

CHAPTER V

THE COLLEGE BOARD CREATES ITS OWN INTELLIGENCE TEST: THE SAT

Introduction

As the psychologists experimented on the college campuses with their new tests, the College Entrance Examination Board perceived a threat to its growth. The Board membership had little understanding of the intelligence tests with their esoteric statistical foundation, but it gradually perceived the tests to be compatible with earlier Board attempts to measure more than simply past learning.

Beginning immediately after the war, a few voices on the Board called for consideration of the use of "intelligence tests." Through the work of commissions appointed in 1920 and then in 1924 and with the assistance of psychologists, the Board developed, in an initially halting manner, its own intelligence test, the Scholastic Aptitude Test.

Propelled by the national tide of interest in the new tests and by the impulse of institutional self-preservation, the College Entrance Examination Board began officially to consider development of its own form of "psychological examination". Progress was slow, however, as ambivalence toward such "psychological examinations" characterized the Board. Claude M. Fuess contends that "One cannot escape the conclusion that the Board, without fully realizing what had happened, soon found itself in deeper water than some of the members liked. Certain New England headmasters distrusted the whole idea

and resorted to ridicule instead of argument in a campaign to make the new tests unpopular."¹

Shortly after a presentation in 1919 by Board Secretary Fiske which called for the Board to determine whether admissions candidates "possess certain important intellectual qualities which are sometimes described as alertness, power, and endurance," by considering tests "combining the necessary elements of an informational and of a mental or psychological character," a somewhat ambivalent Board appointed the first of three commissions to study the new tests.²

The 1920 Commission

In June 1920, by its twentieth meeting, the Board was including intelligence tests in discussions of "factors worthy of consideration" in admissions decisions.³ Fiske recorded that the Board was openly considering examinations that would complement its subject content essay. Board members expressed interest in instruments and assessment activities to measure skills not reflected in the essays. They considered, for example, oral examinations "for the purpose of determining the ability of candidates to understand and speak the modern languages."⁴ Within this discussion of possible new activities for their

¹ Claude M. Fuess, The College Board: Its First Fifty Years, (New York: College Entrance Examination Board, 1967) p.105-106. Fuess makes this assertion without citation. This researcher has been unable to find evidence to substantiate or refute the assertion that such ridicule transpired.

² College Entrance Examination Board, Nineteenth Annual Report of the Secretary (1919), p. 2.

³ College Entrance Examination Board "Twentieth Annual Report of the Secretary (1920), p. 1. [Reports written by Fiske].

⁴ Ibid.

organization, Board members discussed the relative importance of various admissions factors. They acknowledged that it would be appropriate for admissions officers to consider "the candidate's academic record, and the candidate's physical health . . . [and] results of an intelligence test, or psychological examination, designed to indicate the candidate's intellectual alertness and power of concentration."⁵

At its November meeting in 1920, the Board passed the following resolution: "Resolved: That the College Entrance Examination Board authorize the appointment of a commission to investigate and report on general intelligence examinations and other new types of examinations offered in several secondary school subjects."⁶ According to Fuess, the Commission's task was, "to investigate and report on general intelligence examinations and other new types of examinations offered in several secondary school subjects."⁷

Secondary schoolmen dominated the 1920 commission. Walter R. Marsh of St. Paul's School, Garden City, N.Y. served as chair with S.R. Yarnall of Friends School, Germantown, Pa. and two college professors--Robert N. Corwin of Yale and S.P. Hayes of Mount Holyoke--completing the membership. Although later in the decade, many schoolmen and headmasters would come to view the new type of examination positively because it could potentially free their curricula from a lockstep coordination with content based admissions tests, in 1920 schoolmen were generally not supportive of this new direction in

⁵ Ibid.

⁶ College Entrance Examination Board "Twenty-First Annual Report of the Secretary" (1921), p. 12. [Reports written by Fiske].

⁷ Fuess, The College Board: Its First Fifty Years, p. 102.

admissions. John Valentine contends that "the tests probably seemed to the headmasters to be either irrelevant or a vague threat to their major interests."⁸

Thus this first commission, dominated by men who at best were doubtful of the value of intelligence tests, accomplished little. Two years after beginning work, commission chairman Marsh reported to the Board that "open mindedness" characterized the commission's approach to the question of "general intelligence examinations and other new types of examinations."⁹ But open mindedness was as far as they went.

Subsequently, the full board adopted resolutions declaring that it looked with "favorable interest" on the possible use of "general intelligence examinations" and was prepared to cooperate in administering them as soon as was possible.¹⁰ No action, however, was taken.

Mounting Criticism of Existing Examinations

Although no concrete activity grew out of the work of the 1920 commission, a growing number of educators within the Board criticized the existing examinations and continued to look for alternatives. The criticism stressed several themes. The Twenty-Second Annual Report of the Secretary of the College Board reproduced an article that Morgan Barnes of Thatcher School in Ojai, California had contributed to the Harvard Alumni Bulletin. Barnes had taken ten of the Board examinations "incognito, qua candidate" in June of 1921. His report on his activities criticized the Board for imprecision and subjectivity in

⁸ John A. Valentine, The College Board and the School Curriculum, New York: The College Board. 1987. p.33

⁹ Raymond Walters. "College Entrance Examinations Board and the New Type of Examinations." School and Society 15 (1922):412.

¹⁰ Fuess, The College Board: Its First Fifty Years, p.104.

marking papers. Further, he criticized the influence that Board Examinations had upon secondary school curricula.¹¹

Along with reproducing Barnes' criticism, the Secretary of the Board included in his report editorial Comments from the Harvard Alumni Bulletin. The editorial observed:

The Graduate School of Education has just issued a study of the marks given on College Board examinations which shows that the standards of the Board are unjustifiably variable. The Board seems to assume that its examinations are constant, the abilities of the several groups of candidates, from year to year, being variable. The very opposite is far more likely.¹²

The Harvard publication contended that "the type of examinations in mathematics given by the Board makes injustice to candidates inevitable; and second, that a new and superior type of examinations can be devised." Further, the editorial called for schools to include data from other sources in admissions procedures and recommended the use of intelligence test scores.¹³

The quest for different forms of examinations took two paths. One path emphasized objective, or multiple choice content based examinations. Led by Edward L. Thorndike and Ben D. Wood of Columbia's Teachers College, many educators developed an interest in this form of content based examination that they thought would address some of the problems found in the essay

¹¹ Morgan Barnes "College Entrance Examinations" Harvard Alumni Bulletin Reproduced in "Twenty Second Annual Report of the Secretary" College Entrance Examination Board (1922):13-16.

¹² Editorial Harvard Alumni Bulletin Reproduced in "Twenty Second Annual Report of the Secretary" College Entrance Examination Board 1922 p. 16-17. That the assumption that Board examinations are constant is presumptuous is not a criticism limited to the "essay examination;" this same presumption is criticized in recent literature on the SAT. See, for example: Owen None of the Above, pp. 68-69.

¹³ Editorial Harvard Alumni Bulletin Reproduced in "Twenty Second Annual Report of the Secretary" College Entrance Examination Board (1922), pp. 16-17.

examination format. The other path led to continued interest in the College Board's potential application of intelligence testing.

Although the impulses to pursue the innovations in testing differed, the "New Type" of multiple choice subject-area test and the "psychological examination" were certainly not antithetical; in fact, they were close enough in format that many educators confused the two tests or used the terms interchangeably. The groups that advocated the two reforms, however, did not overlap. College Board leadership on the multiple choice examination came from Columbia, while leadership in the movement to introduce an intelligence test came out of Princeton. Relations between the leaders of the two groups were strained.¹⁴

The "New Type" Multiple Choice Content Examinations

In November 1921, the Board adopted resolutions that provided for a study of "new type" examinations. To pursue the "new type"--multiple choice examinations, the Board requested that the Institute of Educational Research of Teachers College, under the leadership of E.L. Thorndike, examine the applicability of "objective examinations" to the fields of Algebra and History. Thorndike and his assistant Ben D. Wood prepared the examinations and presented them to the Board in April of 1922.¹⁵ According to Board Secretary

¹⁴ Hubin, David R., Oral History Interview with Ben D. Wood. Croton on Hudson New York, May 23, 1985. Tape and Transcript on file at E.T.S. Archives. pp. 10-11.

¹⁵ In their 1954 history of Teacher's College, Lawrence Cremin et. al. refer to an activity of Thorndike's Division of Educational Psychology within the Institute of Educational Research conducted during the six years subsequent to the Institute's formation in 1921. "While it is impossible here to include all of the notable achievements of the Institute during the next six years, certain outstanding accomplishments demand brief mention. The division of Educational Psychology supervised the preparation of a "new type" of college entrance examination for trial by the College Entrance Examination Board..." See Lawrence A. Cremin, et. al. A History of Teacher's College Columbia University (New York: Columbia University Press, 1954), pp. 80-81.

Fiske, Thorndike and Wood "claimed that it would be possible to produce an indefinite number of such tests differing from one another sufficiently to prevent candidates from being successfully crammed for them and that the variation in their difficulty would be much less than has been the case with the papers in the past by the Board."¹⁶

At a meeting of the Board three years later, the Commission on New Types of Examinations attempted to define a "new type" examination. The commission reported on eight features that distinguish a "new type" examination, describing it as 1) containing a broad range of content with between 100 and 200 separate questions; 2) being objective; 3) providing an even distribution of questions over the range of subject matter; 4) giving comparable measures in repeat administrations; 5) presenting questions with "clarity and definiteness;" 6) being free from "irrelevant activities which take time from the true purpose of the examination;" 7) presenting the student with clear instructions; and 8) being administratively convenient to use.¹⁷ The Commission on the New Type of Examinations accomplished little; beyond defining the examination and the initial tests drawn up in Algebra and History, the Board did not move in the direction of "new type" examinations.¹⁸

For further reference to this Thorndike work see: Walters. "College Entrance Examinations Board and the New Type of Examinations," p. 412. This researcher can find no evidence of any other direct Thorndike involvement in Board activities; The evidence suggests, in fact that he was not consulted on the issues of "intelligence testing."

¹⁶ "Twenty Second Annual Report of the Secretary" College Entrance Examination Board (1922), p. 33.

¹⁷ Minutes of the Board Meeting, November 7, 1925, p. 7. College Board Archives.

¹⁸ "Twenty Fourth Annual Report of the Secretary" College Entrance Examination Board (1924), p. 29-30.

New Type examinations represented a threat to many who comprised an old guard in the Board because these examinations would be the work of examination experts; the tie with content area academic departments would be loosened. Ben Wood, discussing the reaction of educators within the College Board to the "new type" examinations, recalls that

of course there was instant opposition from all sources. But we showed the old tests to be so unreliable. We'd have a body of students of say a hundred students taking their written examination and then next have them take a similar [essay] examination. We found that the correlation between the two was so low that we thought that the written examination could not have the same statistical dependability that the objective tests had."¹⁹

Ultimately, Thorndike and Wood broke with the Board over what they perceived to be that group's unwillingness to innovate.²⁰

Continuing Work on Psychological Examinations

Although work on the new-type of content examinations came to a virtual halt in the early twenties, consideration continued, if somewhat slowly, of possible Board development and use of a mental test. The first report on "Psychological Examinations" had lacked substance, but it did not kill interest. At its meeting in April 1922, the College Board adopted a resolution noting that, "the College Entrance Examination Board regards with favorable interest the use of general intelligence tests as supplements to other examinations." The resolution further called upon the chairman, Dean Howard McClenahan of Princeton, to appoint another commission "to consider the question of the desire for intelligence examinations and the feasibility of the proposal that the Board participate in their

¹⁹ Ben D. Wood, "Oral History" with David Hubin, p. 2.

²⁰ Ben D. Wood, "Oral History" with David Hubin, p.3.

conduct."²¹ McClenahan, however, on the advice of "educational psychologists who advised him that the time was not ripe," delayed.²²

While the Board's leadership hesitated, psychologists on American campuses were promoting their new tools; the use of psychometric examinations for admissions was growing. The Board membership itself in 1923 felt it necessary to issue a somewhat defensively couched statement of its general attitude toward innovation. In a section headed "The Attitude of the Board Toward Innovation," Secretary Thomas Fiske, included in his report an official indication that

The College Entrance Examination Board endeavors to maintain an open-minded attitude toward any research relating to the principles which underlie its work and toward any changes that are suggested.
..²³

An open-minded attitude, however, was not producing a new test, and Board members recognized, that along with threats from psychologists, their organization might face competition from other educational agencies.

Potential Competition from the American Council on Education

In 1924 the American Council on Education launched its own program of intelligence testing for college admissions based on a Louis L. Thurstone adaptation of the Army Alpha intelligence tests.²⁴ Thurstone, a psychologist at

²¹ "Twenty Fourth Annual Report of the Secretary" College Entrance Examination Board (1924), p. 30.

²² Fuess, The College Board: Its First Fifty Years, p. 104. Fuess does not cite his source here; this researcher can find evidence neither to substantiate nor challenge Fuess' portrayal of McClenahan's inaction.

²³ "Twenty Third Annual Report of the Secretary" College Entrance Examination Board (1923), p. 9.

²⁴ R.S. Woodworth to E. Gordon Bill, October 23, 1924. Yale University Archives, Robert M. Yerkes Papers.

the Carnegie Institute of Technology, headed a Council committee that specifically sought to develop a new college entrance examination. The Thurstone program was designed to coordinate the use of "intelligence tests" in admissions testing in American colleges and universities. Thurstone recognized the possible resistance among educators to the examinations. He and the American Council on Education, therefore, involved a wide range of psychologists and educators in developing his examination. Thurstone designed his A.C.E. examination to eliminate the "formal and superficial intelligence tests which have been rather common." He wanted the tests "to be of such a character that conservative educators will recognize their value."²⁵

Thurstone planned to "obtain the cooperation of psychologists in different American universities and colleges by which their best tests may be available for the general use thru this annual test program."²⁶ Thurstone stressed this to minimize criticism that the tests were experimental. The examination was a hybrid or cooperative project based on "Sentence Completion" items as used at Dartmouth; "Artificial Language" as used by Brigham at Princeton; "Proverbs" as used by Thurstone at Carnegie Institute of Technology; "Reading Tests" as used by the University of Chicago; "Opposites Tests" as used by Brigham at Princeton and a "Reasoning Test" developed by Cyril Burt of the University of London.²⁷

As chair, Thurstone directed the committee toward cooperation with the College Board, hoping that the Board would support and even coordinate his

²⁵ L.L. Thurstone to E. Gordon Bill (Bill was at Dartmouth College) July 2, 1924, Yale University Archives, Robert M. Yerkes Papers.

²⁶ L.L. Thurstone to E. Gordon Bill, October 14, 1924, Yale University Archives, Robert M. Yerkes Papers.

²⁷ Ibid.

examination. He noted "It is my sincere hope that this service may ultimately be taken over by the College Entrance Examination Board and conducted as part of its examinations service for the colleges."²⁸ But, because of past Board reluctance seriously to consider the use of intelligence testing for admissions, Thurstone anticipated resistance:²⁹

I have expressed on several occasions the desire that the whole test project be turned over to the College Entrance Board at least as far as the high school and college entrance problems are concerned. But I have also been informed that the College Entrance Board has not looked favorably on the use of psychological tests and that is the reason why I have not before approached you in this matter.³⁰

But with or without the Board's assistance, Thurstone, with funding from the American Council on Education, was prepared to proceed.

The 1924 Commission: The Board Responds To Competition

In light of the potential competition from the American Council on Education, in April 1924 the Board repeated its call for a commission and passed once again the resolutions of 1922.³¹ Mary E. Woolley of Mount Holyoke, McClenahan's successor as chairman, announced the membership of a new committee, which she recommended be called the "Commission on

²⁸ L.L. Thurstone to E. Gordon Bill (Bill was at Dartmouth College) July 2, 1924, Yale University Archives, Robert M. Yerkes Papers.

²⁹ Ibid. Professor Bill had written to Thurstone on behalf of the College Board inquiring about the use of Intelligence Tests for College Freshmen.

³⁰ L.L. Thurstone to E. Gordon Bill, October 14, 1924, Yale University Archives, Robert M. Yerkes Papers.

³¹ "Twenty Fourth Annual Report of the Secretary" College Entrance Examination Board (1924), p. 30.

Psychological Tests."³² The seven member commission, to be chaired by Dean E. Gordon Bill of Dartmouth, was composed only of college educators and was dominated by the Ivy League with two college presidents, four college deans, a professor and no representatives from the secondary schools.³³

Dean Bill began the work of the commission by sending inquiries to three prominent psychologists including R.S. Woodworth of the National Research Council, as well as Thurstone, and Thorndike. Bill sought their opinions of the Board's possible use of the new examinations. His questions solicited guidance on the general issue of whether the Board should administer the new examinations, what the earliest date could be, "what details as to the actual physical holding," and how the examinations should be graded.

The responses from the three scholars were helpful and thorough. They included suggestions on test structure; possibilities of purchasing the tests from the new Psychological Corporation (a consortium of psychologists formed to market tests); as well as concrete ideas on financing the testing venture. Moreover, both Thorndike and Woodworth noted the names of individuals that they would recommend as experts. Thorndike mentioned the names of Brigham, Toops, and MacPhail as persons who were working with the tests and might also

³² "Minutes of the College Entrance Examination Board" November 1, 1924. p. 2 College Board Archives.

³³ Valentine, The College Board, p.33. Aside from Dartmouth's Dean Bill, the committee consisted of Dean Joseph S. Ames (Johns Hopkins); Radcliffe Heermance (Princeton); G.W. McClelland (Penn); President William A. Neilson, (Smith) President Ellen F. Pendleton (Wellesley); and Dean C. Mildred Thompson (Vassar). Valentine notes that this was "possibly the one instance in the Board's history of an appointed group that did not include one or more secondary school representatives."

be worth consulting.³⁴ Woodworth noted for Bill the members of the Thurstone's Special committee within the National Research Council's Division of Anthropology and Psychology and encouraged Bill to have one of these people participate in the College Board's work. In addition to Thurstone himself, these included Clarence S. Yoakum of Michigan; A. W. Kornhauser of Chicago; C.C. Brigham of Princeton; H.T. Moore of Dartmouth and Ben D. Wood of Columbia.³⁵

Thurstone, despite the potentially competitive position that the Board's inactivity had forced him into, played an important role in allaying doubts and apprehensions within the College Board about the tests. Many on the Board expressed concern that the tests were experimental in nature. Throughout the course of the Board's consideration of the new examinations, Thurstone responded to these misapprehensions and cajoled members of the Board. For example he described criticism of the experimental nature of the examinations thus: "I should venture the guess that those who make such criticism either have some personal axe to grind or else they are not familiar with the facts."³⁶

Chairman Bill placed before the committee the resolutions of April 1922 and of April 1924. The earlier resolution had called for the Board to cooperate in giving the examinations "as soon as possible;" the latter resolution had established the commission. The activity and the report of the 1924 commission set in motion concrete activities that led the Board to develop its own

³⁴ E.L. Thorndike to E. Gordon Bill October 22, 1924. Yale University Archives, Robert M. Yerkes Papers.

³⁵ Woodworth to Bill, October 1924, Yale University Archives, Robert M. Yerkes Papers.

³⁶ L.L. Thurstone to E. Gordon Bill, October 14, 1924, Yale University Archives, Robert M. Yerkes Papers.

psychological examinations. First, the committee reported that many colleges were using "psychological examinations" and that they recommended that the board enter into an agreement with the National Research Council or some other qualified agency to begin to prepare such exams.³⁷

The 1924 Commission suggested that the Board proceed with the project and foresaw that "there would be room for the great diversity among the colleges represented on the Board as to the use to which the psychological tests could be put."³⁸ The commission proposed that "each college would be free to require the examinations of all of its candidates for admission, or such part of its candidates as the authorities of each college should determine," and included five specific recommendations:

1. That the College Entrance Examination Board enter into an agreement with the National Research Council, or other agency, whereby there shall be prepared for the use of the board each year a psychological test suitable for boys and girls wishing to enter the colleges represented in the Board.
2. That the Executive Committee appoint a committee of psychologists of standing to advise them as to the agency and all other conditions connected with the preparation and conduct of the psychological tests.
3. That the psychological tests be held on the Saturday morning of the week previous to the other College Board examinations.
4. That candidates wishing to present themselves at the board's psychological test be required to file a separate application to pay a separate fee for this test.
5. That the psychological test be held by the Board in June 1926 at every center at which the Board is conducting regular entrance examinations.³⁹

³⁷ Fuess, The College Board: Its First Fifty Years, p. 105.

³⁸ Minutes Commission on Psychological Examinations, October 31, 1924, submitted by C.N. Thompson. Yale University Archives, Robert M. Yerkes Papers.

³⁹ Minutes Commission on Psychological Examinations, October 31, 1924, submitted by C.N. Thompson. Yale University Archives, Robert M. Yerkes Papers.

The Committee of Experts

Responding to the 1924 Commission Report, Chairman Woolley proceeded to appoint the "committee of psychologists of standing," recommended by Dean Bill to further study the issue. This committee would represent a major change in the Board's approach to testing; with the appointment of this body, the Board, for the first time would hand an admissions testing issue to the "experts" who resided in the psychology departments of American colleges. No secondary school representatives or college admissions officers were to be on this committee.

Woolley recognized the significance of the composition of this new "advisory committee of experts" and asked Yale's director of Admissions, Robert N. Corwin, to make recommendations on the appointments.⁴⁰ Both the Board leadership and Corwin felt it important to involve visible, respected psychologists and specifically courted Yale's Robert M. Yerkes, the former president of the American Psychological Association, for membership. Yerkes, however, was unwilling to commit until he discussed the issue with his president, James R. Angell, and with Brigham and Moore. The renowned Yale psychologist was attempting to conserve his time "for research and for the development of the Institute of Psychology," so he was only willing to serve if the others could give him "good and sufficient reason why I should work with you."⁴¹ Yerkes required the urging of the others. Yale's director of admissions, Robert N. Corwin, noted

⁴⁰ Robert N. Corwin to Robert M. Yerkes. January 21, 1925. Yale University Archives, Robert M. Yerkes Papers. Corwin played an interesting role here. After Yerkes accepted, Corwin wrote to him thanking him and noting that he hoped to call upon Yerkes for advice on Yale's possible use of intelligence tests. Corwin was establishing the committee but his home institution was not yet using intelligence tests.

⁴¹ Robert M Yerkes to Carl C. Brigham and H. T. Moore. January 14, 1925, Yale University Archives. Robert M. Yerkes Papers.

that Angell was "deeply interested" and would advise in favor of Yerkes' accepting.⁴² Brigham then appealed to Yerkes with the argument that this activity was consistent with Yerkes' efforts to professionalize psychology. Brigham wrote to Yerkes, "There is a chance here for psychology to make a great forward step--another step as great as that made during the war--if the proper program can be put through. On the other hand, the failure of the science in a task of this sort would undoubtedly reflect on the methods which have been evolved to date."⁴³

Because of Yerkes' stature within the profession of psychology, many on the Board viewed the Yale professor's involvement as critical to the success of any Board sponsored "psychological examination." Yerkes felt overcommitted in many areas, however, and sought consistently to extricate himself from the project.⁴⁴ Henry Moore wrote to Yerkes on January 16, 1925 stating that "from the standpoint of the other two members of the committee I feel that it would be a calamity if you found it impossible to serve."⁴⁵ Moore then attempted to appeal to Yerkes' commitment to the profession of psychology:

There can be no question as to your being indispensable to the committee. The only question is how indispensable you think the work is to Psychology in general. Personally, it seems to me that this is an excellent chance to render an outstanding service, as good an occasion as has arisen since the development of the

⁴² Robert N. Corwin to Robert M. Yerkes. January 5, 1925. Yale University Archives. Robert M. Yerkes Papers.

⁴³ Carl Campbell Brigham to Robert M. Yerkes. January 18, 1925. Yale University Archives. Robert M. Yerkes Papers.

⁴⁴ Henry T. Moore to Robert M. Yerkes. January 16, 1925. Yale University Archives, Robert M. Yerkes Papers.

⁴⁵ Ibid.

alpha. The time is surely ripe for the standardizing of freshmen tests, and for making them generally available."⁴⁶

Ultimately but reluctantly Yerkes did accept a position on the advisory committee, and President Woolley announced that the membership would include Yerkes, Carl Campbell Brigham of Princeton and Henry T. Moore from Dartmouth. Woolley then designated Carl Brigham as chair. Brigham, whose name had appeared on the lists submitted to Dean Bill by both Woodworth and Thorndike, was directly known to the Board because he had attended the October 31, 1924 meeting of the Commission in place of Princeton's Director of Admissions, Radcliffe Heermance.⁴⁷

The composition of this "Committee of Experts" generally, as well as the specific choice of Brigham as chair, would have an unmistakable impact on the development of the Board's "Psychological Examinations." A most important aspect of the committee was the omission of any representative from Columbia's Teachers College--Thorndike's institution that had led in the introduction of both the postwar intelligence tests and in the "new type" multiple choice content examinations. Although initially Yerkes was in a natural position of leadership, his diffidence, coupled with Brigham's energy for this project meant that the examination would, in fact, become Brigham's creation. Moreover, separation from Teachers College, a leading institution in educational psychology including learning theory, meant that the examination could develop as a psychometric predictor of academic performance with no established relationship to educational theorists or practitioners.

⁴⁶ Ibid.

⁴⁷ Minutes Commission on Psychological Examinations, October 31, 1924, submitted by C.N. Thompson. Yale University Archives, Robert M. Yerkes Papers.

The committee of experts membership in place, Secretary Fiske thanked them and gave them the correspondence and literature that he had been compiling on intelligence examinations which he noted had "interested and enlightened the members of the College Entrance Examination Board."⁴⁸ Fiske then called the first meeting of the Committee to be held at Columbia in joint session with members of the Executive Committee and the Committee of Review. Brigham, who was aware that most Board members did not have any understanding of psychometrics and that some members were overtly hostile to such activity, attempted to meet with Yerkes and Moore prior to the more general meeting in order to "form a coordinated plan of attack."⁴⁹ Yerkes, however, was unable to attend either the official meeting or the Brigham's pre-meeting caucus. By this time Yerkes was following his initial inclination to avoid direct involvement; he was drawing away from the project. Professor Rudolph Anderson represented him at the meeting.

Brigham, Moore and Anderson did meet at the Princeton Club on the day preceding the planned meeting at Columbia . They reviewed the correspondence that Dean Bill had received from Thurstone, Thorndike and Woodhouse and prepared their initial recommendations. After considering proposals that the testing be either carried out by the Psychological Corporation, the National Research Council, or the American Council on Education, the three psychologists

⁴⁸ Thomas S. Fiske to Robert M. Yerkes January 23, 1925. Yale University Archives, Robert M. Yerkes Papers. The materials that Fiske sent the committee included correspondence from L.L. Thurstone, E.L. Thorndike, and R.S. Woodworth as well as copies of the American Council on Education's Psychological Examination and excerpts from College Board meeting minutes.

⁴⁹ Brigham to Yerkes, undated letter, Yale University Archives, Robert M. Yerkes Papers.

agreed to recommend "that the proposed psychological examinations should be handled by the College Entrance Examination Board with expert assistance and without the help of outside agencies."⁵⁰

As the full meeting developed, it turned out that Brigham's careful planning with the psychologists had been unnecessary; the psychologists were to have their way when the meeting convened. Fiske assembled the Board's governing "Committee of Review," the "Executive Committee," the Advisory Committee of Psychologists and The Commission on Psychological Tests on the Columbia campus to plot the Board's course in developing and introducing the new examinations.⁵¹ Fiske began the discussion by acknowledging that there was general concurrence that "the desirability of conducting psychological examinations should be considered as settled."⁵² If anyone doubted the demand, a subsequent report by Dean Bill on the investigation made by the Association of American Colleges convinced them. The 1924 study indicated that nearly fifty percent of almost two hundred and fifty colleges surveyed "were using psychological examinations to some extent."⁵³ Dr. Wilson Farrand then revealed

⁵⁰ "Minutes of a Meeting Held February 27, 1925, by the Committee of Review in cooperation with the Executive Committee for the Consideration of Psychological Examinations," p. 3. Submitted by Thomas S. Fiske. Yale University Archives, Robert M. Yerkes Papers.

⁵¹ Thomas S. Fiske to Robert M. Yerkes, February 4, 1925. Yale University Archives, Robert M. Yerkes papers.

⁵² "Minutes of a Meeting Held February 27, 1925, by the Committee of Review in cooperation with the Executive Committee for the Consideration of Psychological Examinations," Submitted by Thomas S. Fiske. Yale University Archives, Robert M. Yerkes Papers.

⁵³ Ibid.

a reason for creating the new tests, saying that "the desirability depended upon demand."⁵⁴

After considering other possibilities the Committee of Review and the Executive Committee passed verbatim the proposals that Brigham and his colleagues had drafted the day before. Brigham then advised the joint committees that the "character of the psychological tests for admissions to college "made it possible" to secure from colleges belonging to the Board a group of specialists to prepare an examination paper."⁵⁵ Closing the February meeting the joint committee passed President Woolley's motion that "the Board should select a technical committee of experts in the field of mental measurement to direct the scientific conduct of the examination."⁵⁶ The conditions of selection explicitly included that the new committee be composed of faculty from institutions that were members of the Board.

The Board of Review then appointed the new committee comprised of Brigham as Chair, Henry T. Moore of Dartmouth, J. Crosby Chapman, of Yale, Andrew H. Macphail of Brown and David C. Rogers of Smith. Brigham and his earlier advisory committee of psychologists then agreed to place all of their experimental material at the disposal of the new "technical committee," which henceforth would develop the actual test. This new "technical committee of experts" would, according to the recommendation, have the authority and resources to select the needed permanent and temporary technical and clerical

⁵⁴ Ibid., p. 2.

⁵⁵ Ibid., p. 3. Brigham stressed that there was no reason to go to institutions outside the Board for psychological expertise.

⁵⁶ Carl Campbell Brigham to Robert M. Yerkes, April 7, 1925. Yale University Archives, Robert M. Yerkes Papers.

staff.⁵⁷ The plan differed from previous Board examinations in that it did not contemplate a committee of examiners and a committee of revisions for the examinations but rather that "the new examination be under the direction of a technical committee of five specialists who have worked on psychological examinations and who represent colleges belonging to the Board."⁵⁸

Yerkes' absence from the February meeting signalled his general unwillingness to participate actively in the project. Leadership of the project clearly passed to Brigham. Brigham had already played a leading role among the psychologists at the February meeting, and Yerkes wrote to his Princeton colleague in April advising him to "please go right ahead with this college entrance examination business without further thought of me and without need of consulting me on account of courtesy or otherwise."⁵⁹ From this point forward, the College Board's "psychological examination" was Carl Campbell Brigham's project; the process of its development was orchestrated by Brigham and the new test would bear the imprint of the Princeton psychologist.

Brigham and The Technical Committee of Experts

Handing the work of developing a "psychological examination" to a new technical committee was, in fact, a change of name more than it was a change of substance. Brigham's role in the new "technical committee" would be even more

⁵⁷ "Minutes of a Meeting Held February 27, 1925, by the Committee of Review in cooperation with the Executive Committee for the Consideration of Psychological Examinations," Submitted by Thomas S. Fiske. Yale University Archives, Robert M. Yerkes Papers.

⁵⁸ Ibid.

⁵⁹ Robert M. Yerkes to Carl Campbell Brigham, April 13, 1925, Yale University Archives, Robert M. Yerkes Papers.

dominant than in the previous committee; all that changed was his supporting cast.

In April 1925 the Board accepted the Committee of Experts' proposal to administer the new tests in 1926. The purpose of the Committee of Experts would be to "advise the board generally in regard . . . to the following points: (1) The construction of the test (2) The conduct of the examinations and the qualifications necessary for supervisors (3) Procedure to be followed in marking the papers and in recording the results."⁶⁰

The committee met to work on the test on six different occasions. Although Brigham later reported that "all members were present at every meeting and devoted much time to the preparation of the tests," the leadership and direction for the work came from Brigham himself.⁶¹ The College Board's "psychological examination" became Brigham's test and the focus of his life's work.

Brigham's Doubts

By 1925 and 1926, when he headed the Technical Committee of Experts, Brigham had developed doubts that tests could measure general intelligence. In May of 1926, Brigham expressed a carefully measured opinion of intelligence tests in the Princeton Alumni Weekly. "The writer's own particular thob [sic] on

⁶⁰ Robert N. Corwin to Robert M. Yerkes. January 5, 1925. Yale University Archives. Robert M. Yerkes Papers.

⁶¹ Brigham, A Study of Error, p. IX. There are no available records or minutes of the committee meetings of the psychologists who wrote the SAT. The papers of Rogers at Smith and MacPhail at Brown and Angier at Yale do not shed light on the specifics of what transpired in the committee meetings. Research into the discussions that led to the inclusion or exclusion of particular items--if such discussions in fact transpired--awaits the availability of Carl Campbell Brigham's Papers. At the present time the extent and content of any Brigham papers held by the family is unknown. ETS Archivist Gary D. Saretzky is actively seeking the corpus of those currently unavailable papers.

the general question of intelligence tests is that they are not sufficiently accurate to be trusted completely, but that they are too useful to be discarded entirely."⁶² Brigham expressed sympathy with the lay person who could see no connection between such questions as "The number of a Zulu's legs is two, four, six, eight?" and any measure of "intelligence." But, he continued, "intelligence testers have very greatly refined their techniques and have developed very definite methods for investigating the reliability and validity of their methods."⁶³ Results of Brigham's ongoing experimentation with testing challenged his earlier certainties.

Brigham's work with undergraduates at Princeton also influenced his thinking on the role of "natural" ability in academic success. Brigham was aware that factors other than intellect influenced grades. At a 1926 meeting of Princeton's Committee on Admission, Brigham cited the Annual Report of 1910 and pointed out that "the 20% of our students who come from the Public High Schools win over 40% of our general honors." Brigham then noted that "high school boys came primarily to work, while people from such private schools as Taft, Loomis and Hotchkiss could do excellent work but usually did not."⁶⁴ Brigham's work in this area became part of an ongoing dialogue in which contributors pondered the factors involved in academic success. Thus Brigham brought to the Technical Committee of Experts increasing sophistication about the concept of intelligence, an awareness of the problems involved in its measurement, and a recognition of the factors that influenced academic success.

⁶² Brigham, Carl C. "Intelligence Tests: The Third of the Present Series of Princeton Lectures by Members of the University Faculty" Princeton Alumni Weekly 26 (May 5, 1926):787.

⁶³ Ibid.

⁶⁴ Minutes of the Committee on Admission , November 23, 1926. [Cited in Tomberlin, p.81.].

Brigham Within the Profession

The picture of Brigham from his colleagues and associates is as varied as its sources. His coworkers and subordinates at the College Board consistently spoke of his sense of humor. Chauncey Belknap, a longtime personal friend of Brigham's, expounded consistently on Brigham as an "entertaining, agreeable person to be with."⁶⁵ Another former colleague of Brigham's, John M. Stalnaker, writes with evident personal affection for his fellow psychologist but notes that "When I joined the Board, Carl had so many strong enemies that there was fear that nothing he proposed would be accepted."⁶⁶ In direct contradiction Claude Fuess contends in his commissioned history of the Board that "Professor Brigham's quiet tones and dignified manner were disconcerting to opponents who wanted him to fight back. He never made the mistake of overstating his case His very caution made more converts than he could have won by pounding the table."⁶⁷

Those who opposed Brigham were equally definite in their assessment of their adversary. Ben Wood, who along with Edward L. Thorndike frequently clashed with Brigham, recalls that "Brigham was a very difficult person psychologically. He was absolutely intolerant of anything different from what he

⁶⁵ Chauncey Belknap and Gary D. Saretzky, Oral History with Chauncey Belknap, E.T.S. Oral History Program, June 18, 1980 Educational Testing Service, Princeton, New Jersey. p.9

⁶⁶ John M. Stalnaker to Mrs. Ralph J. Sharp. September 28, 1961. Brigham Collection, ETS Archives.

⁶⁷ Fuess, The College Board: Its First Fifty Years, p.103).

felt or thought . . . and his antagonisms carried into the emotional field in the matter of loyalty to this or that tradition."⁶⁸

Brigham as a psychologist was one step below the luminaries. Those clearly in the first rank among the psychologists of the mid-twenties would include Edward L. Thorndike of Teachers College, Robert M. Yerkes of Yale, and Lewis M. Terman of Stanford. Brigham developed a mentee relationship with Yerkes--the man who had encouraged him in his first work A Study of American Intelligence and who would consistently maintain an interest in the younger man's career. Brigham developed a relationship with Yerkes that lasted throughout his life. In the early 1920s Yerkes made a concerted effort to bring Brigham to Yale to join him on the psychology faculty.⁶⁹

In contrast to his relationship with Yerkes, Brigham seemed to consistently clash with Thorndike. In reference to the interaction between Brigham and Thorndike, Ben Wood, who served as Thorndike's assistant for two years, recalls "they were at loggerheads all the time."⁷⁰

⁶⁸ Ben D. Wood, "Oral History" with David R. Hubin, p.4. In an earlier Oral History, conducted by Gary D. Saretzky, Wood conveyed that Brigham "was highly regarded, by me as well others." However, in the next sentence, he reveals his ambivalence toward the SAT's author: He indicates that Brigham feared a possible merger of the College Board with other testing agencies because Brigham would lose his role in the Board, a role that Wood characterizes with mixed metaphor. He indicates that Brigham thought he should "be the czar of the movement" and essentially "Allah" for the "Arabs" who comprised the Board. Oral History February 17, 1978, *Ibid.*, p. 16. Wood's early correspondence with Brigham does not indicate a dislike for Brigham. Possibly Brigham's later opposition to a testing agency colored Wood's memory. For example: Wood to Brigham November 6, 1934. "Many thanks again for your help at the conference. You were quite the most effective and enjoyable presiding officer we had at any of the sessions." MSS11 folder 210. It is certainly not the place of this researcher to comment on the personality of Carl Brigham; one cannot escape observing, however, that Carl Campbell Brigham was at least a man who provoked strong responses.

⁶⁹ Brigham to Yerkes, June 4, 1924. Yerkes Papers, Box 3, Folder 42, Yale University Archives.

⁷⁰ Wood "Oral History," with Hubin, p.3.

As advocates for "new type" subject area examinations, Thorndike and Wood criticized the examinations of the College Board. Thorndike, who reportedly in general "abhor[ed] argument and rarely answer[ed] public criticism"⁷¹ had a strong distaste for the College Board. Brolyer recalls that: "The Thorndike group was anti-College Board and the College board people were anti-Thorndike."⁷² According to Brolyer, however, Thorndike did not necessarily think that the Board was elitist; "no, dumb, I would think. That was his attitude toward it. . .It was in regard to the examinations and the evaluations of the individual, that, I think, he thought the Board examiners were just dumb. I never really knew what he did think of them, as portions of society."⁷³ Brolyer describes the antipathy between Thorndike and the Board thus: "Did you ever go back and read the publications of the first meetings and reports relating to the organization of the College Entrance Examination Board back around 1895? I remember one sentence (now this isn't a quote), 'Some of the Trustees' children might not be able to pass these tests. Then how will we get them into college?' Or something to that effect. It was just new, I think that was the main thing."⁷⁴

Brigham came to be a focus of the antipathy between Thorndike and the Board--an antipathy that lasted for years.⁷⁵ The antagonism was based on more

⁷¹ Geraldine Joncich, The Sane Positivist p. 464.

⁷² Gary D. Saretzky, E.T.S. Archives Oral History Program: Interview with Cecil R. Brolyer: June 13, 1984. Stuyvesant, New York. Educational Testing Services Archives pp. 17.

⁷³ Ibid., pp. 17. In response to other questions by Mr. Saretzky, Mr. Brolyer did concede that Thorndike may have felt that the Board was elitist, but Brolyer felt that Thorndike primary problems were "in terms of the examination process," Ibid.

⁷⁴ Ibid.

⁷⁵ Brigham's attitude toward Edward Thorndike was apparently visited upon Robert Thorndike, Edward's son. On November 7, 1940, Brigham wrote a letter to Thorndike that

than simply different relationships to the College Board.⁷⁶ Increasingly Brigham differed with the Thorndike's deterministic eugenics which he came to see as "naive."⁷⁷ Most significantly, Brigham's attitude toward Thorndike apparently kept him distant from Teachers College. A test developed for selection was thus increasingly isolated from the leading center of advances in pedagogy and learning diagnosis.

Brigham Renames the "Psychological Examination"

By the time the commission had finished its work on the "psychological examination," Brigham's progression of thoughts on what "intelligence tests" measured had led him to reject the word intelligence as part of the title for his examination; he indicated that the "committee uses the term 'aptitude' to

illustrated the chill between the two scholars. Thorndike had apparently sent Princeton's Director of Admissions Heermance a questionnaire concerning the use of intelligence tests at Princeton University. When Heermance sought Brigham's assistance in completing the questionnaire, Brigham wrote to Thorndike: "Since 1926, Princeton, along with practically all of the leading educational institutions of the East, has been using the Scholastic Aptitude Test prepared by the College Entrance Examination Board." The Princeton psychologist then icily continued his letter to his Teacher's College colleague: "The central office of the Board is at 431 West 117th Street, New York, City, but I realize, of course, that the bounds of knowledge are set at 120th Street." Carl Campbell Brigham to Robert L. Thorndike. ETS Archives, Educational Testing Service, Princeton, New Jersey. Brigham did not explicitly make clear on which side of this boundary between Columbia proper and Teacher's College knowledge existed and on which side ignorance existed but the implication was clear. He dripped sarcasm as he admonished the more famous scholar, "The Annual Reports of the Secretary of the College Board are undoubtedly on file at Teachers College, Columbia and would provide interesting reading for you in preparation for the problem for which you are seeking subsidy," Ibid.

⁷⁶ Brolyer "Oral History" with Saretzky, pp. 32. Neither Brigham nor Brolyer thought highly of Thorndike: Brolyer noted "Thorndike had a tremendous following in this country, probably still does. But he made egregious errors. They weren't very important because what he talked about wasn't very important. But he was naive." Ibid., p. 32. Brolyer left Columbia for Princeton in 1927. Immediately afterward, Thorndike called for more permanence in his research staff. See: Joncich, The Sane Positivist p. 181-182.

⁷⁷ Ibid.

distinguish such tests from tests of training in school subjects."⁷⁸ Fuess notes that "they selected this title in the belief that the adjective 'psychological' in that connection was inaccurate and misleading."⁷⁹ Brigham then indicated his uncertainty about the relationship between his test and "general intelligence." The 1926 manual prepared for distribution to schools explained the use of the term "aptitude."

The term 'scholastic aptitude test' has reference to the type of examination now in current use and variously called 'psychological test,' 'intelligence tests,' 'mental ability tests,' 'mental alertness tests,' et cetera. The committee uses the term 'aptitude' to distinguish such tests from tests of training in school subjects. Any claims that aptitude tests now in use really *measure* 'general intelligence' or 'general ability' may or may not be substantiated. It has, however, been very generally established that high scores in such tests usually indicate ability to do a high order of scholastic work. The term 'scholastic aptitude' makes no stronger claim for such tests than that there is a tendency for individual differences in scores in these tests to be associated positively with individual differences in subsequent academic attainment.⁸⁰

Despite this disclaimer about what it actually measured, the new tests reflected in format its heritage in the tests that had, in fact, purported to measure "intelligence" earlier in the decade. Moreover, although Brigham and his committee decided not to use the "intelligence" in the title, they simultaneously linked it to the "psychological tests," "intelligence tests," and "mental alertness"

⁷⁸ Carl Campbell Brigham, "The Scholastic Aptitude Test of the College entrance Examination Board" in: College Entrance Examination Board The Work of the College Entrance Examination Board 1901-1925 (New York: Ginn and Company, 1926), pp. 44.

⁷⁹ Fuess, The College Board: Its First Fifty Years, p.107.

⁸⁰ Carl Campbell Brigham et. Al. Scholastic Aptitude Tests: A Manual for the Use of Schools, Prepared by the College Entrance Examination Board. p. 1. Document is housed in Educational Testing Services Archives. [emphasis in original].

tests as they explained it to the board.⁸¹ Although the scores were not reported in terms of an intelligence quotient, they were based on the same underlying concept of statistical relationship to a normative group. The math and verbal scores were combined to give a general measure of general aptitude, without differentiating the performance on individual items. Thus from its inception the name Scholastic Aptitude Test has been a point of dissonance.⁸²

Brigham as a psychologist saw the role of the new test as limited. In the first manual produced by the committee, Brigham wrote:

Boards of admission to colleges, now forced to estimate the future worth of candidates, need all information which is available and pertinent to reach wise decisions. This additional test now made available through the instrumentality of the College Entrance Examination Board may help to resolve a few perplexing problems, but it should be regarded merely as a supplementary record. To place too great emphasis on test scores is as dangerous as the failure properly to evaluate any score or rank in conjunction with other measures and estimates which it supplements."⁸³

Conclusion

By the spring of 1926, Brigham's committee had produced the first two forms of the Scholastic Aptitude Test. The test drew from the work of the members of the committee in general but reflected most directly Brigham's work at Princeton. Four of the nine item types used in forms A and B came collectively

⁸¹ College Entrance Examination Board, The Work of the College Entrance Examination Board, p. 44.

⁸² David Owen, in None of the Above suggests that the name of the SAT should be changed to the "College Freshman Grade Point Average Predictor Test."

⁸³ Carl Campbell Brigham et. Al. Scholastic Aptitude Tests: A Manual for the Use of Schools, p. 1-2.

from tests used at Dartmouth, Smith, and Yale; the other five all came from The Princeton Intelligence Test that Brigham had authored in 1925.⁸⁴

In 1934 Albert Crawford defined an "aptitude test" as ". . . a test [that] reliably measures qualities essential in successful future performance, by sampling previously acquired skills associated or antecedent to those qualities, but without introducing elements which can only be acquired from the proposed future study."⁸⁵ Brigham sought to test aptitude but produced a test that only had the power to select--to either eliminate or include; it did not have the power to measure specific aptitudes.

The new test that Brigham produced in 1926 reflected its heritage derived from the Army Alpha test--itself merely eight years old. The Alpha had never been intended to accomplish anything but classification; the Scholastic Aptitude Test was left with this legacy. In the next fifteen years, Brigham would seek more than mere classification from tests as he moved away from hereditarian beliefs to promote a "science of education." He saw testing as the foundation of a new pedagogy. Ironically, however, Brigham and the Board's relationship to Thorndike, the leader of Teachers College and one of the foremost educators of the time, distanced the Princeton psychologist from advances in the discipline of education. Thus from its inception, the Scholastic Aptitude Test was isolated from advances in education and learning theory and ultimately isolated from the advances in a field that decades later would be called "cognitive psychology."⁸⁶

⁸⁴ Brigham, A Study of Error, Page 248.

⁸⁵ Albert B. Crawford, "What About All These Tests?" Occupations 12 (April):13-18.

⁸⁶ This author is using the term "cognitive psychology" in a specific sense to refer to those scholars such as Harvard's Gardner and Yale's Sternberg. Although "psychologists" as

early as Aristotle have been concerned with "cognition" the subdiscipline emerged in the mid-1960s.