characters take turns in telling stories, was also used by:
1 Spenser in The Faerie Queene.
2 Milton in Paradise Lost.
3 Browning in Pippa Passes.
4 Shakespeare in The Rape of Lucrece.
5 Boccaccio in the Decameron.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR  L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU Women</td>
<td>45.1%</td>
<td>52.1%</td>
<td>CR L2</td>
</tr>
<tr>
<td>LSU Women</td>
<td>28.1%</td>
<td>50.0%</td>
<td>CR 3.38</td>
</tr>
</tbody>
</table>

This higher percentage of correct answers made by LSU women may be due to the fact that a majority of women at LSU take a survey course in English Literature during their sophomore year. proportionately few men take this survey course. From an examination of these items it can be seen that at least three of them would definitely be considered during the first semester of this survey course. The question on Cooper however, suggests no ready explanation for a higher percentage of correct responses from the women of LSU.

Part IV: Science

The students of WU tested significantly better than the LSU students on the following questions.

14. A modern writer of popular treatments of scientific subjects is
1 Albert Einstein.
2 A. J. Cronin.
3 Paul de Kruif
4 Max Planck
5 Emil Ludwig

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR  L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>WU Women</td>
<td>59.9%</td>
<td>28.2%</td>
<td>CR 5.68</td>
</tr>
<tr>
<td>LSU Women</td>
<td>56.3%</td>
<td>17.7%</td>
<td>CR 7.35</td>
</tr>
</tbody>
</table>
28. Thomas Hunt Morgan is best known for his experiments with the fruit fly. The most significant results of these experiments have been in the field of 1 heredity.
2 physiology.
3 anatomy.
4 evolution.
5 insect control.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>WU Women</th>
<th>LSU Women</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>46.5%</td>
<td>26.8%</td>
<td>32.2%</td>
<td>17.7%</td>
<td>5.68</td>
</tr>
<tr>
<td>Women</td>
<td>32.2%</td>
<td>26.8%</td>
<td>17.7%</td>
<td>17.7%</td>
<td>7.35</td>
</tr>
</tbody>
</table>

The fact that Paul de Kruif lives in Michigan may be an operative factor in producing a superiority of WU students on question 14 of this subtest. There are no reasons apparent to the present investigator which might account for the differential performances on item 28 above.

A higher percentage of men from Louisiana State University answer the following item correctly. It reads:

2. Most of the gasoline in the United States is obtained commercially from
1 natural gas.
2 coal tar
3 kerosene.
4 lubricating oil.
5 crude oil.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>WU Women</th>
<th>LSU Women</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>84.5%</td>
<td>94.4%</td>
<td>60.6%</td>
<td>66.1%</td>
<td>2.74</td>
</tr>
<tr>
<td>Women</td>
<td>60.6%</td>
<td>94.4%</td>
<td>66.1%</td>
<td>66.1%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Since Louisiana is an oil producing state and oil wells are found on the LSU campus and since one of the largest oil refineries in the country is located in Baton Rouge, one may be justified in saying that LSU students would be more apt to do better on this question than students from WU in Detroit which is quite removed from oil producing or oil refining sections of the United States.

There is no reason obvious to the author for the superiority of LSU women on the following item:

47. Spontaneous generation means the formation of living organisms directly from nonliving matter
2 sprouting of plant seeds before they are placed in the soil.
3 birth of animals in a fully developed condition.
4 development of an unfertilized egg.
5 growth of buds on plants and simple animals.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>42.3%</td>
<td>47.2%</td>
<td>L2</td>
</tr>
<tr>
<td></td>
<td>31.7%</td>
<td>58.4%</td>
<td>4.69</td>
</tr>
</tbody>
</table>

The same reason advanced for a superiority of LSU men on item 2 of this section would probably also hold true for item 54 of this same section.

54. One reason why kerosene cannot efficiently be substituted for gasoline in the automobile of the present time is that kerosene is
1 too corrosive.
2 not volatile enough.
3 not volatile.
4 non inflammable.
5 too dense.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45.1%</td>
<td>62.0%</td>
<td>2.90</td>
</tr>
<tr>
<td></td>
<td>24.7%</td>
<td>18.3%</td>
<td>L2</td>
</tr>
</tbody>
</table>

No reason to account for the significant superiority of LSU women on items 60 has been suggested.

60. If a book is held 3 ft. from a 36-candlepower lamp, the intensity of illumination on the book is
1 108 foot-candles.
2 36 foot-candles.
3 12 foot-candles.
4 4 foot-candles.
5 6 foot-candles.

<table>
<thead>
<tr>
<th></th>
<th>WU Men</th>
<th>LSU Men</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.2%</td>
<td>13.4%</td>
<td>L2</td>
</tr>
<tr>
<td></td>
<td>2.9%</td>
<td>10.6%</td>
<td>2.63</td>
</tr>
</tbody>
</table>

Part V: Fine Arts

In this section of the test either WU men or WU women or both test significantly superior on 27 items. Of these 27 items, 14 are questions in the field of music. In this section there is a total of 25 items on music and either the men or women of WU or both test
significantly superior to the corresponding LSU groups on 14 of these music questions. LSU students do not test significantly better than WU students on any items dealing with music. The superiority of the WU group may be due to particular course offerings at WU or may be due to the fact that WU is located in an urban center which is usually included in the tours of musicians or musical organizations. Although LSU is not superior on any music items, it does excel on some items in the field of fine arts.

More men and women of LSU answer items 52 and 79 in this section correctly than do men and women of WU. The critical ratios for item 52 are 3.36 for women and 3.79 for men. For item 79, the critical ratios are 4.64 for the women and 6.23 for the men. These significant differences are probably due, in the main, to the emphasis given to these questions in the introductory course in History which includes a history of the development of different cultural movements and specifically mentions the answers to these questions. This information was secured from both students and representatives of the Department of History. The questions are:

52. The study of the art of prehistoric man was greatly advanced by the discovery of drawings on the
1 Swiss lake-houses.
2 cliffs of Dover.
3 funeral caskets of the Ancient Indians.
4 walls of Spanish caves.
5 walls of undersea grottoes near Crete.

WU Men 33.1% LSU Men 54.9% CR 3.79
WU Women 28.9% LSU Women 47.9% CR 3.36

79. Which one of the following is known for his enameled terracotta plaques and portraits?
1 Giotto
2 Boticelli
3 Fra Angelico
The women of LSU again exceed the women of WU in the number of times they answer the following question correctly.

81. John Constable is best known for his
   1. etchings
   2. portraits
   3. landscapes
   4. sea pictures
   5. sporting prints

The critical ratio is 2.80 and the reasons for the superiority of LSU women on this item is not known.

Part VI: Mathematics

From the results presented in Chapter IV it is clear that the men students at LSU reach and exceed the national average in their rating on this part of the Cooperative General Culture Test. It is difficult to account for the superiority of any group on a test of mathematics except in terms of the number and quality of the courses in mathematics to which the group has been exposed. It is difficult to believe that the mathematics section of the Cooperative General Culture Test is measuring cultural background, regardless of past studies. It further seems apparent that in any test of mathematics the only thing one does measure is material or information usually acquired in specific courses in mathematics. Textbooks in mathematics are not the type of book an individual selects.
for cultural reading nor do they appear to be used on the campus of LSU in any such role. To the present investigator, it appears to be a hopeless, if not impossible, task to demonstrate any pre-judicial effects of a regional nature in any individual item. It is the writer's contention that what is measured in the mathematics section of this test is dependent upon the course backgrounds of the group in the field of mathematics and consequently has no place in a test which purports to measure cultural background "regardless of past studies" (4).

The general results of the item comparisons presented in this chapter seem to indicate that the significant superiority of a particular group on certain items can be explained, in many instances, by reference to the effect of factors that seem to be peculiar to either one or the other institutional group or to particular sex groups which comprise these student populations.
CHAPTER VI
DISCUSSION

From the data presented in Chapters III, IV, and V of this report several implications may be drawn, and it is the belief of the present investigator that, from these data, important questions arise related to test construction and interpretation.

The results given in Chapter III demonstrate clearly that the total score on the Cooperative General Culture Test gives no indication or particularly reliable evidence of the general superiority or inferiority of a group throughout the test. It is apparent from the data that a group which tests below the average of the nation can and does test superior on one or more parts of the test and therefore, exhibits no consistency in relative standing to the total score or the parts of the test.

There are 75 questions on the test dealing with current social problems, and on the test on history and social studies, 90 questions on literature and also 90 on fine arts, and 60 on science and on mathematics. It was suggested that it would be possible to change the national rating of a group on the total test score by a redistribution of a number of items in the various subtests. The inclusion of any given number of items on a particular field of knowledge seems to be an arbitrary operation, and one might argue for the inclusion of more items in one field and fewer in another field. It is conceivable that with a readjusted number of items in
several fields of knowledge, the sex, institutional, and regional
groups which attain superior ratings in comparison to the national
norm group might differ considerably from those which at present
have a superior rating.

These findings give rise to questions concerning the basic
techniques of test construction and interpretation. If it is found
that an institutional group rates inferior on the total test score
and yet secures a high score on one or more of the subtests, it is
pertinent to question the practice of adding together the results
of the subtests to give an index of the cultural background of any
group. Such a practice also carries obvious implications as to
the nature of culture itself. It seems to imply that general culture
is the result of an additive process. According to this particular
test, general culture appears to be the sum total of approximately
75 parts of Current Social Problems, a similar amount of History
and Social Studies, 90 parts of Literature and of Fine Arts and 60
parts each of Mathematics and Science. Though this may appear to
be a reductio ad absurdum, it does serve to suggest the danger of
combining the scores of what are essentially separate tests of fact-
ual information and calling this sum an index of anything.

The Cooperative Test Service itself exhibits some indecision
as to the ingredients of general culture. Several years ago, the
General Culture Test yielded only three part scores in addition to
the total. These part scores were for History, and Social Science,
Foreign Literature, and Fine Arts. It is apparent that general
culture has changed and some new things have been added.
The data presented in Chapter IV show that neither group tested consistently better on individual items, but that there are many questions on which one or the other rated significantly better. The discussion of selected individual items in Chapter V suggests that many of the significant differences in performance on particular items may be explained in terms of characteristics peculiar to a particular group or in terms of the unique backgrounds of the groups. It has been further suggested that some of these have factors which are of an academic, residential, or regional nature as well as dependent upon the interests, values, and attitudes of particular institutional groups.

The above findings suggest that a definite change in the relative standing of a group on a subtest could be effected by a different selection of component items. The evidence demonstrates that a part score is not a reliable indicator of the performance of the group on individual items of that part. Therefore, with a different selection of items the relative standing of two institutions on a subtest might be changed and even reversed in terms of superiority. The Cooperative Test Service has not indicated clearly the rationale of the selection of items in any field.

In several reports and announcements of the Sophomore Testing Program and recently in "The War-Time Role of the College Sophomore: A Report of the 1942 Sophomore Testing Program", page 9, (4) the Cooperative Test Service of the American Council on Education explains the purpose of its Cooperative General Culture Test. Crissy and Pedersen of the Cooperative Test Service staff say:
"The Cooperative General Culture Test, Form S is a three-hour comprehensive examination which provides a profile of the student's knowledge of current social problems, history, literature, fine arts, science and mathematics". They go on to say: "The test is not intended to serve the same purpose as a course examination in any of the subjects, but rather to measure the cultural background of the individual regardless of his past studies".

It has frequently been the practice of some testing-enthusiasts to devise a test, name it, and call whatsoever it measures by the name arbitrarily given to the test. It is the belief of the present investigator that the compilers of the Cooperative General Culture Test were both ultra-ambitious and overly enthusiastic. To call a test a general culture test implies not only that it measures culture per se, but also, that culture is general and that the test will give an indication of general cultural level. To say that this test is intended to measure the cultural background of the individual regardless of his past studies, implies that this test is measuring something fundamental in society, something ethnological in character; the results of a synergy of social forces and processes.

It seems apparent from the data presented that what the Cooperative General Culture Test does provide is in many instances an estimate of the amount of factual information acquired through work in various courses in the academic background of the individual or group. Further, it seems impossible to explain the gross fluctuations of groups on various subtests of this examination without consideration of the past studies of the groups or the individual.
The scores made by male students of LSU on the mathematics section of this test seem to illustrate this point very clearly. There appears to be no way to account for the significant superiority of the men of LSU on the Mathematics part as a whole and on individual items without reference to their past studies. As previously mentioned, there is no evidence that the students of LSU talk or read more mathematics than any other group of students. However, mathematics is a required course at LSU that must be taken before entering many of the senior colleges, and similar requirements do not prevail at WU. Since LSU sophomore men students test better than the average of the nation in mathematics, as well as better than the average of WU students, what possible interpretation of a cultural nature can we make concerning the rating of LSU men on this part of the test without qualifying it with a statement having to do with their academic background?

Any test which purports to measure general culture and is suggested for nationwide use by its compilers, must, of necessity, take into consideration the fact that regional differences may exert themselves in affecting the performance of a group on such a test. Yet, it is apparent that test constructors have frequently ignored their existence in spite of the regional consciousness that is present in America. The National Resources Committee in "Regional Factors in National Planning and Development" page 154, (10) states:

"It is a known fact of human ecology or geography that there is an active interrelation between the patterns of human culture and activity on the one hand, and the natural environment on the other. In no sense is this meant to imply that one is causal to the other; rather,
it is a way of saying that the structures and occumance patterns of man tend to vary with the character of the natural environment because the former are molded and adjusted to, and in a large measure derived from materials of the latter. These ecological relationships are so fundamental that they may be said to be the real determinants of regions. Moreover, they surround man with different conditions for living, different degrees of success in winning a livelihood, and different factors which challenge attention, engross interest, and set social psychology and public opinion. Thus, regional differences may be said to be also psychological realities.

The statements of the National Resources Committee might well be considered by psychologists in general and particularly by constructors of psychological and educational tests. Summarizing the views expressed in the book "Southern Regions of the United States", Vance says: "Envisaging the United States as a vast mosaic of naturally defined geographic areas, economic sections, and cultural regions concludes that the social direction of present trends for the commonweal be accomplished by simultaneous, integrated planning for the nation as a whole and the component regions which make up the nation." (20) The need for such planning in the field of testing seems to be evident.

Although psychologists are evidently not particularly concerned with the problem, sociologists in general seem to be well aware of the diversity of culture within the United States. Vance (18,19), Moore (9), and Odum (12,13), all speak of regional cultures, their assets and liabilities and discuss at length regionalism and regional culture. These authors leave no doubt as to the distinctiveness of the culture of different regions of this country and point out differential sets of values peculiar to regions. The
National Resources Committee in "The Problems of a Changing Population" (11) discusses throughout one chapter, pages 222-251, "The great variety of cultural heritages among different groups in the United States, their interactions and transitions". If the above committee and authors are correct in their conclusion that wide cultural diversity exists in the United States, how can all this diversification be adequately and validly measured in one test of so-called general culture?

... General culture may be thought of as a cultural core. It can be defined as consisting of those aspects of culture which are common or available to all the individuals, or at least common to a majority of the individuals living within a country which uses a common language. If this concept is adopted it seems evident, that any test which purports to measure general culture must be intimately concerned with this cultural core and must provide an indication of the attainment of this basic core. It is with those aspects of culture which are characterized by homogeneity, throughout the component regions of a country, that the test constructors should probably be concerned in the development of a test of general culture.

Another factor which the present investigator believes is important in the interpretation of this test is one which has to do with one of the suggested values and uses of the Cooperative General Culture Test. It is related to the suggested guidance function of this test. Since the results of this study do exhibit institutional differences in the performance on total and part scores and on
individual items, what effect do these differentials have on the
guidance and appraisal functions of the General Culture Test, and
similar tests that may be affected by culture diversity?

Selover at Minnesota (15) has found that the sophomore achievement
tests give evidence of value in predicting the university
departments in which students may successfully major. In his
reported research, Selover has demonstrated the usefulness of the
sophomore test battery for guidance and appraisal. However, the
question is, do the results and findings of such a study have any
more than local implications? In other words, could a southern or
far western university use the normative data for different major
groups at Minnesota? Presumably not. Since it is only in the field
of mathematics that the men students of Louisiana State University
exhibit any particular degree of excellence on the General Culture
Test, it would be tempting to do vocational and educational gui-
dance merely on the basis of sex. If the individual were a male
student at Louisiana State University the chances would be better
that he would do well in mathematics than he would in any other
subject.

Since different institutional groups test differently on the
Cooperative General Culture Test, it becomes obvious that for gui-
dance purposes, norms must be local or at least regional. Tests of
vocational interest, preferences and values must also be interpreted
in light of the subject's or the group's cultural background. Job
opportunities or vocational possibilities differ from region to
region and unless these factors are recognized, misleading will
occur. From a multiplicity of research and analyses, it seems apparent that society and culture condition the total development of the individual and, to understand the individual, implies an understanding of his cultural and social heritage. Furthermore, it seems reasonable in view of the facts that in order to measure validly any variable that may be subject to cultural forces, test constructors must be aware of regionalism of all types and be able to negate its effects or modify their approach.

It has been pointed out that certain questions do apparently have a prejudicial effect in favor of one institutional group or another. Is it not probable, therefore, that the values and attitudes of the two groups are reflected in their performance on these items and consequently on the parts and test as a whole? It seems reasonable to assume that the values of various groups determine what type of knowledge or what factual information is the mark of a useful individual or an individual of high or average culture. And if a body of knowledge is conditioned by a particular culture, it is apparent that, until the radio, the cinema, national magazines and other general cultural implements have had their greatest influence and fullest effect, tests of culture must be regional as well as general.
This investigation is a study of the Cooperative General Culture Test published by the Cooperative Test Service of the American Council on Education. Its chief purpose is to examine the generality of performance on this test by comparing the performances of two university groups in regard to total scores, sub-scores, and individual items. It also has as its purpose the examination of the total score on this test as an index of general cultural background. In addition to an investigation of institutional differences the study includes an examination of the differential performance made on this test by the component sex groups of sophomores from Wayne University and from Louisiana State University. Results are presented in terms of national percentile norms as well as in terms of raw scores.

Probably the most significant analytic approach used in this study consists of an item comparison of the answers of the two sophomore student populations. The responses of these populations to individual questions are considered for the total groups as well as for their component sex groups.

In an attempt to control the factor of intelligence, 142 men from each population are matched on the basis of their scores on the American Council on Education Psychological Examination. A similar matching is made for 142 women students from each university.
The results of these matched groups are analyzed in terms of significant differences on individual questions, and the items are examined for any prejudicial effect that they might have in favor of either institutional sex group.

From the investigation of the data, the following results and conclusions may be reported.

1. Large significant differences exist between the populations of WU and LSU in total score and in scores on subtests of the Cooperative General Culture Test. The sophomore students of WU secure a higher average rating on the total test and on all subtests except the mathematics section on which the students of LSU exceed the average of WU students as well as the national norm group. However, the degree of superiority varied markedly from test to test.

2. The men of WU exceed the men of LSU on total score ratings and on all part score ratings with the exception of the mathematics part, on which the LSU men test slightly better. The WU women rate significantly better than LSU women on all of the subtests as well as on the test as a whole. Here, too, the degree of superiority of WU students was not uniform from test to test.

3. Sex differences in performance on the General Culture Test are apparent in both groups of sophomore students. The men of WU test significantly better than the women of the same population on those sections of the test devoted to current social problems, history and social studies, science, and mathematics, and the men of WU also receive higher total scores than WU women. The women of WU did not test significantly higher than the men of WU on any of
the subtests. The men of LSU test significantly higher than the women of LSU on the same parts on which the men of WU exceed the women of WU. However, the women of LSU test significantly better than the men of the same institution on the literature and fine arts sections.

4. There are institutional and sex differences in the performances of the groups on a large number of the component individual items of this test. The test contains 450 items. In the unmatched total groups, WU was significantly superior on 230 questions; LSU was superior on 47 items.

5. With groups matched in intelligence, significant differences between institutions still occur in both sexes in performance on many individual questions. On some items, WU is superior; on other items, LSU is superior. From an examination of these items, it is concluded that, for the LSU and WU groups, many of these differences may be accounted for in terms of factors which might be called curricular, regional or residential as well as those that are dependent upon interests, values and attitudes that are peculiar to or characteristic of either institutional group.

6. It is concluded that the total scores on the General Culture Test are of doubtful meaning since it has been demonstrated that a group which tests significantly high or low on the test as a whole exhibits no particular consistency in its ratings on the subtests. It is possible for an institutional group to excel on one or more parts of the test and rate low on others. There is evidence to show that a part score is not even a reliable indicator
of the performances of the group on individual items of that sub-test. It follows therefore that with a different selection of items, the relative standing of two institutions on a subtest might be changed considerably and might perhaps even be reversed. Also a different selection of subtests, or a different weighting of sub-tests, could radically alter institutional standings in regard to total score.

7. The Cooperative General Culture Test does not "measure the cultural background of the individual regardless of his past studies", but is much influenced by the background a group may have in specific course work. This is particularly obvious in regard to mathematics.

8. There are numerous factors which probably influence the performances of a university group and render its scores different from the scores of another institutional group.

9. The Cooperative General Culture Test cannot be used for guidance purposes unless local or regional norms are developed as points of reference for particular populations. In other words, the work of Selover (15), at Minnesota should not be used as a standard for southern, for western or any regional group other than the Minnesota group.

The implications of these and other findings discussed in Chapter VI lead to the general conclusion that there are many shortcomings in the Cooperative General Culture Test and that some of the suggested values and uses of this test are questionable. The findings also indicate some of the problems which must be solved by any other attempt to devise a satisfactory test of general culture.
BIBLIOGRAPHY


2. Bruce, Myrtle, Factors Affecting Intelligence Test Performance of Whites and Negroes in the Rural South. Arch. Psychol., N. Y., 1940, No. 252.


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Appendix I

Correlations and Intercorrelations

As previously mentioned, the coefficients of correlations presented in appendix were computed from matrices of moments and product-moments arrived at by a variation of the Mendenhall-Warren-Hollerith Correlation Method of International Business Machine punched card equipment.

The following abbreviations are used in the tables presented in this section:

<table>
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<th>GC Total</th>
</tr>
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<tbody>
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<td>CSP</td>
</tr>
<tr>
<td>Part II: History and Social Studies</td>
<td>HSS</td>
</tr>
<tr>
<td>Part III: Literature</td>
<td>L</td>
</tr>
<tr>
<td>Part IV: Science</td>
<td>S</td>
</tr>
<tr>
<td>Part V: Mathematics</td>
<td>M</td>
</tr>
<tr>
<td>American Council on Education</td>
<td>ACE</td>
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Table A

Intercorrelations between Age, Total Score and Sub Tests on the Cooperative General Culture Tests and Mean and Standard Deviation for Age, Total and Subtests for Wayne University Sophomores. N = 532.

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<th>S</th>
<th>FA</th>
<th>M</th>
</tr>
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Intercorrelations between Age, Total Score and Subtests on the Cooperative General Culture Test and Mean and Standard Deviation for Age, Total of Subtests for Wayne University Men. N = 199.

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<td>.710</td>
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<td>.481</td>
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Intercorrelations between Age, Total Score and Subtests on the Cooperative General Culture Test and Mean and Standard Deviation for Age, Total, and Subtests for Wayne University Women. $N = 333$.

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### Table D

Intercorrelations between Age, Total Score and Subtests on the Cooperative General Culture Test and Mean and Standard Deviation for Age, Total and Subtests for Louisiana State University sophomores. N = 703.

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Mean 18.67 136.53 24.75 20.37 23.03 21.07 25.19 22.13
S.D. 1.19 51.51 10.50 11.71 12.58 10.46 12.60 13.34
Table E

Intercorrelations between Age, Total Score, and Subtests on the Cooperative General Culture Test and Mean and Standard Deviation for Age, Total and Subtests for Louisiana State University Men.  N = 448.

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S.D. | 1.20  | 45.52   | 9.23  | 9.78  | 12.47 | 8.89  | 12.01 | 11.75 |
Correlations between Age, Total Score on the Cooperative General Culture Test and the Total Score on the American Council on Education Psychological Examination and its Quantitative (Q) and Linguistic (L) Scores. Mean and Standard Deviation for Age, Total General Culture Test and the Quantitative and Linguistic and Total Psychological Scores for Wayne University Men. N = 146.

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Table H

Correlations between Age, Total Score on the Cooperative General Culture Test and the Total Score on the American Council on Education Psychological Examination and its Quantitative (Q) and Linguistic (L) Scores. Mean and Standard Deviation for Age, Total General Culture Test and Quantitative and Linguistic and Total Psychological Scores for Wayne University Women. N = 251.

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Table I

Correlations between Age, Total Score on the Cooperative General Culture Test and the Total Score on the American Council on Education Psychological Examination and its Quantitative (Q) and Linguistic (L) Scores. Mean and Standard Deviation for Age, Total General Culture Test and the Quantitative and Linguistic and Total Psychological Scores for Louisiana State University Men. N = 383.

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Mean 18.72 143.45 40.32 60.12 100.44
S.D. 1.00 52.49 10.48 16.09 23.31
Table J

Correlations between Age, Total Score on the Cooperative General Culture Test and the Total Score on the American Council on Education Psychological Examination and its Quantitative (Q) and Linguistic (L) Scores. Mean and Standard Deviation for Age, Total General Culture Test and the Quantitative and Linguistic and Total Psychological Scores for Louisiana State University Women. N = 193.

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S.D.  .10  44.33  11.38  14.74  23.00
APPENDIX II

ITEM COMPARISON OF UNMATCHED GROUPS

TABLE A

Item Comparisons for Part I: Current Social Problems

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Appendix IV

The Cooperative General Culture Test, Form S
AMERICAN COUNCIL ON EDUCATION

COOPERATIVE GENERAL CULTURE TEST

REVISED SERIES FORM S

by MARY WILLIS, MARGARET MARTIN, CARL A. PEARSON, CARL BLOSE, WILLIAM MOLLENKOPF, and AGATHA TOWNSEND, Cooperative Test Service; and JOHN G. ZIMMERMAN, Monmouth County Junior College

with the editorial assistance of

CLYDE J. CRIBB, FLORENCE M. HOGLAND, ANDREW LEITCH, PEARL MARAFFEY, ERLI D. MCKENZIE, JOHN W. REYNARD, W. H. SPRAGENS, W. J. SUMPTINE, and W. K. WOOLERY, Bethany College

ALEXANDER CALANDRA and MARTIN MEYER, Brooklyn College

ALLAN ABBOTT, ROBERT L. CAREY, WILLIAM CLIFF, RAY FAULKNER, SAMUEL McKEE, JR., MARTIN Y. MUNSON, DOUGLAS MOORE, LLOYD MOTZ, LYDIA BOND POWELL, and L. P. SICLOFF, Columbia University


MINA REES, Hunter College

Please print:

Name..........................................................................................................  Date ........................

Last First Middle

Grade or Class..........................................................Age..................................Date of Birth............................

Yrs. Mos.

School or College.............................................City........................................Sex.............M. or F.

General Directions: Do not turn this page until the examiner tells you to do so. The General Culture Test consists of six parts and requires 180 minutes of working time. A five-minute relaxation period will be allowed by the examiner at the end of Part III. Scratch paper should be provided for Part VI.

There is a time limit of 30 minutes for each part. Even if you have not finished a part when the time is up, you must proceed at once to the next part. If you finish a part before the time is up, you may not go on to the next part or back to a preceding part.

Directions for the entire test are given at the beginning of Part I. Read them carefully and proceed at once to answer the questions. Do not spend too much time on any one item; answer the easier questions first, then return to the harder ones if you have time. No one is expected to answer all the questions, or even a majority of them; but you should be sure that you have answered all the questions that you can answer correctly before you spend time on harder questions.

It is important that you read all the items in each section, whether or not you have studied the subject dealt with. Even in sections covering fields in which you have not taken courses, you will probably be able to answer some questions.

By exercising careful judgment and making shrewd inferences you may profitably answer questions about which you are not absolutely sure; but since wrong answers will involve a subtraction from the number of your correct answers, you should avoid sheer guessing.
Directions: Each of the incomplete statements or questions below is followed by several numbered choices. Select the one that best completes the statement or answers the question, and put its number in the parentheses at the right.

PART I: CURRENT SOCIAL PROBLEMS (30 minutes)

1. The past twenty years have seen a decrease in the number of
   1 public clinics.
   2 state hospitals.
   3 rural schools.
   4 junior colleges.
   5 state universities. .................................................. ( )

2. In the average small town, the chief disadvantage of the present system of control of education by local school boards lies in the fact that
   1 they are often made up of persons with little knowledge of education.
   2 serious cases of graft and corruption have occurred.
   3 they are likely to be influenced by party politics.
   4 the members draw high salaries for very little work.
   5 they leave all decisions to the principal and take little interest in school affairs. ... . ( )

3. The broadcast in Spanish of such radio programs as the "American School of the Air" is an indication of the
   1 increasing importance of Spanish as a school subject.
   2 immigration of large numbers of Spanish-speaking people into the United States.
   3 desire of Latin Americans for education.
   4 growth of trade with Latin America.
   5 effort to foster cultural relations with Latin America. ........................................................ ( )

4. Which one of the following conductors has done most to bring good symphonic music to the motion picture screen?
   1 Alfred Wallenstein
   2 Leopold Stokowski
   3 Eugene Ormandy
   4 Bruno Walter
   5 Fritz Reiner ........................................................ ( )

5. An advertisement says, "Eat Crispo breakfast food. It contains the same vital food elements that are found in sirloin steak, goat's milk, wheat germ oil, and other costly foods." Although the advertisement may be true, one may not be justified in buying Crispo for the reason given, because
   1 the presence of these elements may add to the cost of the cereal.
   2 these elements may be present in Crispo in such small quantities as to be of little value.
   3 it may not contain enough calories to provide energy.
   4 the same food elements may be obtained in capsule form.
   5 many people are healthy who eat none of the foods mentioned in the advertisement. ... . ( )

6. State governments aid churches chiefly by
   1 giving them land grants.
   2 subsidizing church schools.
   3 WPA aid in church construction.
   4 enforcing Sunday-closing laws.
   5 exempting church property from taxation. ........................................................ ( )

7. The marriage rate is lowest among
   1 urban women engaged in unskilled labor.
   2 very wealthy women.
   3 professional women.
   4 white-collar working women.
   5 farm women. ........................................................ ( )

8. A bloc which wields a great influence on government economic policy is that made up of
   1 farmers.
   2 retail trade workers.
   3 professional workers.
   4 civil service workers.
   5 naturalized aliens. .................................................. ( )

9. Which one of the following projects would be most likely to receive aid from the Community Chest?
   1 Building a theater for the local high school
   2 Supporting a religious mission in the slums
   3 Paying the salary of the secretary of the Chamber of Commerce
   4 Sending underprivileged children to a summer camp
   5 Bringing new industries to the town .................................................. ( )

10. Which one of the following deals most extensively with the subject of individual liberty?
    1 The Declaration of Independence
    2 The Preamble to the Constitution
    3 The Constitution as originally drawn up
    4 The Bill of Rights
    5 The Monroe Doctrine .................................................. ( )

11. Labor unions favor restriction of immigration chiefly in order to
    1 keep their management free of foreign influence.
    2 facilitate slum clearance.
    3 emphasize the idea that labor unions are an American institution.
    4 allow time for complete assimilation of our alien population.
    5 reduce competition .................................................. ( )

12. The mortality rate is greatest
    1 under one year of age.
    2 from one to two years of age.
    3 from two to three years of age.
    4 from three to four years of age.
    5 from four to five years of age. ........................................ ( )

13. The problem of controlling a surplus of agricultural products falls chiefly in the province of the
    1 Farm Credit Administration.
    2 American Farm Bureau Federation.
    3 Office of Facts and Figures.
    4 federal land banks.
    5 Agricultural Adjustment Administration. .................................................. ( )

14. Juvenile delinquency has been shown to decrease with an increase in
    1 freedom of action.
    2 formal church membership.
    3 severity of punishment.
    4 population density.
    5 recreational opportunities. .................................................. ( )

Go on to the next page.
The chief advantage of vitamin fortification of such foods as milk and bread lies in the fact that
1 vitamins can be provided more cheaply in this way than in any other.
2 vitamins contained in foods are less perishable than capsule vitamins.
3 it automatically ensures a supply of vitamins to nearly every individual.
4 it enables the consumer to estimate the amount of each vitamin that his diet provides.
5 it increases the consumption of these basic foods.

The form of commercial insurance most frequently carried by the very poor is
1 old-age insurance or payments on annuities.
2 sickness insurance under company auspices.
3 accident insurance.
4 hospitalization insurance under state control.
5 life insurance for burial purposes.

The right to strike for higher wages has generally not been conceded to
1 agricultural laborers.
2 civil service employees.
3 railroad men.
4 clerical workers in private industry.
5 workers in intrastate commerce.

Of the following, the most serious aspect of the migrant-labor problem has been the fact that
1 migration reduces the paying population of agricultural areas.
2 it lowers the wages of Middle Western farm workers.
3 migrants hoard whatever money they earn in order to return to their homes.
4 many migrants are foreigners.
5 a majority of migrants need some form of relief.

Modern city and regional planners generally agree that there should be
1 continued growth of city life.
2 an intentional concentration of factories in certain parts of the country.
3 collectivization of agriculture in order to free more men for industry.
4 an integration of city and country.
5 preservation of country life from urban influences.

The average intelligence of the population of rural regions is most seriously affected by the
1 excessive amount of physical labor required on farms.
2 draining of slum populations to the rural areas.
3 higher proportion of members of unassimilated racial groups.
4 draining of the more alert members of the population from the country to the city.
5 higher rural birth rate.

Many farm homes have been modernized through government aid to
1 water-supply systems.
2 electrification projects.
3 village reconstruction.
4 home economics classes in rural areas.
5 rural sanitation projects.

22. Which one of the following would be most likely to suffer temporary or permanent loss of the right to vote?

1 A person who has neglected to vote at the last five elections
2 A naturalized citizen whose former country is at war with the United States
3 A civil servant
4 A person uneducated beyond the fourth grade
5 A person who is a public charge in a state institution

23. A principle laid down by Roosevelt and Churchill in the Atlantic Charter as one of the postwar aims of England and the United States is that of
1 racial equality for the colored races.
2 freedom from want.
3 management of industry by the labor unions.
4 government ownership of the means of production.
5 old-age insurance or payments on annuities.

24. In present-day America, there is the greatest danger that active intolerance may result from
1 war hysteria.
2 religious prejudice.
3 differences of education.
4 differences of wealth.
5 sectional differences.

25. Morale in Army camps is said to be most seriously affected by
1 the economy program in regard to food and housing.
2 the men's fear of losing out in their businesses and professions while they are in the Army.
3 physical fatigue with consequent emotional depression.
4 the ban against promoting enlisted men to officer rank.

26. If an urban worker in the lower income brackets is ill of a chronic disease, he is most likely to obtain medical aid from a
1 private physician paid by the city.
2 company physician.
3 cooperative hospitalization society.
4 public clinic.
5 government physician.

27. Propaganda presented in moving pictures is likely to be particularly effective because
1 serial pictures allow for repetition of the point the propagandist wishes to make.
2 it reaches many persons of voting age in this manner.
3 censorship is less strict on motion pictures than on the press.
4 people who are being entertained are relaxed and receptive.

28. Of the following, the tax most easily shifted to other persons is the
1 inheritance tax.
2 gift tax.
3 processing tax.
4 income tax on wages and salaries.
5 poll tax.
29. A recent law requires the labeling of
1 canned goods according to vitamin content.
2 meat according to the date of butchering.
3 woolen goods according to the content of new
wool, re-used wool, and other materials.
4 furniture according to the type and quality
of wood used.
5 fruit according to time of picking.

30. The most prevalent crime in the United States,
as shown by the number of arrests, is
1 homicide.
2 embezzlement.
3 assault.
4 larceny.
5 inciting to violence.

31. The smallest relative reduction in living costs
from 1929 to 1941 was in
1 an average of rent, food, and clothing.
2 rent.
3 food.
4 clothing.
5 an average of food and clothing.

32. In comparison with the 1935 to 1939 average,
the cost of living in 1941 was about
1 the same.
2 1% higher.
3 3% higher.
4 8% higher.
5 12% higher.

33. The sharpest drop in living costs was between
1 1929 and 1932.
2 1932 and 1937.
3 1937 and 1941.
4 1929 and the 1935-39 average.
5 1932 and the 1935-39 average.

34. The average cost of living was lowest in
1 the 1935 to 1939 period.
2 1929.
3 1932.
4 1937.
5 1941.

35. The modern family differs from that of thirty
years ago by
1 being patriarchal in organization.
2 giving less authority to the father.
3 being more likely to include other relatives
besides the parents and children.
4 being more likely to include a servant in the
household group.
5 possessing greater stability of living condi-
tions.

36. The government's official policy toward the In-
dian now claims to stress
1 the erasure of tribal culture and the assimila-
tion of Indians into the white race.
2 retention of the more valuable elements
of tribal culture.
3 population control as a means of relieving
economic pressure.
4 the substitution of individual for communal
ownership of land.
5 the substitution of mechanized industry for
agriculture as a means of livelihood.

37. Contrary to forecasts, in 1941 a marked rise
took place in the American
1 mortality rate.
2 morbidity rate.
3 death rate.
4 birth rate.
5 immigration rate.

38. In practically all cases, the deferred-payment
or long-term installment-buying plan
1 lowers the retailer's overhead costs.
2 lessens the profit of the retailer.
3 increases the buying power of a family over a
long period of time.
4 involves the payment of high carrying
charges.
5 acts as a deflationary measure.

39. Of the following, the lag in production of de-
fense goods in 1940 and 1941 was caused chiefly
by
1 the necessity for first constructing produc-
tion tools.
2 the great number of strikes.
3 inadequate transportation facilities.
4 the conscription into the Army of workers
who would have been more useful in in-
dustry.
5 lack of funds.

40. A cause of dissatisfaction between producer
and exhibitor in motion pictures has recently,
been relieved by an agreement to
1 limit the length of the film program.
2 show no films containing propaganda.
3 change the procedure in regard to block-
booking of films.
4 charge equal rental for all films.
5 reduce the admission rates for new features.

41. Safeguards have been set up in the Selective
Service Act to protect the rights of
1 persons of German or Italian descent.
2 men who have already received military
training in the National Guard.
3 defense workers.
4 professional workers.
5 conscientious objectors.
The 1940 census showed that for the first time in the history of the United States
1 the center of population had moved southward.
2 immigration from northern Europe had exceeded that from southern Europe.
3 population had increased most rapidly in the West.
4 the population of the great cities had failed to show any great gain. ........................................( )

Of the following occupations, seasonal variation in employment is most common in
1 clothing manufacture.
2 steelmaking.
3 transportation.
4 textile weaving.
5 domestic service. ............................................( )

From the point of view of the owners of a system of chain stores, the chief advantage of having five or six supermarkets in a city instead of twenty small neighborhood stores is
1 the ability to buy goods in larger quantities.
2 reduced rent, heat, and lighting costs.
3 reduction in the expense of delivering goods to their customers.
4 the opportunity to concentrate on a smaller number of products at lower prices. . . . . ( )

The term "socialized medicine" best applies to
1 the provision of group medical care at a low annual rate.
2 direct federal control of all physicians and medical centers.
3 the establishment of free clinics whose physicians contribute their time.
4 the building of hospitals at public expense.
5 the provision of elementary health instruction in the public schools. ........................................( )

Of the following, the most serious objection to the present system of private practice in medicine is the fact that
1 the average doctor is not a graduate of a first-rate medical school.
2 separate offices provide inadequate laboratory facilities.
3 the average physician has too heavy a case load.
4 there are too many doctors in the small towns.
5 competition between doctors brings fees down to too low a level. . . . . . . . . ( )

Labor unions have recently instituted certain reforms in response to attacks in the press charging that
1 a large proportion of union membership is made up of workers of foreign birth.
2 wages of unionized labor are too high.
3 they are under corrupt management.
4 they violate the Wagner Act. . . . . . . . . . . . . . . . ( )

A large part of our defense industries are said to be particularly vulnerable in case of war because they are
1 under European ownership.
2 situated near the coast.
3 subject to wage-hour legislation.
4 staffed largely by men of military age.
5 heavily in debt. .............................................( )

49. The maker of this cartoon would be most likely to favor
1 following a laissez-faire policy toward farm prices.
2 controlling industrial wages.
3 releasing part of the government food surplus.
4 lowering the value of the dollar. . . . . . ( )

50. Which of the following groups has objected most vigorously to daylight saving?
1 Railroad workers
2 Farmers
3 Housewives
4 Storekeepers
5 Electric power companies . . . . . . . . . ( )

51. In the United States, recent years have shown an increase in the
1 illegitimacy rate.
2 rate of infant mortality.
3 rate of maternal mortality.
4 frequency of occurrence of bacterial diseases.
5 number of patients in the institutions for the insane. .............................................( )

52. The food stamp plan has been of most benefit to
1 the taxpayer.
2 persons on relief.
3 families in the lower income groups.
4 sharecropping farmers.
5 private charitable institutions . . . . . . . . ( )

53. The chief advantage of the new method of freezing food, as compared with older methods of food preservation, is that it
1 costs less,
2 lowers transportation costs.
3 makes food more digestible.
4 provides more palatable and attractive food.
5 moves food surpluses more rapidly. . . . . . . . . ( )

54. According to the physical examinations given to recruits, present-day Americans are superior to those of 1917 in
1 being taller and heavier.
2 having fewer eye defects.
3 having fewer dental defects.
4 nervous stability. . . . . . . . . . . . . . . . . . . ( )

Go on to the next page.
63. The difficulty of tracing criminals has increased in the past generation because of:
   1. improved means of transportation.
   2. the use of plastic surgery.
   3. laws forbidding the use of FBI men in crimes, not affecting the government.
   4. the decreased size of the police force.
   5. laws prohibiting the fingerprinting of suspects.

64. State-operated birth-control clinics have recently been opened in certain states and territories in an effort to meet the problem of:
   1. rural overpopulation and poverty.
   2. industrial unemployment.
   3. unassimilable immigrant population.
   4. mental deficiency.

65. In some states pensions, as distinct from relief, are provided for the:
   1. paralyzed.
   2. blind.
   3. insane.
   4. feeble-minded.
   5. tuberculous.

66. Of the following, the chief objection made by workers to the piece-wage method of payment is that:
   1. the employer tends to cut the rate as the worker speeds up.
   2. it tends to flood the market with hastily made, shoddy goods.
   3. the efficient and the inefficient worker are paid the same.
   4. it discourages the employment of union labor.
   5. it encourages child labor.

67. Inflationary food costs have the most serious effect on the living standards of persons of low income who:
   1. live in large cities.
   2. live in villages.
   3. work in defense industries.
   4. are independent professional workers.
   5. have an income that is fairly constant.

68. The works of Lewis Mumford and Frank Lloyd Wright frequently deal with the:
   1. improvement of American housing.
   2. need for socialized medicine.
   3. promotion of industrial efficiency.
   4. reform of the currency.
   5. need for improvement in race relationships.

69. An increasing burden is laid upon the public schools chiefly because of the:
   1. lengthening of school hours.
   2. reduced effectiveness of other socializing agencies.
   3. increase in the proportion of the population which is of school age.
   4. lowering of the age of school admission.

70. A church which although relatively small in size has a powerful influence because of its active program of social welfare is the
   1. Adventist.
   2. Greek Orthodox.
   4. Quaker.
   5. Lutheran.
It is probable that some form of relief will always be necessary because
1 a declining population causes industrial depression.
2 the population is steadily increasing.
3 many persons are unemployable.
4 paying full wages to every person of working age would require a larger productive capacity than America possesses.
5 immigration is likely to be a factor of increasing importance.

Subsistence farming has not been accepted as a remedy for unemployment, chiefly because
1 suitable land is not available.
2 many of the unemployed are not physically fit for outdoor work.
3 subsistence farming would decrease the urban population and cause a fall in real estate values.
4 food and rent are only a small part of the relief budget.
5 the unemployed are unwilling to return to primitive rural living conditions.

The charge that "administrative law," or the influence of government bureaus, is becoming too powerful is based chiefly on the fact that
1 the decisions of such organizations often cannot be appealed to the courts.
2 administrative law has not been approved by Congress.
3 a person accused of disobeying the orders of a government bureau is not allowed to present his own case.
4 bureaucrats have frequently been accused of taking bribes.
5 administrative law is expensive to enforce.

PART II: HISTORY AND SOCIAL STUDIES

. The development of civilization in both Egypt and Mesopotamia was furthered by
1 the existence of great nearby civilizations from which arts and crafts could be borrowed.
2 the need for unity against European enemies.
3 a cool, bracing climate conducive to physical and mental vigor.
4 the existence of rivers that could be used for irrigation.
5 the existence of remnants of a high civilization among the original inhabitants of the territory.

. One of the ways in which the legislative body of Rome, at the time of the founding of the Roman Republic, differed from that of the United States was that it
1 consisted of only one house.
2 existed simultaneously with the monarchy.
3 had no real power.
4 was headed by a member of the priesthood.
5 ruled over the city of Rome alone and not over outlying districts.

3. Compared with the Greeks, the Romans had less
1 organizing ability.
2 military ability.
3 artistic ability.
4 legal ability.
5 engineering ability.

4. When the early Greeks reached the Greek peninsula, they found a civilization already established by the
1 Hebrews.
2 Hittites.
3 Cretans.
4 Lydians.
5 Etruscans.

5. The chief benefit of the feudal system to the peasant lay in the fact that it gave him
1 the beginnings of self-government.
2 protection from loss of life and property through raids and outside aggression.
3 permanent possession of a certain plot of land.
4 economic security in sickness and old age.
5 security against falling into serfdom.

Go on to the next page.
6. The impermanence of an empire based upon military force is best illustrated in the career of
1 Alexander the Great.
2 Julius Caesar.
3 Charlemagne.
4 William the Conqueror.
5 Peter the Great.

7. Martin Luther was living when
1 Marco Polo returned from his travels.
2 the Plantagenets ascended the throne of England.
3 Columbus discovered America.
4 the French colonized Canada.
5 England conquered India.

8. A practice that was less general in the Middle Ages than in either ancient or modern times was
1 the use of money.
2 the pursuit of agriculture as a means of livelihood.
3 ownership of property by religious bodies.
4 military service by the upper classes.
5 the apprenticeship system in industry.

9. The Hundred Years' War was fought between
1 England and Scotland.
2 Ireland.
3 Wales.
4 Germany.
5 France.

10. At the time of the Renaissance, students of Greek and Roman literature were called
1 scholastics.
2 humanists.
3 Hellenists.
4 chroniclers.
5 antiquarians.

11. In the Colonial period, which one of the following countries profited least from the discovery of America?
1 Italy
2 Spain
3 Portugal
4 The Netherlands
5 France.

12. The principal effect of the Thirty Years' War on Germany was the
1 organization of the country into a unified political body.
2 triumph of religious tolerance.
3 extreme devastation of the country.
4 unchallenged dominance of the Hapsburgs.
5 success of the Catholic Counter Reformation.

13. The attainment of democratic government in England has been notable for
1 the speed with which it was accomplished once the movement had begun.
2 greater attention to economic than to political democracy.
3 the peaceable methods by which it was accomplished.
4 a tendency to copy the American political system.
5 a tendency to make suffrage depend upon the educational level reached by the voter.

14. A nation that was not important in European affairs until the eighteenth century was
1 France.
2 Austria.
3 Sweden.
4 Spain.
5 Russia.

15. The French Revolution did not specifically attack
1 high officials of the church.
2 businessmen.
3 individual members of the royal family.
4 nobility as an institution.
5 royalty as an institution.

16. The chief nonmilitary achievement of Napoleon Bonaparte was the
1 codification of French law.
2 restoration in full of the privileges of the Catholic Church.
3 establishment of the Estates General.
4 founding of the Universities of Paris and Louvain.
5 founding of the French empire in India.

17. The period of the absolutist kings in France of the sixteenth and seventeenth centuries was marked by
1 the steady growth of political liberalism.
2 peace and internal prosperity.
3 the establishment of French control over the entire Italian peninsula.
4 French commercial ascendency in Europe.
5 many wars.

18. Bismarck's plans for the regeneration of Germany resembled those of Hitler in their emphasis on
1 anti-Semitism.
2 a strengthening of the military machine.
3 the necessity of including Austria in any German union.
4 the formation of a Rome-Berlin axis.
5 control of the Scandinavian countries.

19. Italy achieved national unity and independence at about the time of the
1 discovery of America.
2 American Revolution.
3 American Civil War.
4 Spanish-American War.
5 first World War.

20. In nineteenth-century England the Industrial Revolution had the most serious immediate effect on the workers'
1 standards of medical care.
2 standards of housing.
3 right of suffrage.
4 right to own property.
5 freedom to emigrate.

21. Russia was a fertile field for revolution in 1917 because
1 more of her people were literate than in other European countries.
2 the country was under foreign financial domination.
3 serious religious differences existed.
4 the lot of the poor was especially hard.
5 it was the only country in which serfdom had not yet been abolished.
27. Which of the following areas was the last to be occupied and colonized by Europeans in the modern period?
1 South America
2 North America
3 India
4 Africa
5 The East Indies

30. Which of the following were contemporaries?
1 Metternich and Calvin
2 Darwin and Marx
3 Marlborough and Garibaldi
4 Voltaire and Disraeli
5 Bolivar and Clemenceau

31. During the twentieth century, Europe has been interested in South America chiefly on account of its
1 strategic military position.
2 trade.
3 potentialities as a source of manufactured goods.
4 undeveloped agricultural resources.
5 abundant cheap labor.

32. England’s military situation just after the evacuation of Dunkirk was particularly poor because
1 the major portion of her army had been lost.
2 a large proportion of her military stores had been lost.
3 German submarine activity had virtually cut off her food supply from overseas.
4 her forces had just undergone a similar defeat in the Greek peninsula.

33. For many years after the discovery of America, people failed to realize that
1 the new country represented a potential source of wealth for European nations.
2 the plants and animals of the New World differed from those of the old.
3 white persons as well as Indians could survive in the American climate.
4 a major value of the new country lay in its agricultural possibilities.

34. The English colonists in North America remained for a long time on the Atlantic seacoast, chiefly because of
1 their dependence on fishing as a means of livelihood.
2 the existence of Spanish settlements in the Mississippi valley.
3 the existence of mountain barriers and hostile Indian tribes to the west.
4 the difficulty of clearing the forests.
5 the barrenness of the soil farther inland.

35. The leading aim of the English colonists in the Revolutionary War was to
1 abolish the boundaries between the various colonies.
2 insure religious freedom.
3 avoid taxation.
4 obtain Parliamentary representation on the basis of universal suffrage.
5 preserve the right of self-government that they had already acquired.

36. In both the Revolutionary War and the War of 1812,
1 the American troops were better supplied than the British.
2 England was fighting France as well as America.
3 sea warfare played little part.
4 customs duties were the precipitating cause of the conflict.
5 the English occupied most of the Atlantic seaboard.
A form of revenue raising that was not used by the new government after the American Constitution went into effect was that of
1 requisitions of money from the separate states.
2 the sale of bonds.
3 a tariff.
4 the sale of public land.
5 internal revenue or excise duties.

The interests of the more aristocratic elements of the population were upheld by the
1 Democratic Party in the time of Jackson.
2 Populist Party.
3 Progressive Party.
4 Federalist Party.
5 Republican Party before the Civil War.

The idea that all men were created equal and entitled to the rights of life, liberty, and the pursuit of happiness
1 originated in America.
2 derived from the English constitution.
3 developed from the teachings of the churches.
4 was an outgrowth of English and French philosophy.
5 was an outgrowth of the transcendental movement.

The annexation of Texas resulted in
1 an extension of the slave-holding area of the United States.
2 the banning of slavery in all lands acquired or to be acquired from Mexico.
3 the Missouri Compromise.
4 the admission of California as a slave state.
5 the adoption of the principle of squatter sovereignty.

In the Civil War and in each subsequent war, the United States has
1 encountered great difficulty in organizing and supplying an army.
2 found it necessary to float large foreign loans to finance the war.
3 been handicapped by a scarcity of manpower.
4 suffered heavy loss of life.
5 acquired new territory as part of the peace settlement.

A common aim of the carpetbaggers and the scalawags was to
1 educate the American Negro.
2 restore Southern institutions of the prewar period.
3 maintain white social supremacy.
4 enrich themselves through the misfortunes of the South.
5 further their own careers in national politics.

One of the principal causes of agrarian discontent in the United States in the latter part of the nineteenth century was the
1 draining away of farm labor to the cities.
2 introduction of farm machinery.
3 exhaustion of the soil by a long period of poor farming.
4 feeling that the railroads were exploiting the farmer.
5 resentment against agricultural competition from newly arrived immigrants.

The costumes illustrated in this picture belong to about the time of the
1 founding of Plymouth and Jamestown.
2 French and Indian War.
3 ratification of the Constitution.
4 Mexican War.
5 Civil War.

The theory that social reform is often led by aristocrats is exemplified in the life of
1 Alexander Hamilton.
2 Andrew Jackson.
3 Daniel Webster.
4 Ulysses S. Grant.
5 Theodore Roosevelt.

The trusts of the late nineteenth century were usually
1 world-wide in scope.
2 dependent on government contracts.
3 concerned with commodities produced chiefly for export.
4 concerned with a single commodity.
5 limited to a particular part of the country.

The new American imperialism (after 1898) differed from that of the first half of the nineteenth century in that it was
1 concerned chiefly with settlement for living purposes.
2 not concerned with settlement for living purposes.
3 motivated chiefly by international rivalry.
4 motivated by economic considerations.
5 backed up by military force.

One of the leading planks in the Presidential platforms of William Jennings Bryan was
1 isolationism.
2 free land.
3 fundamentalism.
4 the free coinage of silver.
5 preparedness.
9. A trend that has been fairly continuous in American history for the past hundred years is:
1. the growth of an industrial proletariat.
2. increasing popular demand for territorial expansion.
3. the draining away of second-generation immigrants from the cities to the agricultural frontier.
4. the spread of a constantly growing network of railroads.
5. increasingly cheap money.  

10. A President who owed his election largely to a protest vote was:
1. Theodore Roosevelt.
3. Calvin Coolidge.
4. Herbert Hoover.
5. Franklin D. Roosevelt.  

11. Aside from soldiers, American aid to Britain in the first World War consisted chiefly of:
1. munitions.
2. food.
3. airplanes.
4. submarines.
5. training of British officers in American camps. 

12. The United States offered the greatest resistance to Woodrow Wilson's policy of:
1. aid to the Allies.
2. conscription.
3. self-determination of small nations.
4. setting up an international organization to maintain peace.
5. postwar isolation from European and Asiatic affairs.  

13. The American labor movement has differed from that of Britain in:
1. being confined to unskilled labor.
2. being largely under Communist domination.
3. working chiefly through the regular political parties.
4. taking no part in politics.
5. emphasizing international cooperation among workers.  

14. The conservation movement did not begin in the United States until shortly after:
1. the passing of the Homestead Act.
2. all the states had entered the union.
3. the open frontier had disappeared.
4. the first World War had created an increasing demand for raw materials.
5. the New Deal came into power.  

15. Which one of the following has not taken place under the New Deal?
1. Devaluation of the dollar
2. Control of immigration
3. Limitation of cotton production
4. Tariff agreements to increase international trade
5. Increase in the power of the Supreme Court  

16. An autonomous nation is one that:
1. is made up of people of pure race.
2. has easy access to the sea.
3. is at the head of an empire.
4. is under a dictatorship.
5. is not under the control of any other nation.  

57. If a labor union succeeds in obtaining a closed shop, it is better able to maintain a high wage scale because:
1. sources of conflict with the employer decrease.
2. it gains political prestige.
3. it secures control over the raw materials needed for production.
4. it is able to persuade the public to boycott the shop owner.
5. an artificial labor scarcity is created.  

58. Which one of the following is an economic fallacy?
1. Large-scale production generally results in reduction in the cost of manufacture.
2. Specialization of labor increases production.
3. Scarcity of a commodity does not necessarily lead to a rise in price.
4. It is impossible for both buyer and seller to gain in a trade.
5. Accumulations of capital may aid economic activity.  

59. Of the following, the objection most frequently offered to the undistributed surplus profits tax was that it:
1. made it difficult for a company to lay up reserves in good years sufficient to tide it over years when business is poor.
2. was harder on agriculture than on business.
3. applied only to manufacture and not to other forms of business enterprise.
4. did not conform to the principle of ability to pay.
5. was more expensive to collect than other forms of taxes.  

60. The growth of chain stores has been most hampered by:
1. food-processing taxes.
2. the refusal of producers to sell goods to them.
3. boycotting by consumers.
4. price-slashing competition from individual grocers.
5. restrictive legislation.  

61. The nearest modern approach to a pure democracy in the Greek sense is found in:
1. Sweden.
2. Switzerland.
3. the United States.

62. Proportional representation has received widest acceptance in the United States in:
1. state government.
2. county government.
3. city government.
4. territorial government.
5. national government.  

63. Of the following, the great prosperity of the United States in comparison with European nations is due chiefly to:
1. American control of world shipping.
2. superior facilities of internal communication and transportation.
3. possession of a large share of the world's supply of monetary gold.
4. superior natural resources.
5. a favorable balance of trade.  

Go on to the next page.
64. A pressure group may best be defined as an organization that seeks to
1 overthrow the government.
2 corner the market supply of a commodity.
3 further the interests of foreign nations.
4 influence legislation.
5 speed up legislation.

65. Which one of the following is most likely to be to the Right in politics?
1 A WPA worker
2 A liberal judge of the Supreme Court
3 A Socialist
4 A wealthy Republican
5 A member of the CIO

66. Most of the large cities of Central America and northern South America are in the highlands because
1 the entire surface of these lands is rugged.
2 mining is the principal industry.
3 the lowlands are in danger from floods.
4 highlands are more easily defended.
5 the climate is more pleasant.

67. Which one of the following is most likely to be volcanic in origin?
1 A peninsula
2 An isthmus
3 A plateau
4 A glaciated area
5 An oceanic island

68. The Gulf Stream has little effect on the climate of
1 Ireland.
2 England.
3 France.
4 Spain.
5 Africa.

69. A map drawn on Mercator’s projection, so that the lines of latitude and longitude are straight, gives the impression that
1 England is farther north than it is.
2 Alaska is larger than it is.
3 the Atlantic Ocean is narrower than it is.
4 the land-masses at the Equator are larger than they are.
5 the rivers are straighter than they are.

70. The psychologist Alfred Binet is best known for his work in the study of
1 personality traits.
2 psychosexual phenomena.
3 educational methods.
4 industrial psychology.
5 human intelligence.

71. Behavioral psychology lays most stress on
1 hereditary make-up.
2 prenatal environment.
3 training and education.
4 the physical basis of personality.
5 the importance of the fear of inferiority.

72. A spirit of social cooperation and a feeling of oneness with the group are most noticeable in
1 periods of prosperity.
2 time of war or catastrophe.
3 periods of territorial expansion.
4 old and stable societies.
5 societies marked by social stratification.

---

GROWTH IN THE UNITED STATES

<table>
<thead>
<tr>
<th>1870</th>
<th>1930</th>
</tr>
</thead>
</table>
| Volume of Goods | $\epsilon$ | $\epsilon$
| Population | $\ell$ | $\ell$
| Distribution Workers | $\text{O}$ | $\text{O}$
| Production Workers | $\text{O}$ | $\text{O}$

The 1930 symbols show the number of times the totals in each case have increased since 1870.

73. From the graph above, we may conclude that
1 the proportion of the population engaged in distribution was about three times as great in 1930 as in 1870.
2 the volume of goods produced per person in the nation was nine times as great in 1930 as in 1870.
3 a larger proportion of the population was engaged in production in 1930 than in 1870.
4 the population of the nation has increased more rapidly than has its productivity.

74. Which one of the following is most characteristic of the mental-hygiene movement?
1 Freudian psychoanalysis
2 Work with problem children in the schools
3 The use of insulin shock as a cure for insanity
4 The passage of laws permitting sterilization of the unfit
5 The use of intelligence tests in industry

75. Which one of the following, on the part of the people, is said to contribute most to the rise of dictatorships?
1 A feeling of insecurity
2 Delusions of grandeur
3 Sublimation
4 A compulsion neurosis
5 The protective instinct

---

Number wrong: 3
Amount to be subtracted: 1

Number right:

Subtract:

Score on Part II = Difference: 3
PART III: LITERATURE (30 minutes)

1. The best description of steamboat life on the Mississippi just before the Civil War is found in a book by
   1 Sidney Lanier.
   2 George Bancroft.
   3 Bayard Taylor.
   4 Mark Twain.
   5 James Fenimore Cooper.

2. Keats' poetry is noted for its
   1 rapid narrative style.
   2 sensuous beauty of imagery.
   3 intense patriotism.
   4 use of Greek and Roman verse forms.
   5 use of new verse forms.

3. The Robin Hood ballads condone
   1 sexual immorality.
   2 disrespect for constituted authority.
   3 lack of patriotism.
   4 lack of physical courage.
   5 unethical trade and business practices.

4. O. Henry's "Four Million" was made up of
   1 ranchers and cowboys.
   2 the criminal classes.
   3 the aristocracy.
   4 the soldiers killed in the first World War.
   5 the common people of New York City.

5. The picture above represents the death of
   1 Abel.
   2 Absalom.
   3 Samson.
   4 Lazarus.
   5 Judas.

6. The first of the following forms to be used in English literature was the
   1 short story.
   2 sonnet.
   3 personal essay.
   4 novel.

7. Beowulf is typical of early epics in its emphasis on
   1 the heroic migration of peoples.
   2 the founding of a race by the gods.
   3 physical combat.
   4 the return of the dead.
   5 the fulfillment of a curse.

8. Roman literature owed its forms and manner chiefly to the influence of the
   1 Teutons.
   2 Greeks.
   3 Egyptians.
   4 Etruscans.
   5 Goths.

9. The three musketeers were noted for their
   1 marksmanship.
   2 jealousy of one another.
   3 good comradeship.
   4 practice of taking from the rich to give to the poor.
   5 dreamy impracticality.

10. John Steinbeck's stories of American life are characterized by
    1 satisfaction with existing social conditions.
    2 indignation at the suffering of the poor.
    3 interest in political life.
    4 poor character delineation.
    5 whimsical humor.

11. Most critics agree that Edna St. Vincent Millay's place in literature depends upon her
    1 war poems.
    2 poems of social protest.
    3 poetic dramas.
    4 love sonnets.
    5 epigrammatic quatrains.

12. Which one of the following is considered to be one of the greatest of dialect poets?
    1 A. E. Housman
    2 John Donne
    3 Sir Walter Scott
    4 Robert Burns
    5 Samuel Taylor Coleridge

13. Robert Frost's poetry is marked by frequent use of
    1 historical themes.
    2 the words and rhythms of common speech.
    3 classical allusions.
    4 free verse.
    5 terms and phrases unintelligible to the average reader.

14. A popular classic to which critics ascribe little literary merit is
    1 Poe's Tales of the Grotesque and Arabesque.
    2 The Scarlet Letter.
    3 Tom Sawyer.
    4 Moby Dick.
    5 Uncle Tom's Cabin.

15. Othello and Romeo and Juliet both
    1 have jealousy as a major theme.
    2 end with the tragic death of their heroines.
    3 end with a duelling scene.
    4 make use of the play-within-a-play technique.
    5 make use of the mistaken-identity device.

Go on to the next page.
16. The picture above shows
   1 the Knight and the Pardoner.
   2 Roland and Oliver.
   3 Don Quixote and Sancho Panza.
   4 Little John and the Sheriff of Nottingham Town.
   5 Falstaff and Bardolph.

17. Poe, Holmes, and Emerson resemble one another in
   1 being distinguished in both poetry and prose.
   2 being unrecognized by their own country during their lifetimes.
   3 the strongly moral and religious quality of their work.
   4 being members of the Concord group.
   5 being antislavery writers.

18. The chief significance of the Norman invasion for English literature is that it
   1 introduced Latin into England as a literary language.
   2 brought literary activity to a halt until the time of Shakespeare.
   3 introduced Scandinavian elements into the language of England.
   4 introduced French elements into the language of England.
   5 revived interest in the early Celtic literature.

19. One of the Paul Bunyan legends tells how Paul straightened out a crooked road by hitching his ox to one end of it and pulling. This story is reminiscent of those told by
   1 Baron von Munchausen.
   2 Sir Thomas Malory.
   3 La Fontaine.
   4 François Villon.
   5 Cervantes.

20. Thomas Paine's *Common Sense* urged common sense in
   1 Anglo-American political affairs.
   2 the relations between men and women.
   3 religion.
   4 westward expansion.
   5 the antislavery controversy.

21. A story of rural New England life by Edith Wharton is
   1 *Ethan Frome*.
   2 *The Old Maid*.
   3 *The Age of Innocence*.
   4 *The Children*.
   5 *The House of MIRTH*.

22. Sympathetically written studies of Chinese life are the work of a former missionary in that country,
   1 Lin Yutang.
   2 Lafcadio Hearn.
   3 Mary Hastings Bradley.
   4 Pearl Buck.
   5 Louise Jordan Miln.

23. Which one of the following wrote a *History of England*?
   1 Thomas Babington Macaulay
   2 Richard Steele
   3 Lord Chesterfield
   4 George Meredith
   5 Edward Gibbon

24. The essays of Charles Lamb are notable for
   1 use of historical themes.
   2 argumentativeness.
   3 informality and humor.
   4 pessimism.
   5 imitation of Emerson.

25. A writer whose best work was done in the essay form was
   1 Melville.
   2 Thoreau.
   3 Prescott.
   4 Hawthorne.
   5 Bret Harte.

26. A Pole who became one of England's best-known writers is
   1 Michael Arlen.
   2 Joseph Conrad.
   3 Saki.
   4 Israel Zangwill.
   5 Max Beerbohm.

27. Humorous tales of the English upper classes are the work of
   1 John Galsworthy.
   2 J. B. Priestley.
   3 P. G. Wodehouse.
   4 D. H. Lawrence.
   5 James Joyce.

28. On which one of the following literary forms has Russian literature had the greatest influence?
   1 The lyric
   2 The narrative poem
   3 The poetic drama
   4 The realistic novel
   5 The essay.

Go on to the next page.
Alfred the Great's main contribution to English literature lay in his
1 encouragement of fusion between the Scandinavian and Anglo-Saxon languages.
2 insistence on the use of English in the English church.
3 patronage of literature and education.
4 invention of a phonetic alphabet.
5 encouragement of Norman cultural influence. ( )

"I envy nobody but him, and him only, who catches more fish than I do," suggests the theme of the best-known work of
1 Sir Thomas Malory.
2 Izaak Walton.
3 Lord Chesterfield.
4 John Ruskin.
5 Robert Southey. ................. ( )

31. The picture above is an illustration of a scene from Dickens'
1 Barnaby Rudge.
2 The Mystery of Edwin Drood.
3 A Christmas Carol.
4 The Pickwick Papers.
5 Dombey and Son. ................. ( )

32. A theme much used by Yeats in his earlier poetry is
1 Irish folklore and fantasy.
2 child life.
3 the injustices of the British occupation of Ireland.
4 the horror of war.
5 the conflict between science and religion. ( )

33. "The time has come,"
Herr Hitler said,
"To talk of many things,
Of Lebensraum and Schrecklichkeit,
Democracies and Kings,
And why the sea is British sea
And whether Bulls have wings."
This stanza is a parody on a well-known poem by
1 Kipling.
2 Vachel Lindsay.
3 "Mother Goose."
4 Eugene Field.
5 Lewis Carroll. ................. ( )

34. The knight who rode by the window of the Lady of Shalott was
1 Galahad.
2 Arthur.
3 Percival.
4 Gawain.
5 Lancelot. ................. ( )

35. The figure above represents a character from
1 Beowulf.
2 the Canterbury Tales.
3 Everyman.
4 Dr. Faustus.
5 the Arthurian legends. ................. ( )

36. An excellent insight into the social life of the Restoration period of English history may be gained by reading
1 Bacon's The New Atlantis.
2 Bunyan's Pilgrim's Progress.
3 Boswell's Life of Johnson.
4 Goldsmith's The Vicar of Wakefield.
5 Pepys' Diary. ................. ( )

37. The fulfillment of prophecies is of most importance in the plot of
1 Hamlet.
2 A Midsummer Night's Dream.
3 Henry VIII.
4 The Taming of the Shrew.
5 Macbeth. ................. ( )

38. A poet whose secluded life has led to her being referred to as "the nun of Amherst" was
1 Anne Bradstreet.
2 Emily Dickinson.
3 Margaret Fuller.
4 Amy Lowell.
5 Elinor Wylie. ................. ( )

39. The Tower of Babel is now used as a symbol of
1 the confusion resulting from a multiplicity of tongues.
2 man's desire for material wealth.
3 the folly of building for the future to the neglect of the present.
4 the folly of looking to the past instead of to the future. ................. ( )

40. Which one of the following belongs to the literature of modern Ireland?
1 The Playboy of the Western World
2 Loyalties
3 Cavalcade
4 Dear Brutus
5 Heartbreak House ................. ( )

Go on to the next page.
41. De Maupassant used the same literary form as
1 O. Henry.
2 Henry David Thoreau.
3 Francis Parkman.
4 James Fenimore Cooper.
5 Edwin Markham.

42. The Exodus was a flight from
1 Bethlehem.
2 Babylon.
3 Egypt.
4 Canaan.
5 Jerusalem.

43. The influence of Voltaire was in the direction of
1 liberalism.
2 the monarchic principle.
3 Christian internationalism.
4 orthodox Catholicism.
5 the fascist ideal of dictatorship by a strong leader.

44. Natty Bumppo was also known as
1 Chingachgook.
2 Leatherstocking.
3 Satanstoe.
4 the Pilot.
5 the Red Rover.

45. Many of Eugene O'Neill's dramas portray life in
1 the South.
2 the Middle West.
3 New England.
4 rural England.
5 rural Ireland.

46. Which one of the following German authors
was writing at the time of the Napoleonic Wars?
1 Wagner
2 Goethe
3 Nietzsche
4 Rilke
5 Keyserling

47. Devotion to the democratic ideal is most frequently expressed in the poems of
1 Emerson.
2 Lowell.
3 Longfellow.
4 Poe.
5 Whitman.

48. A writer of whom it is said that he added to the
world's stock of kindliness was
1 Dryden.
2 Gibbon.
3 Pope.
4 Goldsmith.
5 De Quincey.

49. The Garden of Eden is the scene of much of
1 Everyman.
2 Sir Thomas More's Utopia.
3 Paradise Lost.
4 Bellamy's Looking Backward.
5 Masefield's The Everlasting Mercy.

50. Lowell's Biglow Papers and Fable for Critics are alike in that they
1 use the same verse form.
2 are on the same subject.
3 are satirical.
4 are parodies of other poems.
5 are in dramatic form.

51. Famous letters of instruction to the early
Christian colonies were the work of
1 St. Paul.
2 St. Luke.
3 St. John the Baptist.
4 St. Peter.
5 St. Mark.

52. A poetical fantasy written by Ibsen is
1 An Enemy of the People.
2 Ghosts.
3 The Wild Duck.
4 Peer Gynt.
5 A Doll's House.

53. The picture above represents
1 Phaeton.
2 Tantalus.
3 Prometheus.
4 Icarus.
5 Mercury.

54. A poet who described himself as "the wandering outlaw of his own dark mind" was
1 Ben Jonson.
2 Alexander Pope.
3 Robert Burns.
4 Lord Byron.
5 Robert Browning.

55. Housman's Shropshire Lad was
1 a sheepdog.
2 a wrestler.
3 a young farmer.
4 an Elizabethan actor.
5 a tavern.

56. The device used by Chaucer in the Canterbury Tales, of having his characters take turns in
telling stories, was also used by
1 Spenser in The Faerie Queene.
2 Milton in Paradise Lost.
3 Browning in Pippa Passes.
4 Shakespeare in The Rape of Lucrece.
5 Boccaccio in the Decameron.
57. Thackeray's *Vanity Fair* owed much of its popularity to its portrayal of:
1 quiet everyday life in rural England.
2 the influence of factory conditions on the lives of the middle and upper classes.
3 the character of a fascinating but unprincipled woman.
4 the Victorian ideal of womanhood.
5 the influence of childhood experiences on the later emotional development of its characters.

58. Which one of the following phrases best describes Robert Browning and his work?
1 "The gentle satirist"
2 "Nature's sweet singer"
3 "The tragic humorist"
4 "The glorifier of God in nature"
5 "A portrayer of character in verse"

59. Butler's novel *The Way of All Flesh*:
1 attacked British imperialism.
2 encouraged disrespect for parental authority.
3 introduced the note of social protest into literature.
4 combined the techniques of the novel and the drama.
5 advocated reform of the medical profession.

60. A writer known for his tales, in prose and poetry, of Scotland and the border country is:
1 Robert Burns.
2 Thomas Carlyle.
3 Thomas Chatterton.
4 Sir Walter Scott.
5 William Morris.

61. The life of the English propertied classes is the theme of the best-known work of:
1 Thomas Hardy.
2 H. G. Wells.
3 Sir James Barrie.
4 Lady Gregory.
5 John Galsworthy.

62. Kipling's *Mowgli* was most similar to:
1 Tom Sawyer.
2 Moby Dick.
3 Peck's Bad Boy.
4 Willie Baxter.
5 Tarzan.

63. A major theme in William Saroyan's work is:
1 hatred of poverty.
2 distrust of the democratic principle.
3 faith in humanity.
4 nostalgia for the past.
5 belief in the Roman Catholic faith.

64. *Gulliver's Travels* was written by the author of:
1 *Pilgrim's Progress*.
2 *Robinson Crusoe*.
3 *Roderick Random*.
4 *The Tale of a Tub*.
5 *The Beggar's Opera*.

65. Sappho's greatest work consisted of:
1 epic poetry.
2 philosophical poetry.
3 love poetry.
4 poetic drama.
5 satiric verse.

66. The American and English novel of the twentieth century differs from that of the nineteenth in:
1 its inclusion of elements of brutality and coarseness in order to give a more complete picture of life.
2 portraying female characters with as great care as it portrays male characters.
3 giving a definite geographical location to its story and making frequent use of local color.
4 being more imaginative and idealistic.

67. The earliest of the following works was:
1 Plato's *Dialogues*.
2 the *Iliad*.
3 the *Aeneid*.
4 *Antigone*.
5 *Oedipus Rex*.

68. A sense of the tragedy of human life in the power of a blind fate runs through the novels of:
1 Thomas Hardy.
2 H. G. Wells.
3 John Galsworthy.
4 Joseph Conrad.
5 W. Somerset Maugham.

69. One of the first novels to have an ordinary businessman for its hero was:
1 Hawthorne's *The House of the Seven Gables*.
2 Holmes' *Elsie Venner*.
3 Mark Twain's *The Prince and the Pauper*.
4 Edith Wharton's *The Age of Innocence*.
5 Howells' *The Rise of Silas Lapham*.

70. The *Anabasis* of Xenophon has as its subject:
1 the philosophy of Socrates.
2 Roman scientific beliefs.
3 a code of ethics.
4 a military expedition.
5 secret religious rites.

71. Of the following, Ben Jonson is best known for his:
1 chronicles.
2 essays.
3 lyrics.
4 odes.
5 epics.

72. Of the following, the literary form used most frequently by Lin Yutang is the:
1 essay.
2 short story.
3 drama.
4 lyric.
5 narrative poem.

73. The eighteenth century is most important in the history of the English:
1 drama.
2 short story.
3 novel.
4 epic.
5 lyric.

74. The central character is least sympathetically portrayed in Sinclair Lewis':
1 *Arrowsmith*.
2 *Dodsworth*.
3 *Main Street*.
4 *Elmer Gantry*.
5 *It Can't Happen Here*.
A writer whose best work is laid in the Middle West is:
1. Sherwood Anderson.
2. Gertrude Atherton.
4. Erskine Caldwell.
5. Christopher Morley.

An anti-Nazi exile, now in America, who is considered by many to be Germany's leading living novelist is:
1. Thomas Mann.
2. Maurice Maeterlinck.
3. Jan Valtin.
5. Reinhold Niebuhr.

Which one of these is not known for his biographical work?
1. Lytton Strachey
2. Stefan Zweig
3. Emil Ludwig
4. Edmond Rostand
5. André Maurois.

An early collection of British legends is:
1. "Fragments of Ancient Poetry Collected in the Highlands."
3. The Domesday Book.
5. Le Morte d'Arthur.

European culture forms a background for many of the novels of
2. William Dean Howells.
3. Theodore Dreiser.
5. Willa Cather.

Polite society in village and rural England provided the material for the humorously realistic novels of
1. Samuel Richardson.
2. Charles Kingsley.
4. Thomas Hardy.
5. Jane Austen.

Oscar Wilde's plays are characterized by
1. devotion to his country.
2. adherence to tradition.
3. wit and sophistication.
4. careful scholarship.
5. interest in social reform.

Many of Sir James Barrie's stories are laid in
1. the Welsh highlands.
2. the Channel Isles.
3. a county in Ireland.
4. Scottish villages.
5. the English pottery district.

83. Of the following, the poem that could most justifiably be called an epic is
1. Whittier's "Snow-Bound."
2. Poe's "The Haunted Palace."
3. Edwin Arlington Robinson's "Tristram."

84. The chronicler of the Five Towns of industrial England is
1. Thomas Hardy.
2. Arnold Bennett.
3. Winifred Holtby.
4. Hall Caine.
5. Aldous Huxley.

85. A novel in which the characters constantly commune with themselves, and in which thoughts and actions are described with complete realism, is
1. Hardy's "The Return of the Native."
3. Sackville-West's "The Edwardians."
4. Virginia Woolf's "A Room of One's Own."
5. Joyce's "Ulysses."

86. Wives go on strike to stop a war in
1. "Alcestis."
2. "Iphigenia in Aulis."
3. "Lyttia."
5. "The Trojan Women."

87. A chronicler of the New England conscience is
1. Edgar Allan Poe.
5. Francis Parkman.

88. The friendship of two women is the theme of the Biblical story of
1. Leah and Rachel.
2. Sarah and Hagar.
3. Ruth and Naomi.
4. Esther and Vashti.
5. Mary and Martha.

89. A Southern poet whose work is noted for its fine craftsmanship is
1. Joaquin Miller.
2. John Lothrop Motley.
3. Philip Freneau.
5. Sidney Lanier.

90. Which one of the following was a Roman comic poet?
1. Terence
2. Cato
3. Vergil
4. Livy
5. Lucretius.

Do not go on to the next part or back to preceding parts.
PART IV: SCIENCE (30 minutes)

1. Diseases caused by a lack of vitamins in the body are known as
   1 degenerative diseases.
   2 glandular diseases.
   3 congenital diseases.
   4 deficiency diseases.
   5 infectious diseases. .................................................

2. Most of the gasoline in the United States is obtained commercially from
   1 natural gas.
   2 coal tar.
   3 kerosene.
   4 lubricating oil.
   5 crude oil. ...........................................................

3. Which one of the following topics would be included in the study of meteorology?
   1 The extraction of metals from their ores
   2 The effects of changes in air pressure on wind velocity
   3 The formation of sedimentary rock
   4 The formation of fossils
   5 The phases of the moon. ........................................

4. Other factors being the same, the most efficient thermos jug for keeping foods at a given temperature is one insulated with
   1 glass.
   2 cork.
   3 asbestos.
   4 a vacuum.
   5 rock wool. .........................................................

5. When a piano tuner tightens a string,
   1 its pitch is raised.
   2 its pitch is lowered.
   3 the amplitude of its vibration is increased.
   4 the amplitude of its vibration is decreased.
   5 its wave-length is increased. ....................................

6. A hot day seems hotter when there is excessive humidity because the moisture in the air slows down
   1 radiation.
   2 conduction.
   3 convection.
   4 evaporation.
   5 condensation. ....................................................

7. Gases in the chimney, as compared with the air entering the furnace, contain
   1 less carbon monoxide.
   2 more carbon dioxide.
   3 more nitrogen.
   4 more oxygen.
   5 less water vapor. ................................................

8. The sudden skid of a speeding car would have its most marked effect upon the action of the driver's
   1 pineal gland.
   2 thymus gland.
   3 parathyroid glands.
   4 thyroid gland.
   5 adrenal glands. ................................................

9. Which one of the following animals is warm-blooded?
   1 An alligator
   2 A salamander
   3 A duck.
   4 A shark
   5 A snake. ............................................................

10. The first disease for which inoculation was successfully used was
    1 scarlet fever.
    2 yellow fever.
    3 measles.
    4 typhoid fever.
    5 smallpox. ........................................................

11. A crumpled piece of paper will fall faster than a smooth piece of paper of the same size and weight because the crumpled paper
    1 is more dense.
    2 is more strongly attracted by the force of gravity.
    3 encounters less air resistance.
    4 has more air pressure upon it.
    5 is less buoyant. ..................................................

12. The law of universal gravitation was discovered by
    1 Boyle.
    2 Galileo.
    3 Archimedes.
    4 Newton.
    5 Copernicus. ....................................................

13. Which one of the following activities is characteristic of ferns but not of grasshoppers?
    1 Digestion
    2 Respiration
    3 Assimilation
    4 Sugar synthesis
    5 Nutrition. .......................................................

14. A modern writer of popular treatments of scientific subjects is
    1 Albert Einstein.
    2 A. J. Cronin.
    3 Paul de Kruif.
    4 Max Planck.
    5 Emil Ludwig. ..................................................

15. Asymmetrical curvature of the lens or the cornea of the human eye causes
    1 farsightedness.
    2 nearsightedness.
    3 diffraction.
    4 double refraction.
    5 astigmatism. ..................................................

16. A mountain road has an average grade of four percent. Approximately how much altitude will an ascending car gain in a 5000-ft stretch of road?
    1 20 ft
    2 125 ft
    3 200 ft
    4 400 ft
    5 1250 ft. ......................................................

17. Which one of the following concepts was not a part of Darwin's theory of the origin of species?
    1 There is intense competition between individuals for existence.
    2 Individuals with advantageous variations tend to survive, and transmit them to succeeding generations.
    3 Chromosome mutations are important factors in the development of new species.
    4 The action of natural selection on many generations of slightly divergent forms may be sufficient to produce new species. 
    5 The law of universal gravitation was discovered by 
       1 Boyle.
       2 Galileo.
       3 Archimedes.
       4 Newton.
       5 Copernicus. ..............................................

Go on to the next page.
18. The manufacture of the light-sensitive surface of camera film would be most seriously affected by a shortage of aluminum, copper, nickel, silver, or tin.

19. If a hot iron ball is suspended in air, the hand placed a few inches below the ball can feel heat because the air is a good conductor of heat, the ball sends out heat by radiation, convection is very efficient in air, or iron is one of the best conductors of heat.

20. The first use of a simple microscope to study microorganisms is usually credited to Pasteur, Lavoisier, Linnaeus, Leeuwenhoek, or Aristotle.

21. It is usually unwise to replace a 15-ampere fuse with a 30-ampere fuse because the 30-ampere fuse may burn out, in case of a short circuit, overheating of wires and fire may result, there is more danger of electric shock, or a larger electric bill will result, because of an increase in the current used.

22. Day and night are most nearly equal in length on March 1, March 21, June 21, September 1, or December 21.

23. The spreading of the scent of perfume through a closed room in which there are no air currents is due to dispersion, diffusion, reflection, absorption, or convection.

24. Wood pulp is used in the manufacture of rayon, cotton, linen, asbestos, or rock wool.

25. The most conclusive evidence of the progressive change that has taken place in the evolution of the horse from prehistoric time to the present is found in the writings of Charles Darwin, the embryological development of present-day horses, fossil remains, the general agreement among scientists that this development has occurred, or variation in the size of horses of the present day.

26. Which one of the following includes the other four? Temperature, Humidity, Weather, Precipitation, or Climate.

27. Eclipses of the sun are especially valuable when total because stars that are never seen at any other time are then visible, it is possible to observe all of the planets at one time, the surface of the moon can be easily studied, the sun spots can be easily studied, or the sun's corona may be observed.

28. Thomas Hunt Morgan is best known for his experiments with the fruit fly. The most significant results of these experiments have been in the field of heredity, physiology, anatomy, evolution, or insect control.

29. Which one of the following is a chemical compound? Iron, Salt, Brass, Aluminum, or Plate glass.

30. A moraine is a lake, sedimentary rock, glacial deposit, meteorological phenomenon, or geological period.

31. The Milky Way is a collection of planets and satellites, band of misty light, reflected from bodies in outer space, collection of stars and nebulae, collection of stars and distant comets, or band of relatively stationary illuminated clouds.

32. The boiling point of a liquid can be lowered by decreasing its volume, decreasing the pressure on the liquid, decreasing the area of its free surface, increasing the quantity of heat applied to the liquid, or dissolving a solid in the liquid.

33. Iron is extracted from its ore, hematite, by oxidation, reduction, electrolysis, synthesis, or hydrolysis.

34. At 12¢ per kilowatt-hour, how much would it cost to run a 500-watt iron for forty minutes? 6¢, 8¢, 9¢, 4½¢, or 4 3/8¢.

35. Natural immunity to certain diseases may be increased by vaccination, inoculation, serums, antitoxins, or good health habits.
The by-product of the process of photosynthesis in the leaves of plants is
1 light.
2 heat.
3 carbon dioxide.
4 oxygen.
5 water. ................................................................. ( )

If a 100-lb boy were transported to the moon, his weight there would be
1 a few ounces.
2 about 20 lbs.
3 100 lbs.
4 about two tons.
5 dependent on the phase of the moon. ................................................................. ( )

In what part of a plant is food stored least often?
1 Root
2 Stem
3 Leaf
4 Fruit
5 Flower. ................................................................. ( )

A physical phenomenon that is very important in absorption in the alimentary canal is
1 radiation.
2 filtration.
3 diffraction.
4 catalysis.
5 diffusion. ................................................................. ( )

Which one of the following animals eats the most in proportion to its weight?
1 A camel
2 A trout
3 A crocodile
4 A wren
5 A man. ................................................................. ( )

Refraction of light takes place whenever light
1 is diffused.
2 is diffracted by a grating.
3 is transmitted in any medium.
4 enters obliquely a medium of different optical density.
5 enters a medium of different specific gravity. ( )

A supersaturated solution will always crystallize out if
1 water is carefully added.
2 the solution is heated to the boiling point.
3 more of the solvent is slowly added to the solution.
4 the solution is carefully stirred.
5 a crystal of the dissolved substance is dropped into the solution. ................................................................. ( )

A radio tube cannot be used as
1 a microphone.
2 an amplifier.
3 a modulator.
4 an oscillator.
5 a rectifier. ................................................................. ( )

In gas analysis, accurate barometer readings are necessary. These readings are used in calculations involving
1 Charles' law.
2 Boyle's law.
3 the law of mass action.
4 the law of definite proportions.
5 the law of conservation of energy. ................................................................. ( )

45. The laws of heredity discovered by Mendel have been applied by man in
1 explaining the formation of fossils.
2 substantially lowering human death rates.
3 raising the general level of intelligence of the human race.
4 modifying the entire system of biological classification.
5 developing improved varieties of seed corn. ( )

46. Pine wood is about one-half as dense as water. A cubic foot of this wood would weigh approximately
1 10 lb.
2 20 lb.
3 30 lb.
4 50 lb.
5 100 lb. ................................................................. ( )

47. Spontaneous generation means the
1 formation of living organisms directly from nonliving matter.
2 sprouting of plant seeds before they are placed in the soil.
3 birth of animals in a fully developed condition.
4 development of an unfertilized egg.
5 growth of buds on plants and simple animals. ( )

48. The oldest known rocks are
1 igneous.
2 sedimentary.
3 carboniferous.
4 metamorphic.
5 stratified. ................................................................. ( )

49. In a telephone receiver, the device that causes the diaphragm to vibrate is
1 a transformer.
2 an electromagnet.
3 an induction coil.
4 a small box of carbon granules.
5 a condenser. ................................................................. ( )

50. In gas analysis, accurate barometer readings are necessary. These readings are used in calculations involving
1 Charles' law.
2 Boyle's law.
3 the law of mass action.
4 the law of definite proportions.
5 the law of conservation of energy. ................................................................. ( )

51. A scaly, cold-blooded, sharp-clawed animal was discovered laying her leathery-covered eggs on the sandy beach. If this animal were dissected, it would be found to have
1 two compound eyes.
2 many simple eyes.
3 gills.
4 mammary glands.
5 lungs. ................................................................. ( )

52. A planet that conceivably might support life as we know it is
1 Jupiter.
2 Saturn.
3 Uranus.
4 Mercury.
5 Venus. ................................................................. ( )

Go on to the next page.
53. Low-pressure areas in the Northern Hemisphere generally tend to move to the
1 east.
2 north.
3 northwest.
4 southwest.
5 south.

54. One reason why kerosene cannot efficiently be substituted for gasoline in the automobile of the present time is that kerosene is
1 too corrosive.
2 not volatile enough.
3 too volatile.
4 noninflammable.
5 too dense.

55. Quart bottle A is filled with a certain gas. Quart bottle B is filled with another gas, exerting three times as great pressure. The temperature of both bottles is the same. In comparison with bottle A, how many molecules of gas does bottle B contain?
1 About one-third as many
2 About the same number
3 About three times as many
4 About six times as many
5 Since the bottles are filled with different gases, it is impossible to make a comparison.

56. The fundamental living substance, protoplasm, is a
1 single inorganic compound.
2 single organic compound.
3 solid mixture.
4 colloidal dispersion.
5 true solution.

57. Hunters should wear rubber gloves when dressing rabbits to avoid exposure to
1 undulant fever.
2 tularemia.
3 anthrax.
4 spotted fever.
5 trichinosis.

58. Which one of the following statements is least supported by biological facts?
1 Life always comes from life.
2 Chlorophyll is necessary for animal life.
3 Survival depends upon adaptation.
4 Acquired characters are not hereditary.
5 Nature conserves all living things.

59. What procedure should be followed in determining accurately the atmospheric pressure during an experiment?
1 Take a reading from a wet-dry bulb hygrometer, and correct for vapor pressure.
2 Determine the temperature and relative humidity and calculate it from those data.
3 Use the average reading for the preceding 24 hours.
4 Take a reading directly from a mercury barometer.
5 Consult the United States Weather Bureau map for that day.

60. If a book is held 3 ft from a 36-candlepower lamp, the intensity of illumination on the book is
1 108 foot-candles.
2 36 foot-candles.
3 12 foot-candles.
4 4 foot-candles.
5 6 foot-candles.

PART V: FINE ARTS (30 minutes)

1. The building in the picture above is in the style of
1 the Spanish Southwest.
3 Midwestern frontier architecture.
4 Southern "classical" architecture.
5 modern architecture.

2. The chief source of Gypsy tunes and dances has been
1 Ireland.
2 Hungary.
3 France.
4 India.
5 Turkey.

3. Which one of the following combinations is least suitable?
1 Braided rugs with colonial furniture
2 An Oriental carpet with European furniture
3 A flagstone walk with a Victorian house
4 Sheraton and Hepplewhite furniture in a Southern plantation-house
5 French Empire furniture in a Cape Cod cottage.

4. Beethoven is best known for his
1 symphonies.
2 church music.
3 operas.
4 arias.
5 marches.

Go on to the next page.
Walt Disney films are made by
1 photographing mechanical models of animals
   and persons.
2 photographing puppets that are manipulated
   by hand.
3 drawing a large number of separate cartoons.
4 photographing cardboard cutouts in different
   positions. .................................................... ( )

The Louvre is
1 a cathedral.
2 a museum.
3 a theater.
4 a triumphal arch.
5 an opera house. ........................................... ( )

"Casting" is a process used in producing a
1 statue of marble.
2 statue of terra cotta.
3 statue of stone.
4 statue of bronze.
5 statue of porcelain. ..................................... ( )

A type of building whose style is tropical in
1 origin is the bungalow.
2 origin is the apartment house.
3 origin is the one-story commercial establishment.
4 origin is the airplane hangar.
5 origin is the steepled church. ......................... ( )

Photography of recent years has shown a
tendency to emphasize
1 dim, diffused focussing.
2 the hand-tinting of photographs taken in
   black and white.
3 pictures taken from unusual angles.
4 the value of skillful retouching. ..................... ( )

The arrangement above is characteristic of the
1 art of Mexico.
2 art of Japan.
3 art of eighteenth-century France.
4 art of Victorian England.
5 art of the twentieth century. ......................... ( )

Michelangelo was the architect of a large part of
1 Santa Sophia.
2 St. Peter's.
3 the leaning tower of Pisa.
4 the Palace of the Popes at Avignon.
5 Notre Dame de Paris. ................................... ( )

12. Irene and Vernon Castle were famous in the
   same field as
   1 Lynn Fontanne and Alfred Lunt.
   2 Fred Astaire and Ginger Rogers.
   3 Hephzibah and Yehudi Menuhin.
   4 Jeanette MacDonald and Nelson Eddy.
   5 Maud and Miska Petersham. ......................... ( )

13. Which one of the following is a Negro baritone?
   1 Paul Robeson
   2 Lawrence Tibbett
   3 Paul Lawrence Dunbar
   4 John Charles Thomas
   5 Canada Lee ............................................. ( )

14. All of the following were actresses except
   1 Julia Marlowe.
   2 Jenny Lind.
   3 Maude Adams.
   4 Minnie Maddern Fiske.
   5 Jane Cowl .............................................. ( )

15. A song called "Two Hearts in Three-Quarter
   Time" would probably be a
   1 two-step.
   2 waltz.
   3 fox-trot.
   4 tango.
   5 rhumba ......................................................... ( )

16. The photograph above owes much of its effect
to its
   1 use of radial and circular design.
   2 portrayal of natural forms.
   3 suggestion of boundless distance.
   4 storytelling quality.
   5 portrayal of atmospheric effects. ................. ( )

17. The musical term syncopation pertains to
   1 harmony.
   2 rhythm.
   3 pitch.
   4 key.
   5 tone color .................................................. ( )

18. Haviland is the name of a certain make of
   1 pianos.
   2 china.
   3 glassware.
   4 silverware.
   5 embroidery .................................................. ( )

19. Mohammedan countries are especially noted
    for their
   1 sculpture.
   2 rug weaving.
   3 flower arrangements.
   4 wrought iron work. ..................................... ( )

Go on to the next page.
20. A filter is used in
1 oil painting.
2 water-color painting.
3 photography.
4 batik dying.
5 etching.

21. In the quarter-century from 1900 to 1925, one
of the major sources of musical enjoyment for
the small-town American was the
1 outdoor band concert.
2 traveling grand opera company.
3 traveling church choir and orchestra.
4 amateur opera society.

22. Ming porcelain was produced in
1 Italy.
2 Czechoslovakia.
3 China.
4 Japan.
5 England.

23. The picture above represents a scene from
1 a miracle play.
2 a play by Ibsen.
3 Wagnerian opera.
4 Shakespearean drama.
5 Gilbert and Sullivan.

24. The "Toreador Song" from Carmen is marked by
1 spirited rhythms.
2 use of antiphonal choruses to produce an
echo-like effect.
3 an onomatopoetic effect of bull-like bellowing.
4 skillful use of discords and disharmonies.
5 slow, languorous cadences.

25. The remark, "All over the world the new build­
ings look like bureaus with the drawers pulled
out," refers to
1 bungalow architecture.
2 modern architecture.
3 "classical" architecture showing the Greek
influence.
4 colonial architecture.
5 Spanish architecture.

26. Which one of the following is a composer,
critic, and musical adviser for a large radio
network? 1 Howard Hanson
2 Deems Taylor
3 Fritz Kreisler
4 Oscar Levant
5 Arturo Toscanini.

27. A girl with brown hair of a faintly reddish tinge
can bring out the red in it most effectively by
wearing
1 black.
2 yellow.
3 green.
4 tan.
5 brown.

28. Which one of the following statues represents
the figure of a winged woman?
1 "The Venus de Milo"
2 "Pallas Athena"
3 "The Laocoon"
4 "The Victory of Samothrace"
5 "Niobe".

29. The hallway above is built and furnished in the
style known as
1 Georgian.
2 French provincial.
3 early American.
4 Victorian.
5 Mission.

30. Duncan Phyfe is best known as
1 a designer of furniture.
2 a sculptor.
3 an architect.
4 a portrait painter.
5 a composer of light operas.

31. In comparison with a Gothic church, a Ro­
manesque church is
1 low and heavy.
2 heavily ornamented.
3 angular.
4 emphatically vertical.
5 fragile.
An opera patterned on one of the major works of Goethe was
1 Gotterdammerung.
2 Parsifal.
3 Lohengrin.
4 Tristan and Isolde.
5 Faust.

A small room will seem smaller if
1 the rug has an all-over pattern.
2 there are any pictures on the walls.
3 the walls are dark in color.
4 there are several mirrors on the walls.
5 the walls are plastered rather than papered.

A poem speaks of the "widgwood days" of the year. The poet is probably referring to
1 brilliant autumn foliage.
2 the pale yellow sunlight of early spring.
3 blue skies and white clouds.
4 the dark days of November.
5 a blizzard.

A large plate-glass window would be most likely to be found in a house of the style known as
1 colonial.
2 Federal.
3 Tudor.
4 Cape Cod.
5 modern.

Little Buttercup is a character in
1 H. M. S. Pinafore.
2 The Yeomen of the Guard.
3 Patience.
4 Iolanthe.
5 The Mikado.

Chartres is best known for its
1 Wagnerian festival.
2 ceramics.
3 cathedral.
4 art museum.
5 outdoor sculpture gardens.

The three properties of color are
1 hue, value, and intensity.
2 hue, intensity, and brightness.
3 hue, value, and chroma.
4 hue, chroma, and intensity.

The mugs pictured above are characteristic of
1 Egypt.
2 Crete.
3 Greece.
4 the Byzantine era.
5 the Aztecs.

Rubens belonged to the same national group of painters as
1 Van Dyck.
2 Michelangelo.
3 El Greco.
4 Goya.
5 Romney.

Drury Lane is the name of a famous
1 abbey.
2 inn.
3 manor house.
4 church.
5 theater.

The sculpture above belongs to
1 ancient Egypt.
2 ancient Greece.
3 Renaissance Italy.
4 the early nineteenth century.
5 the present day.

Gainsborough was best known as a painter of
1 horses and dogs.
2 portraits with landscape backgrounds.
3 battle scenes.
4 interiors.
5 buildings and street scenes.

Houses "done up in wooden embroidery" of elaborate jigsaw work are characteristic of
1 Tudor England.
2 colonial America.
3 the first half of the nineteenth century.
4 the latter half of the nineteenth century.
5 the period immediately after the first World War.

Which of the following is a cloister?
1 Any building designed for religious services
2 The central half of a building
3 The upper part of a bell tower
4 A sacristy
5 A covered passage on the side of a court.

Which one of the following is not a wind instrument?
1 Bassoon
2 Clarinet
3 Trombone
4 Spinet
5 Oboe.

Gutzon Borglum was best known as
1 a sculptor.
2 a painter.
3 an architect.
4 a furniture designer.
5 a composer.

Go on to the next page.
48. The drawing above is the work of
1 Helen Hokinson.
2 Gluyas Williams.
3 Peter Arno.
4 James Thurber.
5 Steig. ...........................................

49. A prominent British cartoonist is
1 Sir John Lavery.
2 Jacob Epstein.
3 David Low.
4 Emlyn Williams.
5 Cuthbert Kelly. ..............................

50. In portrait busts, the surface of the material is
sometimes rough and unfinished, showing the
marks of the sculptor’s tools. This is because
1 making a smooth surface requires much greater technical skill.
2 some clay hardens so quickly that there is no
time to finish the surface.
3 such a surface gives an impression of rugged­
ness and emphasizes the nature of the mate­
rial.
4 irregularities facilitate the casting of the
final product.
5 such a surface indicates that the piece has
been made by hand. ...........................

51. Goya’s work has received especial attention in
recent years partly because of
1 the vogue for landscape painting.
2 its optimistic idealism.
3 its portrayal of machines.
4 its vivid portrayal of the horrors of war.
5 the adaptability of his pastels to modern
decorative schemes. ........................

52. The study of the art of prehistoric man was
greatly advanced by the discovery of drawings
on the
1 Swiss lake-houses.
2 cliffs of Dover.
3 funeral caskets of the ancient Indians.
4 walls of Spanish caves.
5 walls of undersea grottoes near Crete. ........................

53. “In every one of his tragic works physical love
and physical force are the two mainsprings of
action.” This remark applies best to
1 Schumann.
2 Haydn.
3 Wagner.
4 Grieg.
5 Debussy ...........................................

54. Which one of the following operas might most
appropriately be called an American folk
opera?
1 The Man Without a Country
2 Porgy and Bess
3 The Girl of the Golden West
4 The Flying Dutchman
5 The King’s Henchman ........................

55. Which one of the following buildings is repre­
sented on a United States nickel?
1 The United States Capitol
2 Independence Hall
3 The Lincoln Memorial at Washington
4 Monticello
5 Mount Vernon ..................................

56. Corot is noted chiefly for his paintings of
1 historical subjects.
2 religious subjects.
3 landscapes.
4 seascapes.
5 interior scenes. ..............................

57. Of the following national architectures, the one
on the largest scale was that of
1 Egypt.
2 Persia.
3 Assyria.
4 Greece.
5 Rome. ...........................................

58. The orchestra was at its most rudimentary
stage of development at the time of
1 Mendelssohn.
2 Beethoven.
3 Handel.
4 Wagner.
5 Liszt. ...........................................

59. Eleanora Duse was
1 a painter,
2 a dancer,
3 a singer,
4 an actress,
5 a sculptor. .................................

60. Which of the following were contemporaries?
1 Palestrina and Haydn
2 Mozart and Ravel
3 Chopin and Debussy
4 Liszt and Wagner
5 Schubert and Stravinsky ........................

61. Currier and Ives lithographs are significant as
showing the
1 beginning of pictorial journalism in America.
2 tendency of nineteenth-century American
art to emphasize portraiture.
3 first use of posters in war propaganda.
4 beginning of the stylized type of drawing in
place of the naturalistic. ........................

Go on to the next page.
Which one of the following composers is noted for his ultramodern, exuberant ballets?
1. Scriabin
2. Respighi
3. Stravinsky
4. Franck
5. Moussorgsky

A characteristic of the modern age is increased appreciation of the beauty of:
1. objects made by mechanical means.
2. ornamental decoration.
3. styles developed in the preceding centuries.
4. costly handwork.
5. materials in deep rich colors.

Egypt is the scene of:
1. Otello.
2. Aida.
3. Lakmé.
4. Orfeo.
5. Salome.

The picture above is by:
1. Rockwell Kent.
2. Diego Rivera.
3. Georgia O’Keeffe.
4. Grant Wood.
5. Winslow Homer.

The Harlot's Progress, The Rake's Progress, and Marriage à la Mode were the work of:
1. Rembrandt.
2. Titian.
3. Reynolds.
4. Hogarth.
5. Gainsborough.

Walter Hampden is best known for his characterization of:
1. L'Aiglon.
2. Hamlet.
3. Cyrano de Bergerac.
5. Disraeli.

A berceuse is a:
1. marching song.
2. hunting song.
3. lullaby.
4. serenade.
5. lament.

69. Compared with easel painting, good mural painting is usually more:
1. carefully drawn.
2. realistic.
3. naturalistic.
4. architectural.
5. colorful.

70. Which one of the following is a ballet?
1. Pelléas and Mélisande
2. Daphnis and Chloé
3. Madame Butterfly
4. Ilumoresque
5. Rhapsody in Blue.

71. Which one of the following was a famous dancer in the Russian ballet?
1. Nijinsky
2. Chaliapin
3. Rimsky-Korsakov
4. Gogol
5. Rachmaninoff

72. The chair at the left is typical of the kind manufactured in:
2. eighteenth-century France.
3. the American colonies.
4. mid-nineteenth-century America.

73. A craft that originated and reached its highest development in America is that of:
1. making pewter ware.
2. wood carving.
3. quiltmaking.
4. glass blowing.
5. landscape gardening.

74. A journey to Scotland and the islands of the Hebrides provided the inspiration for an overture of:
1. Mendelssohn
2. Schubert
3. Brahms
4. Haydn
5. Meyerbeer.

75. Icons would be most likely to be found in an exhibition of:
1. surrealist art.
2. Russian religious art.
3. costume jewelry.
4. Dutch interior scenes.
5. landscape gardening.

76. The human figure as portrayed in the sculpture and paintings of ancient Egypt is:
1. short and squat.
2. broad-shouldered and narrow-hipped.
3. similar to that portrayed in the art of classical Greece.
4. grotesquely distorted.

77. Which one of the following musicians belonged to the early nineteenth century?
1. Handel
2. Bach
3. Mozart
4. Schubert
5. Stravinsky.
78. A famous painting by El Greco is his view of  
1 Naples.  
2 Athens.  
3 Alexandria.  
4 Paris.  
5 Toledo. ..................................................( )

79. Which one of the following is known for his enamelled terracotta plaques and portraits?  
1 Giotto  
2 Botticelli  
3 Fra Angelico  
4 Della Robbia  
5 Cellini ..................................................( )

80. The color, finish, or incrustation that age gives to works of art is known as  
1 veneer.  
2 patina.  
3 glaze.  
4 pastel.  
5 crazing. ..................................................

81. John Constable is best known for his  
1 etchings.  
2 portraits.  
3 landscapes.  
4 sea pictures.  
5 sporting prints. ........................................( )

82. Donatello is noted for his  
1 luminous paintings.  
2 vivid, naturalistic statues.  
3 Renaissance architecture.  
4 conventionalized decoration.  
5 etchings and dry points. ................................( )

83. The picture above is a reproduction of a lithograph by  
1 Grant Wood.  
2 George Bellows.  
3 James McNeill Whistler.  
4 John Singer Sargent.  
5 Waldo Pierce. ..........................................

84. Gauguin is best known for his paintings of  
1 French landscapes.  
2 birds.  
3 South Sea subjects.  
4 boats and ocean scenes.  
5 interiors. ..............................................

85. The picture above is from ancient  
1 Egypt.  
2 India.  
3 Persia.  
4 Crete.  
5 Greece .............................................

86. The opposite of Allegro is  
1 presto.  
2 piano.  
3 crescendo.  
4 sforzando.  
5 andante. .............................................

87. The stone walls used in skyscrapers serve primarily as  
1 screen against the weather.  
2 support for the roof.  
3 reinforcement for the steel.  
4 foundation support. ...................................

88. The artist who painted The Angelus also painted  
1 Baby Stuart.  
2 The Gleaners.  
3 Hope.  
4 The Age of Innocence.  
5 Oil painting ...........................................

89. The plumed-serpent motif is especially characteristic of the art of  
1 ancient Greece.  
2 ancient Egypt.  
3 the Mayas.  
4 Japan.  
5 Mohammedan Spain. .................................

90. In the history of painting, which one of the following media came latest?  
1 Tempera  
2 Al fresco painting  
3 Mural painting  
4 Oil painting  
5 Painting with silver and gold ........................

Do not go on to the next part or back to preceding parts.

Number wrong  
Amount to be subtracted  
Number right  
Subtract  
(See table at left)
Two men drove 1080 mi in 3 days. If they maintain the same rate for 2 more days, how far will they have gone in the 5 days?

1 720 mi
2 1440 mi
3 1800 mi
4 2160 mi
5 5400 mi

On a certain road map of New York State, 1/10 in. represents 1 mi. On the map the distance from Catskill to Glens Falls is about 7 1/2 in. The actual distance between these two towns is about

1 7 1/2 mi
2 47 1/2 mi
3 70 1/2 mi
4 75 mi
5 175 mi

To which one of the following fractions is 37 1/2% equal?

1 3/8
2 4/7
3 5/16
4 3/7
5 4/2

If the base of a triangle is 4 in. and the altitude is 12 in., what is the area of the triangle?

1 16 sq in.
2 24 sq in.
3 3 sq in.
4 48 sq in.
5 96 sq in.

If 3x - 2 = 0, x equals

1 - 2
2 - 3
3 - 2
4 - 3
5 - 2

A merchant offered a pair of shoes at 33 1/3% discount. If the original price was $4.95, what was the sale price?

1 $1.49
2 $1.65
3 $3.30
4 $3.46
5 $4.25

In a certain city, the price of milk delivered to the door is 11¢ for the first quart and 8¢ for each additional quart purchased at the same time. The amount a family would save in 2 weeks by buying 4 qt every other day instead of 2 qt every day is

1 21¢
2 28¢
3 42¢
4 63¢
5 84¢
A bootblack earned $1.80 during an afternoon. If his average profit per pair of shoes shined was 4\(\frac{1}{2}\)\(\$, how many pairs did he shine?

- 40
- 45
- 120
- 400
- 450

In constructing a circle graph to show the distribution of a city's budget of $150,000, $50,000 spent for schools would be represented by a sector having a central angle of

- 30°
- 45°
- 60°
- 90°
- 120°

The term of a promissory note is the

- rate of interest.
- date when the note is due.
- amount of money involved.
- length of time from the date the note is written until it is due.
- time interval between interest payments.

A line parallel to the bases of a trapezoid and intersecting two of the sides divides the trapezoid into

- two triangles.
- a parallelogram and a triangle.
- a trapezoid and a triangle.
- a rhombus and a triangle.
- two trapezoids.

If a ladder 13 ft long is placed against the side of a building so that its foot is 5 ft away from the foot of the building, at what distance from the ground is the top of the ladder?

- 8 ft
- 9 ft
- 10 ft
- 10\(\frac{1}{2}\) ft
- 12 ft

In the time from 1:00 P.M. to 1:15 P.M., the outer end of the minute hand of a clock traces out a path that is

- an ellipse.
- a semicircle.
- an angle.
- a straight line.
- a quarter circle.

The number 5729 means

- 5 \times 100 + 7 \times 10 + 20 + 9
- 5 \times 1000 + 7 \times 100 + 29 \times 10
- 57 \times 100 + 29 \times 10
- 5 \times 1000 + 7 \times 100 + 2 \times 10 + 9
- 5 \times 100 + 7 \times 10 + 2 \times 1 + 9

The area of a circle is 25\(\pi\) sq in. What is the radius of the circle?

- 1 in.
- 6\(\frac{1}{4}\) in.
- 8\(\frac{1}{3}\) in.
- 12\(\frac{1}{2}\) in.
- 5 in.

22. 3\(x^2\) equals

- 3 + \(x + x\)
- 3 \cdot x - x
- 3x - 3x
- 3x + 3x
- 9x

23. A man 6 ft tall measures 30 in. around the waist. The ratio of his height to his waist measure is

- 6/30
- 12/5
- 5/12
- 1/6
- 5/1

24. Which one of the following points does not lie on the graph of \(xy = 16\)?

- (2, 8)
- (4, 4)
- (-2, -8)
- (-4, -4)
- (-16, 1)

25. If \(y = 4x - 3\), then \(x\) in terms of \(y\) equals

- \(y + \frac{3}{4}\)
- \(\frac{3}{4}y + 3\)
- \(\frac{4y + 3}{4}\)

26. If \(a = \frac{b}{a}\) (\(a > 0, b > 0\)), then

- \(a\) must be greater than \(b\).
- \(b\) must be greater than \(a\).
- \(a\) and \(b\) must be equal.

27. Half a number is three less than twice the number. What is the number?

- 1
- 2
- 3
- 4
- 5

28. Which one of the following terms includes the other four as special cases?

- Polygon
- Quadrilateral
- Trapezoid
- Square
- Rhombus

29. If one of the angles of a triangle inscribed in a circle is a right angle, then the

- triangle is isosceles.
- longest side is a diameter.
- shortest side is equal in length to a radius.
- center of the circle lies inside the triangle.
- center of the circle lies outside the triangle.

30. The factors of an algebraic polynomial of the second degree in \(x\) are \((x + 4)\) and \((x - 2)\). The polynomial is

- \(x^2 - 8\)
- \(x^2 + 8\)
- \(x^2 - 2x - 8\)
- \(x^2 - 6x - 8\)
- \(x^2 + 2x - 8\)

Go on to the next page.
31. If $x$ pencils cost 15¢, the cost of $y$ pencils is
1. $15xy$ cents
2. $\frac{15x}{y}$ cents
3. $\left(\frac{15}{x} + y\right)$ cents
4. $(15x + y)$ cents
5. $\frac{15y}{x}$ cents

32. Which one of the following fractions has the smallest value?
1. 2
2. $\frac{3}{6}$
3. $\frac{1}{2}$
4. $\frac{1}{4}$
5. $\frac{1}{8}$

33. In the right triangle below $\sin A$ equals
1. 5
2. 12
3. 5
4. 12
5. $\frac{13}{12}$

34. The system of rectangular coordinates used in mathematics was invented by
1. Abel.
2. Descartes.
3. Cayley.
4. Hamilton.
5. Bernoulli.

35. If $\sqrt{x} = 9$, then $\sqrt{x}$ equals
1. 2
2. $\sqrt{3}$
3. 3
4. 36
5. 81

36. The circles $O$ and $O'$ of unequal radii are tangent to each other internally. The largest possible number of common tangents that can be drawn to these two circles is
1. 1
2. 2
3. 3
4. 4
5. an infinite number

37. A pair of values of $x$ and $y$ satisfying the simultaneous equations
\[
\begin{align*}
2x + 3y &= 13 \\
x + 2y &= 8
\end{align*}
\] is
1. $(4, 2)$
2. $(5, 1)$
3. $(2, 3)$
4. $(-2, 5)$
5. $(3, 2)$

38. A merchant bought 12 doz lead pencils for $5.16. Which one of the following selling prices will give him a profit of not less than 1¢ and not more than 1½¢ per pencil?
1. 6¢ each
2. 2 for 9¢
3. 3 for 10¢
4. 4¢ each
5. 5¢ each

39. Which one of the following numbers is a prime number?
1. 9
2. 17
3. 21
4. 4
5. 10

40. The number of cubic feet in one cubic yard is
1. 9
2. 18
3. 3
4. 27
5. 12

41. The formula for $F$, the number of degrees on the Fahrenheit thermometer scale corresponding to $C$ degrees on the centigrade scale, is $F = \frac{9}{5}C + 32$. The formula for $C$ in terms of $F$ is
1. $C = \frac{5F - 32}{9}$
2. $C = \frac{5}{9}F - 32$
3. $C = \frac{9}{5}F - 32$
4. $C = \frac{5}{9}(F - 32)$

42. The volume of a certain type of solid is given by the formula $V = b^2h$. If $b$ is doubled and $h$ is divided by 2, the volume is
1. multiplied by 4.
2. doubled.
3. unchanged.
4. divided by 2.
5. divided by 4.

43. Where will the graph of the equation $2y - 3x = 6$ cut the $y$-axis?
1. Where $y = 6$
2. Where $x = 2$
3. Where $y = 3$
4. Where $x = -2$
5. Where $y = 0$

44. If the sun is directly above point $A$ at 45° west longitude at a certain instant of time, at what time is it directly above point $B$ lying due west of $A$ at 75° west longitude?
1. 1 hr later
2. 2 hr later
3. 4 hr later
4. 1 hr earlier
5. 2 hr earlier

45. $\log_{10} 675$ is
1. less than 1
2. between 1 and 2
3. between 2 and 3
4. between 3 and 4
5. greater than 4

Go on to the next page.
As \( x \) increases without limit, the value of the fraction \( \frac{1}{x} \) approaches 1. True or False?

What is the greatest number of times that the graphs of a linear equation and a quadratic (second-degree) equation can intersect?

1. Once
2. Twice
3. Three times
4. Four times
5. It is impossible for them to intersect.

If the opposite sides of a four-sided figure are equal, the figure is necessarily a

1. rhombus.
2. parallelogram.
3. rectangle.
4. square.
5. trapezoid.

The width of a walk around the outside of a circular garden plot is equal to one-tenth the diameter of the plot. If the diameter of the larger circle including the plot and walk is 60 ft, how wide is the walk?

1. 6 ft
2. 10 ft
3. 3 ft
4. 5\frac{5}{11} ft
5. 5 ft

The y-coordinate of a given point \( P \) is +2. This means that the point is 2 units

1. above the x-axis.
2. to the left of the y-axis.
3. from the origin.
4. below the x-axis.
5. to the right of the y-axis.

If \( \log x = 3 \) and \( \log y = 2 \), then \( \log \frac{x}{y} \) equals

1. 1
2. 2
3. 3
4. 6
5. 5

If an angle \( A \) is equal to its complement, the supplement of \( A \) is

1. 45°
2. 90°
3. 120°
4. 135°
5. 180°

A wheel 2 ft in diameter makes 100 rev per min. What is the linear velocity of a point on a belt that passes over the rim of the wheel if there is no slipping between the belt and the wheel?

1. 100 ft per min
2. 200 ft per min
3. 100\pi ft per min
4. 200\pi ft per min
5. 400\pi ft per min

The graphs of the equations

- \( 2x + 4 = 0 \)
- \( 3y - 6 = 0 \)

are parallel to each other. Are they?

1. True
2. False

If two variables, \( x \) and \( y \), are in direct proportion, there is a constant \( k \) such that

1. \( x = ky \)
2. \( xy = k \)
3. \( x + y = k \)
4. \( x - y = k \)
5. \( x^2 = y \)

How many different numbers of 4 digits each can be made with the digits 1, 4, 5, 9, if no digit appears more than once in each number?

1. 15
2. 16
3. 24
4. 180
5. 256

The coefficient of the next to last term in the expansion \((x + y)^7\) is

1. 6
2. 7
3. 14
4. 5

Which one of the following equations is true for all values of the angle \( A \)?

1. \( \cos A = \tan A \)
2. \( \sin 2A = 2 \sin^2 A - 1 \)
3. \( 1 + \sec^2 A = \tan^2 A \)
4. \( \cos^2 A + \sin^2 A = 1 \)

The differential calculus is most frequently employed in solving problems involving

1. indirect measurement.
2. arithmetic and geometric progressions.
3. average rates of change.
4. instantaneous rates of change.
5. transformation of rectangular coordinates.

Do not go back to preceding parts.
AUTOBIOGRAPHY

Delton Clifford Beier was born on the thirteenth day of October, nineteen hundred and fifteen in Chippewa Falls, Wisconsin. He was the second son of Dr. A. L. Beier and Elizabeth Willkom Beier.

After appropriate grammar school education he attended the McDonell Memorial High School in Chippewa Falls. Having attended the State Teachers College at Eau Claire, Wisconsin, and Marquette University in Milwaukee, Mr. Beier received the Bachelor of Arts Degree in Psychology from the University of Wisconsin in June, 1938, and the Master of Arts Degree in June, 1939 with a major in Experimental Psychology.

Since September, 1939, he has attended the Louisiana State University and during this time has held Teaching Fellowships in the Department of Psychology and an Assistantship in the Bureau of Testing and Guidance. He is at present a candidate for the Ph.D. Degree in Psychology at the June Commencement of the Louisiana State University.
EXAMINATION AND THESIS REPORT

Candidate: Delton C. Beier

Major Field: Psychology

Title of Thesis: An Analysis of a Test of General Culture

Approved:

Wayne Dennis
Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Paul C. Young

J. H. Elder

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Date of Examination:

May 10, 1943