

# NATIONAL AND STATE COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS



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## LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,  
OFFICE OF EDUCATION,  
Washington, D.C., June 1933.

Sir: There seems to be an unusual interest in cooperative high-school testing programs. Accordingly our specialist in this field, Dr. David Segel, has made some examination of these plans on both the national basis and the State basis. He finds that on the national basis the College Entrance Examination Board, the Educational Records Bureau, the Cooperative Test Service, and the American Council on Education Psychological Examination are the major efforts. There are also mentioned some tests which have more than a State-wide influence. These are the Kansas Nation-wide Every Pupil Scholarship Test, the National Survey of English Usage, the New York Regents Examination, the Iowa Academic Contest, and the Ohio State University Intelligence Examination.

After checking up on these briefly, the bulletin treats of State testing programs as given in the various States. Many of the States, it will be found, have some testing in progress. The bulletin is finished with suggestions for possible improvements in cooperative programs. It is suggested, first, that achievement tests bear on the application of principles rather than on fact knowledge; second, it is desirable that tests be given throughout the high-school period rather than at the end of the period; third, that tests are so constructed that forms from one year to another are comparable; fourth, that tests from different cooperative programs should be equated on account of geographical regions; and fifth, that the cooperative testing program should include in its scope all pupils in the subject tested.

The bulletin is very suggestive of what may be done with the standardized achievement and aptitude tests, and I recommend that it be published as a bulletin of this Office.

Respectfully submitted.

WM. JOHN COOPER,  
*Commissioner.*

The SECRETARY OF THE INTERIOR.

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# NATIONAL AND STATE COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

## INTRODUCTION

In their constant groping toward achievement standards, the high schools of this country have developed what is known as "cooperative testing." This development is not recent. Cooperative testing dates back further than the standardized testing movement itself. For instance, it has been customary for about 50 years in New York and in certain Western States to conduct State high-school examinations. This type of testing was developed through the desire to standardize and supervise high-school instruction. There also developed at an early date a form of testing designed as a means of determining admission to college. In the last decade, particularly in the last 5 years, cooperative testing has been stimulated through the measurement movement.

There is a reason for the increasing popularity of cooperative testing. It is an advance over the use of tests by individual schools or school systems because in cooperative testing a group of schools, usually in a fairly well-defined geographical area, agree to give the same test under uniform conditions to their students so that the work of the individual students in one school can be compared with the work of the students in all schools. This intimate comparison tends to bring about a better understanding of the achievement and ability of the pupils in a given area. Whereas national norms classify the work of pupils in a general way they have not always been found to fit the achievement of pupils in these various geographical areas as well as results of tests given cooperatively. This is more true for the high-school level than for that of the elementary school because of the differing courses of study in each high-school subject in the different geographical areas.

That geography is a factor in the present development of cooperative testing is evidenced in the fact that the schools

on the plains of our Central States have been very willing to take up the movement. Probably this is true because in the small towns of this great area there is a fair degree of homogeneity of population and a oneness in the purpose of education. The actual variation in achievement among the schools of a Middle Western State is probably less than that of the schools of any fairly good-sized city. This, in turn, may be due to the fact that a city draws all classes of the population in large numbers.

This bulletin is restricted to cooperative testing programs in the United States which are State and national in character. We are not restricting ourselves to programs carried forward by State departments, but include all programs which cover large portions of the Nation or a State regardless of the agency which is sponsoring it. Only programs relating to grades 9 to 12, inclusive, are considered. By a cooperative testing program, we mean one initiated and carried through for the mutual benefit of all concerned and without a commercial aspect.

It so happens that on the high-school level there are no organized cooperative testing programs being pushed by commercial testing companies. This does not mean that such testing companies are not concerned with testing over large areas. Companies publishing tests do encourage testing over wide areas, but it is done through individual solicitation, and the connection of any school system's testing with another is through the use of norms and mutual experience with method of treating test results which are furnished by the company. This service of the testing companies goes along with their regular sales of tests. Insofar as this is true, it is not a cooperative affair, since the service is paid for directly to the testing company by the individual school systems through payment for tests and test materials, and there is no direct contact with other schools.

We consider as high-school testing programs all testing which is done in the ninth, tenth, eleventh, and twelfth grades and testing done after students graduate from high school but before they actually enter college. High-school testing by individual colleges for their own benefit to determine admission is not considered cooperative. By cooper-

ative testing in this regard, we mean programs which are carried out for the benefit of several institutions, be they all colleges or colleges and high schools.

Our definition of cooperative high-school testing programs takes into account among others practically all programs initiated for the determination of college entrance and placement in college. The few exceptions to this may be here noted: (a) The American Council on Education psychological examination when given in college; (b) the Cooperative Test Service tests when given in colleges; (c) the Ohio University psychological test when given in colleges; (d) Oklahoma testing program carried on in Oklahoma colleges with English placement and reading tests; (e) California mental-educational survey which was carried on in California junior colleges and which since has been carried on to some extent by individual schools.

A good division of testing programs is that into national programs of testing and State programs of testing. The former takes in those programs that have little or no reference to State lines, while the latter is concerned with those programs that are found within the confines of a State. We shall present here as much as we can for each program on the following topics: (a) Agency sponsoring the program; (b) special cooperating bodies; (c) the name of the tests, if standardized and sold commercially; (d) person responsible for constructing the tests; (e) criterion for the construction of tests; (f) extent of program; (g) classes tested; and (h) purposes of testing program, names of subjects tested, etc.

In describing these programs we assume that they are continuous from one year to another using the same organization and tests except where we note differently. Also the tests used are of the new-type short-answer tests unless otherwise stated. As mentioned it is the development of new-type testing which has made such programs as these possible. The testing set-up for those programs which require subjective analysis of the test papers will be found to be much more complicated than the others.

The programs described, if annual affairs, are usually held some time in the spring. The time of the closing of school,

the time it takes to assemble the results in any particular testing program, etc., in most cases determines the time set for testing. In some programs where the high schools are to use the results in guidance, the tests are given earlier in the year.

#### NATIONAL COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

Some of the national testing programs are expanded State programs. In other cases where the best classification of a program as a working program is a State program, we shall only mention it in this section.

#### COLLEGE ENTRANCE EXAMINATION BOARD

The tests of the college entrance examination board are carried on for the benefit of many colleges and high schools by a general agency consisting of (in 1930-31) 39 members representing universities, colleges, and scientific schools, and 11 members representing the interests of the secondary schools. This board carries on a testing program with graduating seniors in the high-school academic subjects and a scholastic aptitude examination. The results on these examinations are accepted by all universities and colleges in the United States. A few universities require the taking of college entrance examination board tests for entrance. Others accept the tests in whole or in part as determining college admission. In 1932, 19,929 students took one or more of the college entrance examination board tests.

The college entrance examination board prepares its own examinations, arranges to have them given at various centers, and appoints persons to score the papers. This is all done independently of any individual institution. Representatives of many different colleges and universities and secondary schools serve on committees appointed to score papers. These examinations have felt the influence of the objective type of examination question, although as yet this type of item has not been introduced to any great extent except in the case of the scholastic aptitude examination.

Students taking the examination are charged at a rate sufficient to defray expenses of the work of the board.

## EDUCATIONAL RECORDS BUREAU

The Educational Records Bureau located in New York City is an independent organization of school people which is carrying out testing programs, some of which are on the high-school level. The Bureau is incorporated and chartered by the board of regents of the University of the State of New York. In the main it has served private schools, although its services are in no way restricted to private schools. It is in close touch with the cooperative test service. (See page 6.) The educational records bureau is essentially an organization for carrying on the program of testing whereas the cooperative test service is essentially an organization designed to construct tests.

The educational records bureau services are given according to two plans:

**PLAN A.** (I) Scoring and reporting service.

(II) Comparative statistics and studies:

1. General comparative reports including distribution of pupil scores and percentile norms on cooperative tests and others used in educational records bureau testing programs for the following classifications:

- (a) Nation-wide.
- (b) State and regional.
- (c) Community, according to size and type.
- (d) School, according to size and type.
- (e) Sex.
- (f) Age.

2. Confidential report to individual schools or individual school systems indicating their rank in one or more of the groups listed under II, 1. The cost of this service is:

- (a) An annual membership fee of \$15 per school.
- (b) A per test charge based on service costs.

**PLAN B.** This plan is similar to Plan A except that the school is expected to score the tests. With this plan the service charge is reduced materially.

The tests recommended by this bureau for testing in high schools for 1933 include the cooperative test form 1933 in the following subjects: English, French, German, Latin, Span-

ish, general mathematics, algebra, plane geometry, solid geometry, trigonometry, biology, chemistry, general science, physics, American history, ancient history, European history, English history; American council tests in civics and American Government and in economics; Elwell-Foulkes bookkeeping test; Engle-Stenquist home economics tests; Detroit mechanical aptitude examination for boys, Detroit mechanical aptitude examination for girls; stenography test from Blackstone stenographic proficiency tests; typewriting test from Blackstone proficiency tests. For general scholastic aptitude testing, it recommends the American Council on Education Psychological Examination.

The chief purposes of the work of this bureau are to act (a) as an agency for scoring tests and reporting the results, and (b) as a coordinating center for testing so that results on different tests may be comparable.

The bureau in encouraging the use of tests emphasizes the cumulative record system whereby the results of tests for an individual over a period of years are pictured. It believes that a record of the growth of a pupil as shown by appropriate test results and other records is the best method of obtaining an indication of the future success of the student. In 1932 more than 225 schools held membership in the Educational Records Bureau.

#### COOPERATIVE TEST SERVICE

The cooperative test service is a service instituted under the auspices of the American council on education and works in close cooperation with the committee on educational testing of the council. The cooperative test service is subsidized by the General Education Board to the amount of approximately \$50,000 per year (for 10 years), for the purpose of constructing 10 or more comparable forms of examinations in the fundamental subject matters of the senior high school and junior college level.

The advantages of a comparable series as listed in the announcement of tests of the cooperative test service (August 1932) are as follows:

(a) Individual growth in defined types of achievement can be measured year after year, thus making feasible types of educational

guidance and of educational research which would be difficult or impossible with unrelated examinations or with "standardized" tests which exist in two or at most three comparable forms.

(b) Each college, school, or school system that uses these tests may set up its own standards for admission, placement, promotion, certification, and graduation, and maintain those standards uniformly from year to year, and at the same time maintain transfer and advanced standing relations with other institutions on the basis of comparable achievement test measurements.

(c) The results of subjective and other local examinations can be made closely comparable from year to year by using the results of the cooperative tests as a common denominator, thus taking advantage of the best features and minimizing the weaknesses of both types of examinations.

The cooperative test service is now cooperating with other agencies in the use of their tests in National and State cooperative high-school testing. The State program of testing carried on under the auspices of the Association of Minnesota Colleges among the high schools and that carried on by the educational records bureau are using the tests of the cooperative test service. Other testing programs are considering the use of these tests.

The tests of this service available for senior high schools are those which are given above in connection with the testing program of the educational records bureau.

#### KANSAS NATION-WIDE EVERY PUPIL SCHOLARSHIP TEST

The Kansas Nation-wide every pupil scholarship test is carried on by the bureau of educational measurements of the Kansas State Teachers College at Emporia, Kans., twice each year. Tests are provided in most of the high-school subjects. The tests are constructed for every new testing by subject-matter specialists in the Kansas high schools under the direction of the bureau of educational measurements of the Kansas State Teachers College. The tests cost the schools 2 cents each. The participating schools score their own tests and send tabulations to the bureau of educational measurements. That bureau tabulates scores on tests by States and makes a report on the results so that each school can compare itself with the national norm on the test and the norm of the schools for those States which have

sufficient numbers taking the test to make satisfactory norms.

In the March 1931 every-pupil scholarship test there were 1,015 high schools in 42 States taking part. Norms were calculated for Kansas, Montana, Missouri, Nebraska, and North Dakota.

These tests are used by the schools for the following purposes: (a) For more accurate marking of the pupils in the subjects tested, and (b) for picking out students with high scholarship so that motivation for all students takes place. (See State programs for Kansas State testing programs.)

#### NATIONAL SURVEY OF ENGLISH USAGE

The Psychological Corporation through its Washington, D.C., branch has conducted a national survey of English usage in 1931-32 and has continued it in 1932-33, which covers the high-school grades as well as elementary grades. In 1932-33 it has been made a State program in Pennsylvania and Ohio. Pupils in all the States of the country have participated in this survey.

The purpose of this testing program is twofold: (a) To give a general measure of progress in English usage for use in comparing classes, schools, etc., so that the emphasis in teaching English usage may be directed more efficiently, and (b) to discover individual pupil weaknesses so that individual remedial instruction may be given. (See also the Pennsylvania program of the English usage survey.)

#### AMERICAN COUNCIL ON EDUCATION-PSYCHOLOGICAL EXAMINATION

The American Council on Education sponsors the construction of an annual edition of a psychological examination for use by colleges and universities in testing college entrants. In some cases these examinations are given to high-school students or students just graduated from high school. Insofar as this is true it comes under our definition of a high-school testing program. The results of these tests are used as an aid in determining entrance to college and for guidance.

There are also State high-school testing programs which have expanded so that schools in other States participate in

their programs. Usually this participation is not as complete in regard to the use of the results as though the school were within the State concerned. In some cases the cooperation is merely that of providing the tests. Such State high-school testing programs which have expanded beyond State lines are: Iowa—Icwa academic contest; New York—Regents' examination; Ohio—Ohio State University intelligence examination.

#### STATE COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

##### ALABAMA

The Alabama State Department of Education, with the cooperation of the institutions of higher learning, is sponsoring a testing program with high-school seniors.

The Otis self-administering test, form C, was used in 1932. It is expected that another form of the same test will be used in 1933. Fifty-five hundred high-school seniors took the test last year. Of the 5,500, about 2,000 made scores of 43 or more. These 2,000 were reported in 10 lists. The first list contained 100 students making the highest scores, and the other lists were arranged according to certain score groupings. They were furnished to the higher institutions in January and used by these institutions in their own way in soliciting students for enrollment.

##### COLORADO

Colorado has two cooperative high-school testing programs. One is the annual State-wide scholarship contest and the other is the scholastic aptitude cooperative testing program. It also encourages schools to enter the every-pupil contests which are held under the direction of the Kansas State Teachers College at Emporia, Kans.

(a) The annual State-wide scholarship contest is sponsored by the Western State College at Gunnison, Colo. The contest is held in five centers in the State. The examinations are furnished without charge by the Western State College. These are:

English IX, X, XI, and XII  
Algebra I  
Algebra III

Plane geometry  
Solid geometry  
Biology

Chemistry	Economics
General science	French I and II
Physiology	Latin I and II
Physics	Vergil
American history	Cicero
Constitution	Spanish I and II
Ancient and Medieval history	Bookkeeping
Modern and European history	Commercial law
World history	Foods
Psychology	Clothing
Sociology	Manual training: Woodwork
Social civics	Mechanical drawing
Community civics	Agriculture
Ancient history I and II	

All regular 4-year high schools of the State are invited to join in this contest. Each high school is entitled to one team of any number of students not exceeding 15. A high school may enter 2 students in each event except current history, which may be entered by any number of the members of the team. A student must be regularly enrolled in a subject or subjects (except a subject completed the first semester) in which he is a contestant, and must be classified in the school grade in which subjects appear in the course of study in the school in which he is a member, except that current history may be written by any member of a team. A student may participate in not more than three events exclusive of current history. Appropriate awards—cups and medals—are awarded to the contestants having highest scores in individual subjects and to winning high schools.

The purpose of this contest seems to be the motivation of individual achievement.

(b) Colorado's scholastic aptitude cooperative testing program is promoted by a committee of the Association of Secondary School Principals of Colorado and college registrars and is headed up by the director of personnel of Colorado State Teachers College, Greeley. At present the program consists in giving the American Council on Education psychological examination to high-school seniors. The colleges are using the results for the purpose of determining the student's fitness to do college work and to help guide him after he enters college into that type of work which he

can accomplish. Students below the tenth percentile are advised not to apply for admission to college, while those students with high aptitude are sent letters urging them to attend college. Four thousand four hundred and ninety-six students took the examination in 1932-33.

#### GEORGIA

A cooperative testing program under the direction of the supervisor of secondary instruction in the State of Georgia is carried on among high-school seniors. In 1932 the Shepherd English test for college freshmen and senior high school was given to 8,000 high-school seniors. This year it is planned to give a general mathematics test prepared by the Cooperative Test Service.

The purpose of the testing is (a) to acquaint all high schools with the value of standard tests to supplement the local examination (b) to make possible comparisons between classes and schools.

#### INDIANA

This State has two State high-school testing programs, the senior program centered at Purdue University and the other at Manchester College.

(a) The testing centered at Purdue is called the "State testing service" for Indiana high schools. This program is carried on under the auspices of the following State institutions: Ball State Teachers College, Indiana State Teachers College, Indiana University, and Purdue University. This testing program has been an annual affair. The schools may test with any number of tests offered. The schools score the tests and send the results to the division of educational reference at Purdue University. In return the schools receive the averages or norms of performance so as to enable each school to make pupil-to-pupil, class-to-class, and school-to-school comparisons. A large number of the high schools take part in this testing program. The tests are furnished at a cost of 4 cents a copy to the schools. The testing is carried on separately for short-term high schools and the long-term high schools.

The subjects in which tests are offered are :

First-year English <sup>1</sup>	Physics
Second-year English <sup>1</sup>	World History
Third-year English <sup>1</sup>	American History
Fourth-year English	First-year Typing
First-year Latin	Second-year Typing
Second-year Latin	First-year Shorthand
First-year Algebra	Second-year Shorthand
Advanced Algebra	First-year Bookkeeping
Plane Geometry	Second-year Bookkeeping
Solid Geometry	Second-year French
Biology	

The tests are constructed by the teachers in the four State institutions under whose auspices the testing program is held under the general direction of the division of educational reference at Purdue University. New forms are made available each year. The tests are based on the Indiana course of study. The purposes of the State testing service for Indiana high schools are for (a) motivation of pupils, (b) motivation of teachers, and (c) educational and vocational guidance.

The only contest feature in the testing program is that in each of the two length-of-term groups of high schools the names of the 5 or 10 having the highest averages will be published. In 1930-31 a total of 101,597 tests were used by 240 high schools.

(b) *Manchester testing program.*—The other Indiana testing program inaugurated this year is the one sponsored by Manchester College. It is on a semiannual testing basis. The tests are prepared by Manchester College subject specialists in cooperation with Elkhart High School teachers of the respective subjects under the general direction of the School of Education of Manchester. The tests which were made available for the end of the first semester cover the following subjects for the first semester only:

English 9	Physics
English 10	Latin 9
English 11	Latin 10
United States History	Civics
World History	First-year Biology

<sup>1</sup> Each consists of two English tests restricted to (1) grammar and the mechanics of writing, and (2) understanding and appreciation of reading in both prose and poetry.

First-year Bookkeeping	Ninth-year Home Economics
General Mathematics	Eleventh-year Health
Plane Geometry	First-year Typing
First-year Algebra	Ninth-year Industrial Arts

The costs of these tests are 2 cents each. Several hundred high-school students (about 30,000 separate tests) were used in the first semester of 1932-33.

## IOWA

The Iowa academic contest is held annually under the direction of the college of education and the extension division of the State University of Iowa. It is a testing program offered particularly to the high schools of Iowa (grades 9-12), but which may be participated in by high schools outside the State. Only the Iowa high schools are allowed to compete for awards. There are two phases to the academic contest—the every-pupil contest and the State scholarship contest. The every-pupil contest is held in those individual schools which elect to enter the contest. For schools entering on a competitive basis, all the pupils in the school finishing any of the subjects listed below must take the test. The subjects are:

Ninth-year Algebra	American History
General Science	American Literature
First-year Latin	English Correctness 11*
English Correctness 9*	Physics
Plane Geometry	Economics
Second-year Latin	American Government
Biology	English Literature
English Correctness 10*	English Correctness 12*
World History	

For purposes of competition, the State is divided into districts and the schools are classified into size groups. Competition is carried on according to nine districts and four classifications of schools according to size. The classification according to size of school is as follows:

- Class A—Enrollment of more than 400.
- Class B—Enrollment 126-400, inclusive.
- Class C—Enrollment 66-125, inclusive.
- Class D—Enrollment 65 and fewer.

\* In this subject, the same test is administered in all four grades.

The tests are furnished by the State University and the cost to the schools is 4 cents for each test. The tests are scored in the schools and the results are sent to the director of the contest. The report of the director to the schools includes the placement of the school in each subject and in the composite measure of the school in all subjects tested. The placement of the schools, except for winners, is confidential. The individual principal does not need to disclose the standing of his school unless he sees fit. The tests are constructed by subject-matter specialists under the direction of the director of contests. Every attempt is made to make them test judgment rather than mere information. The tests are revised annually.

In 1932 there were 45,293 pupils in Iowa taking the every-pupil tests. There were in addition many schools outside the State which also gave all or some of the tests. The every-pupil contest is essentially a school-to-school comparison. As such it provides an incentive for the teachers to do better teaching. This purpose is expressed by the director of the contest:<sup>a</sup>

The every-pupil tests of the Iowa academic contest are constructed with a conscious and deliberate purpose to defeat rote learning. In them an effort is made to avoid the use of textbook language, to call for applications rather than statements of laws and principles, to require the interpretation of diagrams and illustrations rather than the repetition of words, and to require the pupil to draw inferences from or to recognize the implications of facts rather than merely to recall the facts themselves.

An important possibility of the use of the results on these tests is in research in regard to various practices and conditions in the high school, such as size of class, types of school organization, etc. This possibility of use for research is enhanced through the fact that schools partaking in the competitive testing must give the tests to all students in the school taking the respective subjects. This means that there is no selection of good students in one school and poor students in another. Studies based on the results of this testing thus have an added certainty of the validity of the results.

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<sup>a</sup> Lindquist, E. F. The Iowa Academic Contest Bulletin of the State University of Iowa, New series no. 667, December 1932, pp. 8-9.

It is suggested also that schools use the results of these tests in building up cumulative individual records for use in guidance.

The State scholarship contest is primarily a contest between individual pupils, just as the every-pupil contest is between entire high schools. The State contest has for its purpose the encouragement of scholarship in individuals. The State contest is held at the State university. The highest scoring pupils in each subject in each district are chosen for this contest. For 1933 the number of contestants is expected to be more than 1,000. This is a large number of contestants to be brought together at any one place as contestants in scholarship. The winners in this contest are given appropriate awards.

#### KANSAS

The bureau of educational measurements of the Kansas State Teachers College sponsors two contests apart from the Nation-wide every-pupil scholarship test described under national cooperative high-school testing programs. The one is called the Kansas State scholarship contest and the other the scholarship contest for high-school seniors.

The Kansas State scholarship contest is conducted annually by the Kansas State Teachers College through the cooperation of contest center chairmen. There are some 20 centers in the State where these tests are given. Any high school giving work in grades 9, 10, 11, or 12, and any junior high school recognized as such by the State department of education is eligible to participate in this contest. There is a registration fee of 25 cents for each pupil entered in the contest. The tests are furnished by the Bureau of Educational Measurements of the State Teachers College. They are returned to the bureau to be scored after the contest.

The contest covers practically all of the subjects by years which might be given in high school. For purposes of this contest the high schools are divided into classes (A, B, C, D, and E, junior high) according to their enrollments. There are more contests possible for the larger schools than for the smaller schools. The maximum number of contests for the different classes runs from 12 to 25, and the maximum

number of contestants each school may enter runs from 24 to 50, or 2 for each contest.

In 1932, 186 schools entered 2,544 contestants at 16 centers.

The tests are all of the new type, constructed by faculty members of the Kansas State Teachers College and by other subject-matter specialists in the State under the direction of the bureau of educational measurements. New forms are constructed each year.

The apparent object of the contest is the attainment of awards by individuals and schools. Thus the contest is a motivating agency for better work among the high-school seniors.

The scholarship contest for high-school seniors is carried on in much the same fashion as the Kansas State scholarship contests. Here the examination consists of a comprehensive examination covering the general fields of high-school work—i.e., those of history, social science, physical science, mathematics, and English. Medals are given the 8 ranking students in each subject group, and cash awards are made to the 10 highest ranking students in the whole contest if they attend a Kansas college the year following the contest.

#### MAINE

A testing program was carried on under the direction of the University of Maine during the years 1930-31 and 1931-32 involving from one fourth to one half the high schools of the State. This program may be carried on during the present year (1932-33). Tests constructed under the direction of the department of education of the University of Maine are used in a preliminary contest covering many of the high-school subjects. Class and school averages are obtained from this testing. The highest pupils in each school then participate in a district competition. The Sones-Harry achievement test is used with seniors. Individual winners among the seniors in these district contests are awarded scholarships to the University of Maine.

#### MICHIGAN

The bureau of tests and measurements of the University of Michigan recommends tests to be given by high schools and makes tabulations of the results by schools grouped

according to size. The program for 1931 consisted in the use of the following tests: Kirby grammar test, the Van Wagenen reading scales in English literature, the American Council alpha test, the White Latin test, the Columbia research bureau algebra test, the Columbia research bureau plane-geometry test, the Iowa physics test, the Powers general chemistry test, the Rich-Cossman biology test, the Rich-Popenoe general science test, the Brown-Woody civics test, and the Gregory test in American history. The English, Latin, and reading tests were given in all four high-school grades. The other tests were given in the regular classes taking the subjects tested.

The reports of the bureau of tests and measurements back to the schools include State norms based on the results of the testing for each school group so that each school can compare its own work in each subject with that of other comparable schools.

#### MINNESOTA

There are two programs of testing in Minnesota. One is sponsored by certain colleges and universities and the other by the State department of education.

(a) The University of Minnesota inaugurated a college-apptitude testing program several years ago. This program is now administered through the committee on testing established by the Association of Minnesota Colleges.

The University of Minnesota is responsible for carrying out the program. The tests are scored by the University of Minnesota. The cost of the testing is prorated among the colleges according to the number of students entering them from among the high-school seniors tested. The program is extensive, taking in practically all of the graduating seniors in the State, both in public and in private schools. The test which has been regularly used is the Minnesota college-apptitude test (a general intelligence test). In addition a placement test is sometimes given. In 1931 the Iowa English training test was given and in 1932 the Iowa mathematics training test was given to those students who were planning to enter engineering curriculum. The plan for 1933 includes the use of the tests of the cooperative test

service for sophomores in high school so that a cumulative record on the individual pupil may be begun.

The purpose of the Minnesota program is for the guidance into and selection of students for college. The results on the general aptitude tests are used by the University of Minnesota, and probably also by others, as an important factor in advising students to enter or not to enter college. The results are also used by the University of Minnesota for determining classification in some subjects for instructional purposes.

Johnson states in this connection: \*

Three levels of ability are recognized in classifying students, and any individual who presents outstanding peculiarities is given individual treatment. The upper half of the class—that is, those entering freshmen whose college-aptitude ratings are above 50—are admitted without any conditions or provisions, and they are permitted to register for any curriculum offered in the College of Science, Literature, and the Arts. Individuals may be advised or required to take the course in "How to study", and all are classified in English on the basis of English training tests and their college-aptitude ratings.

The second group includes roughly those whose college-aptitude ratings are between 25 and 50. These students are classified in English and are advised to select studies that will have immediate value to them if they remain in college only a short time, and to postpone laboratory courses and languages.

What is only advice for the second group becomes positive direction for the third group.

The ratings on the college-aptitude test are also sent to the high schools involved so that they can be made use of by the principals and teachers in advising pupils. Also, whenever a student applies to any specific college for admission the college-aptitude rating and its interpretation is sent to the student and his parents.

(b) The State department of Minnesota conducts examinations among its high schools in connection with its annual testing program which includes the elementary schools as well as high schools. These examinations are compulsory for high schools which are designated by the State high-school inspector and voluntary for other high schools.

\* Johnson, J. B. *Advising College Students*. *Journal of Higher Education*, 1: 317-318, June 1930.

Examinations are offered in the following high-school subjects:

English I	Elementary citizenship
English II	General physical science
Grammar and composition	General biological science
English III	Chemistry
English IV	Physics
Modern history	Latin I
Ancient history	Latin II
Introduction to social science	Bookkeeping
Reading (1 hour)	General business education
Elementary algebra	Geography
Plane geometry	Economic geography
Solid geometry	Higher algebra
Elementary American history	High-school American history
German I	Elementary hygiene and sanitation
German II	Arithmetic
French I	Commercial law
French II	Spelling (1 hour)

Students of all classes in high school take the examinations. In 1932 there were 193,939 examinations given in these subjects. The greatest number taking any examination was 16,894, which was in the first year of high-school English.

The examinations are furnished free by the State department to the public high schools of the State. Private schools of high-school grade may also use these tests upon proper application. The tests are scored by the local school and sent to the State department. The State department will return all papers for use by individual schools.

The tests are constructed by various subject-matter and testing specialists in the State. The State department sets down the general rules for the construction of these examinations. These rules state that—

Tests should be as comprehensive as possible. Each test should contain 150 questions or test items. For testing pupils' knowledge of factual material, the objective types of test questions should be used as far as possible. The essay type of test question, however, should not be eliminated.

The tests are in the main objective. The validity of the tests has been checked against standardized intelligence and

achievement tests. The State department states further that—

Each year test item validity is made and the good questions are picked out for a reservoir which we hope to have built up to a thousand questions for each subject within a period of years.

The questions are based upon the Minnesota State High-School Syllabi.

The tests are used by the State department as a supervisory instrument to check on the instruction of the high schools of Minnesota. Individual schools use the results for purposes of improving instruction. The results on these tests are used by students in unaccredited high schools to satisfy the entrance requirements of the university and other colleges.

#### MONTANA

The Montana scholarship contests are held annually under the direction of Montana State College. A contest is first held in districts composed of one or more counties. Winners of the district contests meet at Montana State College at Bozeman for the State contest.

District organizations are formed to carry on the district contests. There were 19 districts in 1932. The district organization is responsible for holding the contest in the district and for scoring the test papers and reporting the district winners.

A testing committee of the college is (beginning in 1933) constructing the tests on the basis of the high-school course of study of the State. The contest in the district is for the purpose of getting individual student winners and not school winners. In the State contest the three highest schools in the academic subjects and vocational subjects, respectively, are given awards as well as the winners in all subject contest and the general pentathlon contest. Any accredited 4-year high school in the State is entitled to participate in this contest. A student must be regularly enrolled in the subject or subjects in which he is a contestant and must be classified in the school grade in which the subject or subjects regularly appear in the course of study of the school of which he is a member.

The list of subjects to be tested are as follows:

*Academic*

Algebra I	English literature
Plane geometry	Latin I
General science	Latin II
Biology	American history
Physics	Civics
Chemistry	Current history
English	World history
American literature	

*Vocational*

Bookkeeping	Home economics I
Junior shorthand	Home economics II
Senior shorthand	Art

A student may enter a contest in a subject belonging to a higher grade than his own, but not in a lower grade unless he is taking this subject for the first time and unless he is interested in the pentathlon—the case when a student is competing to get the highest average rating in at least five subjects.

The district organization determines for itself the number of representatives to be sent to the district contest by each school. Each district may be represented at the State contest by one pupil in each subject or event, but the representative in each subject must have won first place in the district contest, except that first and second place winners in the pentathlon may be candidates to the State contest. In addition to this district representation, each school may have two additional representatives chosen in such a manner as each school shall determine. Scholarships, cups, and medals or ribbons are awarded the individual and school winners.

The motivation of individual pupils seems to be the chief purpose of the Montana scholarship contests.

## NEW HAMPSHIRE

The State Board of Education of New Hampshire conducts annually a testing program consisting of a general intelligence test and one or more achievement tests. The testing for 1932 was restricted to the senior class. Practically all the high schools in the State cooperate in this testing program. The following tests were given in 1932:

Otis self-administering test of mental ability, higher examination 4-A

A spelling test of 25 words selected from the second and third thousand words of the "Sixteen Spelling Scales."

The Iowa placement examination—series ET-1, revised (English training), Form A.

The tests are furnished free by the State board of education. The schools score the tests and send the results to the State department. In the case of the intelligence test, the raw scores are sent to the State board. The State board is responsible for the calculation of the I.Q.'s from these raw scores.

Each year the results on all the tests are sent to the dean of freshmen at the University of New Hampshire, who has charge of admissions. The dean uses the results of these tests in considering entrance and guidance during the first years in the university. The test results are also used by the elementary school agent of the State board of education in making her recommendations on students asking for admission to the State normal schools.

A report is made to the principal of the high school showing the placement of his school in relation to that of the other schools. The results on the achievement tests are used as a check upon high-school instruction.

#### NEW YORK

The University of the State of New York (the State education department) has two divisions having to do with testing work throughout the State of New York. One is the division of educational research and the other is the division of examinations and inspections.

(a) The division of examinations and inspections is in general charge of the New York regents examinations. The general use of the regents examinations is required under the powers given to the regents of the University of New York by the legislature, section 21 of the regents rules reading as follows:

§-21—general requirements. \* \* \* No secondary school shall receive such apportionment unless it (1) shows for the school year an academic attendance of not less than 1,000 days; (2) has a charter from the regents or has been admitted to the university; (3) makes general use of the regents academic examinations or those set by the

college entrance examination board in the third and fourth years of the secondary course.

The examinations themselves are in general of the new type, although a certain amount of essay type material is used. These examinations are given three times a year, at the end of each of the two regular semesters and also at the end of the summer in recognized summer high schools.

The examinations are issued by the State department without cost to the schools. The examinations are given by local school authorities according to a very definite set of directions. The scoring of the papers takes place first at the individual schools by the principal or under his direction. Those papers which are thought to be passing are then sent to the State department, where the papers are again examined and the final decision as to the worth of the papers is made.

The main responsibility for the construction of these tests falls on a certain committee made up of instructors in the various high schools and colleges of the State, and including the State supervisors of the special subject fields. Tests so constructed are passed on to a general committee known as the "board of revision" which considers the various tests and makes what revision is thought necessary. The items in these examinations are made with the deliberate intention of testing power as well as knowledge. In this they follow the trend of the course of study and method of teaching, presenting situations which train reason and judgment, the sensing of cause-and-effect relationship, etc.

The regents' examinations cover practically all the work which can be taken in a New York high school. Examinations held for third- and fourth-year subjects, if passed, carry credit for the first and second year of work.

The results on these examinations are used in a variety of ways. They are used by the State department to establish a State standard of achievement. They are used therefore in comparing the efficiency of different schools in the State. They are used as final examinations by the participating high schools, thus eliminating the necessity for individual schools to make up examinations. Such local examinations would vary in standards and effectiveness. Credits

earned through these examinations are of equal value in the State-wide competition for the State tuition-paid scholarships in Cornell University and for the 750 university scholarships awarded annually.

The examinations, although not made with the purpose of providing material on which eligibility for college entrance is to be judged, are nevertheless used for such purposes.

(b) The educational research division of the State education department has cooperated in one testing program. A ninth-grade civics test, constructed and given because of the need of a supervisory standard on the part of individual schools, was offered for use.

Also, the results of the testing with group intelligence tests in the high schools of the State of New York were brought together. The analyses of these results were brought together in a bulletin showing the levels and ranges of ability in New York State high schools.

#### NORTH CAROLINA

The North Carolina college conference fosters and finances the North Carolina high school senior examination each year. This examination is given annually to all high-school seniors of the State through the cooperation of the State department of education. The tabulating and scoring is handled by the bureau of educational research of the school of education of the University of North Carolina, Chapel Hill.

The examination is a comprehensive one containing English language, English literature, reading; literature, reading, history, modern times, and civics; general science and mathematics.

The results of the examination are used by the colleges and universities of North Carolina for purposes of classification and guidance of students after entrance.

#### NORTH DAKOTA

The State department of public instruction offers examinations in all high-school subjects twice a year which are required to be taken by pupils in nonaccredited high schools. All the pupils who successfully pass are issued completion

certificates which they may present to institutions of higher learning as credit so that entrance examinations need not be taken.

## OHIO

Ohio has two distinct State high-school testing programs—the educational testing program carried on by the State board of education and a general scholastic aptitude testing program carried on by the Ohio State University in connection with the Ohio College Association.

(a) The educational testing program sponsored by the State board of education to be described here may be divided into two parts—the every-pupil test and the general scholarship test for high-school seniors. The every-pupil test is a testing program covering both elementary and high-school subjects carried on twice a year. For the high school, 1932-33, the following subjects are to be tested:

Algebra	General Science
American History, grade 12	Physics
Chemistry, first year	Plane Geometry
English Usage, grades 9-12	

These tests are offered free to the high schools of the State. Practically all schools of the State outside the large cities have availed themselves of the opportunity. The principal, superintendent, or teachers give the tests in their respective schools, score the test papers and tabulate the results, and send them to the State department. The State department of education makes a final report back to the schools so that each school can compare its own average score and the score for each of the pupils in the distribution of scores for the whole State. The tests furnished are constructed by subject-matter specialists under the general direction of the director of scholarship contests. The tests are based upon the courses of study and textbooks used in the State.

The purpose of the every-pupil tests is that of motivation and improvement of instruction. The report to the teacher of each class in the contest includes the percentile of the final distribution of scores for each test so that a teacher may compare the scores of the members of her class with the scores made by all pupils who took the test. This gives each

teacher and each pupil an opportunity to compare results with the State-wide results. Also since there are two testing programs in a year, each class and each pupil can compare the rank in the first test with that in the second. Analyses of errors in different tests of the contest are made by the State Department. Also directions are issued so that the teacher can analyze the items in the test papers of her class. Thus diagnosis and remedial instruction are made possible.

The other educational testing program is the general scholarship test for high-school seniors. This test is administered annually by the State department of education with the cooperation of Ohio University, Ohio State University, Bowling Green State College, Kent State College, and Miami University. Each high school of the State may pick not more than 25 percent of the graduating seniors to take part in this testing contest. In picking out these contestants from each school, faculty members are urged to take into consideration, in addition to scholastic endeavor, the student's future promise, attitude, ideals, and behavior. The students chosen to represent these schools come together at the county seat of each county where the scholarship tests are given under the direction of the county superintendent of schools. The tests cover the essentials of the high-school course of study. There are five subject groups. The subject matter of these five subject groups is as follows:

1. Mathematics: Arithmetic ( $\frac{1}{2}$ ), Algebra ( $\frac{1}{2}$ ), Geometry ( $\frac{1}{4}$ ).
2. English: Fundamentals ( $\frac{1}{2}$ ), American and English Literature ( $\frac{1}{2}$ ).
3. History: United States History ( $\frac{1}{2}$ ), World History ( $\frac{1}{4}$ ), Ohio History ( $\frac{1}{4}$ ).
4. Science: Physics ( $\frac{1}{4}$ ), Chemistry ( $\frac{1}{4}$ ), General Science ( $\frac{1}{4}$ ), Biology ( $\frac{1}{4}$ ).
5. Social science: The World Today (Current Events).

The purpose of this contest, according to the State department, is to stimulate continuous scholastic endeavor during the 4 years of high school and to select seniors of high standing and putting these students into contact with the Ohio colleges and universities that the students desire to enter. In addition, there are many scholarships awarded by the colleges and universities to the pupils having high standing. County awards: Certificates of award are presented to the

highest three pupils in each county, while the highest 25 percent receive honorable mention certificates. District awards: The State is divided into five districts. Each of the 25 students who place in the highest group will receive a certificate of award. A certificate of award (honorable mention) will be presented to each of the other contestants who place in the highest 10 percent in each district. State: All additional students who place in the highest 5 percent will receive honorable mention certificates.

(b) The statistics and college personnel division of the department of psychology of the Ohio State University, cooperating with the Ohio College Association, has been giving each year to practically all of the high-school seniors of the State a general scholastic aptitude test known as the "Ohio State University psychological examination." Beginning in 1932-33 the sophomores were also asked to take the test in order to make it eventually a sophomore testing program. A different form of examination is usually constructed for use for each academic year. The individual high schools pay the cost of testing. The tests are scored at Ohio State University and the results are reported to the various high schools.

These test results are used for the following purposes:

- (1) The State department uses the test results in determining the entrance of students into Ohio teacher-training institutions. Toops<sup>6</sup> states: "The tests are accepted by the State department of education in fulfillment of the State statute requiring a minimum test score for entrance to the teacher-training institutions in Ohio. A minimum score for unqualified entrance to a teacher-training institution in Ohio is a 26-centile rank score on the Ohio College Association freshman basis; i.e., that 26 percent of all freshmen in Ohio applying for entrance to Ohio institutions would be denied entrance into the teacher-training institutions of Ohio. A student failing the first test is allowed a second chance on an alternative form of the test (this is form 15 O.S.U. Intelligence test), but must attain to at least a score of 31-centile mark in order to be entitled to unqualified admission. A student failing both may, at the option of the college, be entitled to probationary admission. Our own institution does not avail itself of this provision.

<sup>6</sup> In a letter to the Office of Education dated Feb. 21, 1933.

- (2) The test results are used by high schools in the guidance of pupils. With the test being given in the tenth grade, this function of the tests will be still more emphasized. Many directions regarding the interpretation of scores are given to the schools by the personnel division of Ohio State University.
- (3) The test results are being used extensively in research on the prediction of scholastic success. The results of these studies are circulated among the high-school principals so that much of such research is immediately translated into practice.

Ohio has also participated in the Nation-wide survey of English usage conducted under the auspices of the Washington, D.C., branch of the Psychological Corporation. (See national programs and Pennsylvania programs for details of this program.)

#### PENNSYLVANIA

There are two cooperative high-school testing programs being carried forward in Pennsylvania.

(a) The Pennsylvania testing program in high schools is now being carried on by the bureau of educational records and research located at the University of Pittsburgh. This is an independent bureau designed in part to carry on the testing program which was initiated by the Carnegie Foundation for the Advancement of Teaching in cooperation with the joint commission of the Association of Pennsylvania College Presidents and the State department of public instruction.

The Pennsylvania testing program instituted under the subvention of the Carnegie Foundation was for the purpose of investigating the articulation of high schools and colleges. It was thought that testing the ability and achievement of pupils over a long period of time would give information which would serve as a foundation for a smooth transfer from high school to college. The testing instituted under the Pennsylvania study covered the junior high school year and the college period as well as the high school. This study began the testing in the fall of 1928 with seventh grade and in the spring of 1929 with seniors about to graduate from high school. The Pennsylvania study is following

the progress of the 12,000 seventh grade pupils who were tested in 1928. Upon the graduation of a large group of these pupils in the spring of 1934, an evaluation of the testing program over a period of years can be ascertained.

The Bureau of Educational Records and Research of Pittsburgh recommends tests to be used in following the plan of the Pennsylvania study and other tests. It plans to provide testing service at cost. It follows closely the plan of the Educational Record Bureau of New York City, and cooperates closely with this bureau and with the Cooperative Test Service.

The fall program of testing is for immediate diagnostic and placement purposes rather than for guidance, although some of the tests may be used for other purposes, whereas the spring program is mainly for getting accurate student achievement records. The main tests used in the fall and spring testing programs for 1931-32 for grades 9-12 were as follows:

	Pupils
Shank reading tests.....	501
Kuhlmann-Anderson intelligence.....	1,085
Ohio State psychological test, form 16.....	1,976
Cooperative English test.....	375
Cooperative French test.....	119
Cooperative Latin test.....	84
Cooperative algebra test.....	115
Cooperative plane geometry test.....	58
Cooperative chemistry test.....	49
Cooperative American history test.....	87
Commercial employment tests.....	481

The testing program takes particular care in recommending tests for the grade in which the 1928 seventh graders are found.

The purpose of the testing work of this bureau is to encourage the use of good tests (a) for cumulative records which in turn increase the accuracy of guidance, particularly guidance for college entrance; (b) for securing comparable measurement of abilities and achievements of pupils so that the effectiveness of instruction may be noted; (c) for purposes of research; and (d) for the diagnosis of individual

strengths and weaknesses. The bureau makes reports on all phases of the testing results to the participating schools.

(b) The Pennsylvania cooperative English study is being made in cooperation with the Psychological Institute, Washington, D.C., branch of the Psychological Corporation. The plan for the use of these tests in Pennsylvania is about the same as for the Nation as a whole.

The study in Pennsylvania is being carried on through the cooperation of various school people of the State, together with the Bureau of Educational Records and Research of Pittsburgh and the State department of education.

This study is designed to increase the effectiveness of English-usage courses of study and in improving methods of teaching English usage. The Nation-wide study of English usage is planned for a 5-year period, but each year can be considered separately or in connection with the results of the previous years. Tests are given in the fall and again in the spring. Teachers score the papers and make a tabulation of the errors. The teachers keep one tabulation and send one of the others to the organization which is sponsoring the program in that immediate neighborhood, and the other is sent to the Psychological Institute at Washington, D.C.

The following extracts from the manual provided by the Psychological Institute show these main uses for the results of the testing program:

1. To determine for a given class (1) the extent to which each phase of usage has been mastered to preceding grade and (2) on which of the phases of usage that are to be drilled to that grade major emphasis must be placed to meet the needs of individual pupils and of the class as a whole.

2. To measure progress in mastering, from grade to grade, each phase of usage.

These English tests are furnished to schools for 2 cents each.

#### TEXAS

The State department of education each spring sends out examinations to high schools, upon request, on the regular school subjects. The questions are prepared and the returned papers graded by the State department. According to the

available information, these tests are not of the objective type. Credit obtained by means of these examinations is honored by the State University and all other institutions of higher learning in Texas.

#### WISCONSIN

The Wisconsin College and secondary schools cooperative testing program is carried on by a committee appointed to study the relation of secondary to higher education in Wisconsin. This committee is composed of superintendents and college officials. The program consists of testing the graduating high-school seniors for college aptitude through the use of general intelligence tests. The cost of the program is borne in the main by cooperating colleges of the State in the ratio of the number of freshmen admitted to each institution from Wisconsin and in part by the high schools.

The Ohio University psychological examination was used in 1929 and the American council on education psychological examination has been used since. In 1932-33 it is planned to use the Henman-Nelson test of mental ability in the tenth year of the high school. Practically all the high schools of the State have cooperated in these testing programs. Holt writes:<sup>6</sup>

Every high school in the State of Wisconsin which is a public high school and a considerable number of private and parochial secondary schools are testing their seniors. Over 99 percent of the secondary schools are testing their sophomores.

The program for Wisconsin was begun because of the belief that there was much waste taking place in Wisconsin in that many inferior students attempted college work and that many superior students did not attend college. It was felt that a State-wide testing program using a standardized general scholastic aptitude test would secure such additional information as would make individual educational planning more efficient. The program in Wisconsin is definitely a guidance program having for its objective a better college student body for the college with consequently less failure in the freshman year.

<sup>6</sup> Holt, F. O., registrar and director, Bureau of Guidance and Records, in a letter to the writer dated Dec. 18, 1932.

Each college is left free to use the results in any way which seems best for purposes of admission and guidance. The results are also sent to each of the cooperating high schools together with suggestions for use. A special letter is sent to all seniors who ranked above the 75 percentile but who had not indicated any intention of entering a Wisconsin college. The exact records on these tests represented by the percentile scores are not given to individual students.

Some States have had testing programs at some time or other but have found it necessary to discontinue them for one reason or another. These are:

*Arkansas.*—This State offered a testing program to graduating seniors in high school in 1930 and 1931 consisting of the American Council on Education psychological examination, an English examination, a mathematics examination, and the Iowa foreign-language aptitude examination. The purpose of the program was to aid in the guidance of students in choosing their college course.

*Nebraska.*—Testing program discontinued.

*Idaho.*—Testing program discontinued.

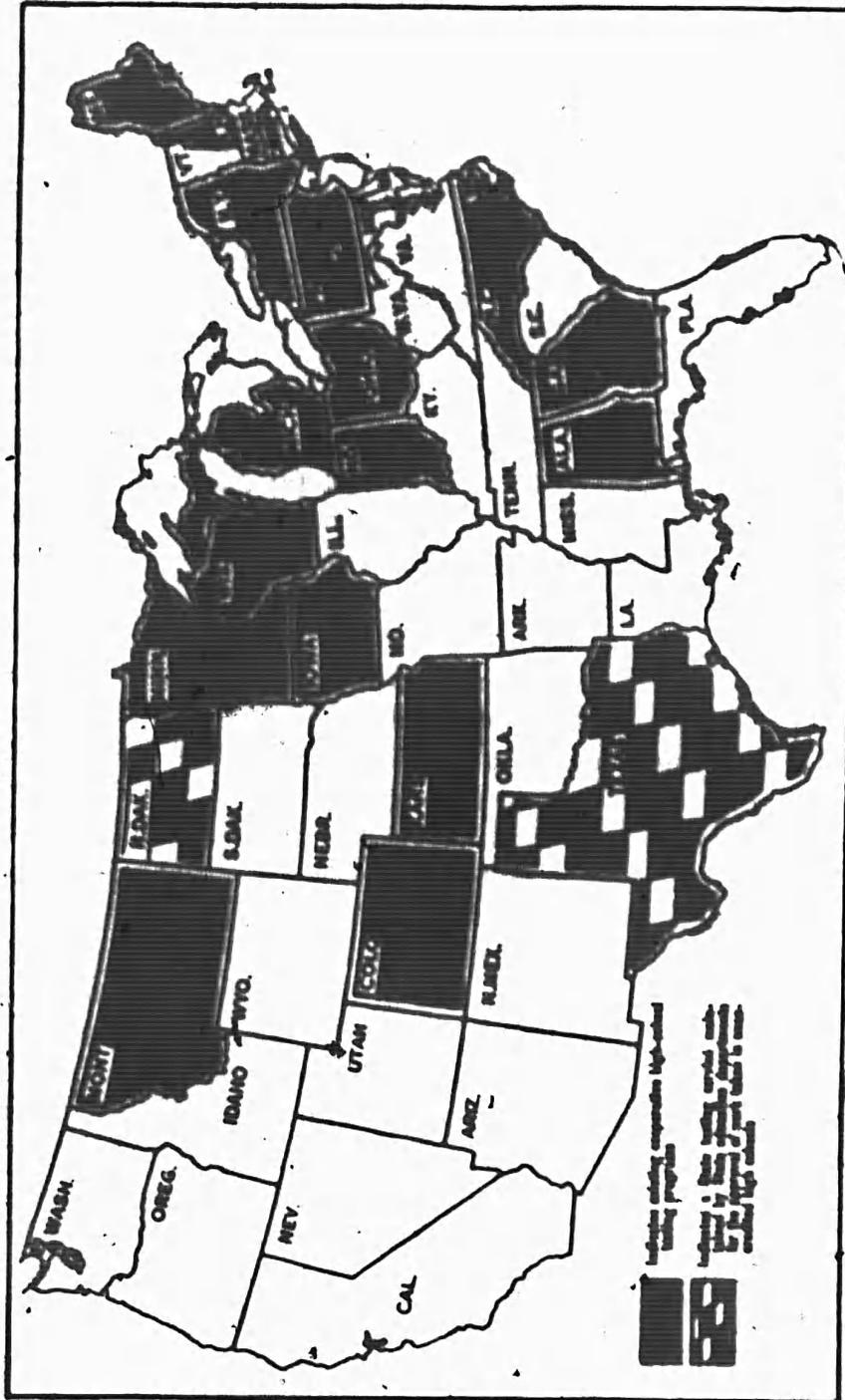
Among States which are planning high-school cooperative testing programs are Arizona, Kentucky, and Mississippi.

#### ANALYSIS OF COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

##### GEOGRAPHICAL DISTRIBUTION AND DIFFERENCES IN TESTING PROGRAMS

The accompanying figure shows the distribution of the State cooperative testing programs. The figure does not show States that have discontinued programs or those States which are planning the establishment of programs. The States indicated by the cross-hatching—North Dakota and Texas—have testing programs which are not considered to be as truly cooperative as the other State programs since they are used mainly for the approval of the individual student's work.

There seems to be certain geographical differences in the type of testing programs offered. Montana, Colorado, Kansas, Iowa, Indiana, and Ohio, through their own State-wide programs and Nebraska, South Dakota, Missouri, and Illinois through the extension of the programs in Kansas and Iowa, promote individual and school competition in high-



school subject-matter fields. The Minnesota, North Carolina, and Wisconsin programs, on the other hand, have consisted of general scholastic aptitude testing for the benefit, in large part, of cooperating colleges and universities. The senior of the two testing programs of Ohio has also been of this character. In the East and far South—Maine, Vermont, New York, Georgia, and Alabama, and to a degree in Pennsylvania, the general purpose has been that of supervision of high-school instruction, both as an inspectional service and for the direct improvement of instruction.

#### THE OBJECTIVE MEASUREMENT MOVEMENT AS A FACTOR IN THE ESTABLISHMENT OF COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

The general factor which has made cooperative testing possible is the trust school people have put in objective testing. Practically all cooperative testing programs are made up of examinations consisting of new-type questions. It is only in some of the longer established programs that we find the essay type of question used and even in those programs it holds ever less and less a dominating position. Also in these examinations we find more often than not the essay type of question framed in such a way that those who score the papers are very apt to agree.

Cities have to some extent been able to carry on the work of testing in high schools for purposes somewhat similar to those associated with cooperative testing. It is not surprising therefore that a detailed study of cooperative testing programs shows that many of them have been confined largely to the smaller cities and towns. There is now a general demand for the use of new type tests by all schools. Cooperative testing in the high schools satisfies this demand in part. In the elementary school the curriculum has been more static as far as fundamental content is concerned. For this reason, tests such as have been standardized and are sold by test publishing companies have more nearly satisfied the urge for measurement in the elementary field.

#### PURPOSES OF COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

In considering the various purposes of these testing programs, it should be kept in mind that the stated purposes of a testing program may or may not be fulfilled. In some cases, also, the most important uses that are expected by

the promoters of the program may not be emphasized in asking for cooperation because the sponsors believe emphasis on some other purpose will bring more schools into cooperation. In some cases new uses for tests are found after the program has been in existence for some time. For instance, the regents examinations in New York State have been held primarily as an agency of supervision or standardization of the work of New York State high school. However, the results on these examinations have been used more and more as evidence by New York high-school graduates in applying for entrance into institutions of higher learning. Through experience, colleges have learned to regard these test results as valuable for predicting success or failure in colleges.

The different values of the cooperative high-school testing program will be analyzed in turn.

1. *Motivation through competitive examinations in school subjects.*—Many cooperative testing programs have this purpose as the prime reason for their existence. Such testing programs have arisen, in part, through the feeling of school people that attention should be given to scholastic endeavor in somewhat the same fashion as attention is centered on physical competition of various sorts between schools. Some of these testing programs include all the students in a school or class, but often only a small proportion of the students take part in the testing program. Competition is brought about by the awarding of appropriate honors to schools and individual contestants. Scholarships in college are often awarded to individual winners.

The value of this type of testing lies in the general effect on teachers and pupils. It can be seen that the greatest effect on both teachers and students will come about if all the pupils in a class or school are tested. If only a few pupils in a class are tested, the value of testing for the teacher is reduced because the general standing of the pupils in the class is not ascertained and the value for the pupils is reduced because only a few pupils expect to have any contact with the testing. The marking of pupils in high school on the results of tests is considered one aspect of motivation. Incidentally the marking is thus made much more accurate.

2. *The emphasis of the tests upon reasoning rather than upon factual knowledge in a given field.*—Some of the examinations in the testing programs which cover high-school subject matter emphasize the applications of principles to the solution of new problems and the general aspects of the field rather than specific bits of facts which could be learned through simple force of memory. Where a testing program measures the effect of instruction on entire classes, the teacher will be influenced by the type of examinations. The result is, when examinations are of the progressive type mentioned, a freeing of the teacher from too great dependence upon the textbook, which will make the method of instruction freer and easier. The teacher, if she realizes that specific facts are not considered the most important aspect of the course of study in her subject, will naturally turn to the more general development of the thinking of her students on the subject concerned, since it is power that is tested by the examinations. Some programs are consciously trying to fulfill this aim of cooperative testing.

3. *Testing for college entrance (immediate guidance).*—Many private eastern colleges have for years depended upon the college entrance examination board's results in determining eligibility for entrance. Other colleges and universities, and especially State institutions, have more recently begun to use general scholastic aptitude tests (general intelligence tests) for this purpose. Usually the results on such tests are used in conjunction with other data, such as marks made in high-school subjects in determining admission. Also some students, who might otherwise not attend college, are encouraged to do so because of their high standing in these tests.

4. *Guidance.*—In addition to the examination or examinations given at the end of the high-school course for the immediate and expressed purpose of determining college entrance, testing programs are tending strongly toward periodic testing through the high-school years with the attendant cumulative record keeping. It is felt that a record of the growth of an individual over a comparatively long period of time will furnish a better means of predicting success in

school or in different curriculums in schools than we have hitherto had. The Cooperative Test Service, the Educational Records Bureau of New York, and the Bureau of Educational Records and Research located at Pittsburgh are active in encouraging the development of cumulative records. A simple form of this long-range guidance is found in the testing of the first- or second-year high-school students with scholastic aptitude tests as is being advocated in the Wisconsin and the Ohio scholastic aptitude testing program.

The advantage of a continuous program of testing is readily apparent. The worry of a student incident to the taking of a single college-entrance examination can be thus eliminated. The continuous check-up on achievement is a motivating power. These are incidental values compared to the two following: (a) The increased accuracy of prediction which can be obtained from a record of growth as shown by objective measures; and (b) the plans for the further education or the vocational plans of an individual which can be determined somewhat in advance.

5. *Supervision and standardization of high schools by agencies outside the high school.*—The cooperative testing programs carried out by State departments of education are apt to be for the purpose of supervision and standardization. The accrediting of high schools by State departments is influenced by the results on tests. The New York regents' examination is the best example of the use of cooperative testing as a standardizing agency. The supervision of high-school work by test results is accomplished through analyzing the results on tests to show the strengths and weaknesses of individuals in certain fields of work so that redirection of instruction may take place.

6. *Research.*—An important purpose of cooperative testing programs is the opportunity for research which they afford. It is only through continuous research that increased efficiency of the testing work will be established. Research work on the results of tests as guidance possibilities are carried on in a few places. Studies of different methods of instruction, different textbooks, size of class, etc., are also suggested for solution through cooperative testing.

## POSSIBLE IMPROVEMENTS IN COOPERATIVE HIGH-SCHOOL TESTING PROGRAMS

Cooperative high-school testing programs are finding an important place in the modern educational scheme. Through testing programs a much better picture of the achievement and educational possibilities of the students is brought about than is otherwise possible. Although it may seem at first glance that there is a great variation in the kinds of cooperative testing programs, actually the differences are not fundamental except, perhaps, in the accuracy of the results obtained. The different programs represent different attacks on the problem. The ultimate possibilities in the different programs are much the same. All tests of subject matter, whether fairly specific or comprehensive, can be used for guidance, supervision, research, and motivation. It is suggested that the various possibilities be pointed out to high schools cooperating in such testing programs.

It seems probable that certain developing procedures in cooperative testing may lead to even more efficiency, both in the tests themselves and in the method of administering them. Some of these possibilities are as follows:

First. It is important that attention be given in the construction of the achievement tests used in these programs to the application of principles or reasoning rather than to mere factual knowledge. Examinations constructed with this in mind are more valuable because: (a) Such an emphasis corresponds with the new emphasis in secondary education—that of growth in general culture and ability to solve new problems, thus making the examinations more valid for the individual school; (b) items thus constructed are less specific and will make the examinations more valid from the standpoint of the group of schools cooperating. In using an examination containing many detailed bits of factual knowledge there is some chance that by accident one school will have happened to dwell on the details found in the examination and that another school did not; (c) this emphasis in the examinations will influence the teachers not to depend upon the mere memorization of the course material.

Second. It is desirable that tests be given throughout the high-school period rather than just at the end of the high-

school course. This distribution of testing for each individual over a long period of time makes it possible to begin planning the post high-school educational career while he is still in the first or second year of high school. This foresight will aid in determining whether or not a pupil should continue on in a college preparatory course or switch to some other course. It also makes the guidance at the end of the high-school course more accurate since there are several measurements made over a long period of time recorded for each pupil.

Third. Tests should be constructed so that forms for 1 year after the other are comparable. This means that the material in the examinations should cover the same general ground and that the scores should be equated. The main value of this is in the increase of accuracy of the measurement of the achievement and ability of pupils over a period of years. It makes possible the accurate picturization of the growth of the individual student and the comparison of each student's achievement and ability with students of previous years. If comparable tests are used in different high schools over a period of years, colleges can more accurately determine the chances of success of an entering student because the relationship between the test scores and college success will be known.

Fourth. Tests from different cooperative test programs should be equated so that students transferring from one geographical area to another during their high-school career or in entering college would continue to have the benefit of wise counseling and direction. Tests made for national testing programs should be of considerable use in this regard.

Fifth. The cooperative testing program should include, at least in its initial stages, all the pupils in the subject tested, or all the pupils in a school if it is a general mental ability test or general achievement test. This is true because (a) in this way only will the full force of the testing from a motivating standpoint be ingendered into both pupils and teachers, and (b) only with such a procedure will experimentation and research be made possible from the results of testing, since unselected samples are necessary for experimentation and research.

## APPENDIX

This appendix gives the name of the person, if known, in charge of each testing program, and the references describing the programs. Information regarding testing programs was obtained from these references and through correspondence with the persons in charge of the testing programs. The references given do not constitute an exhaustive list. Information is given herein concerning all testing programs considered or mentioned in this bulletin regardless of whether or not they are active programs.

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#### *Cooperative Test Service*

In charge of Ben D. Wood, professor of collegiate research, Columbia University, New York City.

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#### *Educational Records Bureau*

In charge of W. B. Stephens, acting director; Eleanor Perry Wood, associate director.

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*Psychological Corporation*, Washington, D.C., branch Nation-wide Survey of English Usage.

In charge of L. J. O'Rourke, director of scientific research in personnel and administration, United States Civil Service Commission.

(See also under Pennsylvania programs.)

*American Council on Education Psychological Examination*

In charge of L.L. Thurstone, professor of psychology, University of Chicago.

(See reports in the Educational Record.)

Kansas—See Kansas programs.

#### STATE PROGRAMS

##### *Alabama*

In charge of W. L. Spencer, director of secondary education, State Department of Education, Montgomery, Ala.

##### *Arkansas*

In charge of J. R. Gerberich, research associate, professor of education, University of Arkansas, Fayetteville, Ark.

Gerberich, J. R. Validation of a State-wide Educational Guidance Program for High-School Seniors. *School and Society*, 34: 879, October 31, 1931.

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*California*

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*Colorado*

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In charge of John J. Dynes, Western State College of Colorado, Gunnison, Colo.

Tenth Annual State-wide Scholarship Contest, Scholarship Bulletin No. 5 (March 25, 1933), Western State College of Colorado.

(b) Cooperative Testing Program of the Colorado High Schools and Higher Institutions of Learning.

In charge of J. D. Hellman, director of personnel department, Colorado State Teachers College.

Hellman, J. D. Report on the 1932-33 Cooperative Testing Program. Colorado State Teachers College, Greeley, Colo. February 14, 1933.

*Georgia*

In charge of J. S. Stewart, professor of secondary education, University of Georgia.

*Indiana*

(a) Manchester College Testing Program.

In charge of J. G. Meyer, dean, School of Education, Manchester College, North Manchester, Ind.

(b) State Testing Service for Indiana High Schools.

In charge of H. H. Remmers, director of division of educational reference, Purdue University.

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- In charge of H. E. Schrammel, director bureau of educational measurements, Kansas State Teachers College, Emporia, Kans.
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*Kentucky*

In charge of J. J. Oppenheimer, dean, University of Louisville.

*Maine*

In charge of J. R. Crawford, assistant professor of education, University of Maine.

*Michigan*

- In charge of Clifford Woody, director of bureau of educational reference and research, University of Michigan.
- Bergman, Walter G. Results of Achievement Tests Given in 1926-27 in the Elementary and High Schools of Michigan. Bureau of Educational Reference and Research Bulletin No. 110 (Dec. 31, 1927), University of Michigan, Ann Arbor, Mich.
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(a) State department high-school examinations.

Information furnished by T. J. Berning, statistician for the State department of education.

(b) The Association of Minnesota Colleges high-school testing program.

In charge of J. B. Johnston, dean school of science, literature, and the arts, University of Minnesota.

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Report of the Ninth Annual State High School Scholarship Contest (Apr. 27 to Apr. 30, 1932), Montana State College, Bozeman, Mont. Scholarship Bulletin No. 1, Division of Scholarship Contests, Montana State College, Bozeman, Mont.

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In charge of Walter M. May, deputy commissioner of education, State of New Hampshire.

Results of tests in intelligence, place geography, and English forms in 1931, and a study of the graduates of 1930. New Hampshire State Board of Education, Concord, N.H.

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In charge of Avery W. Skinner, director division of examinations and inspections, State department of education, Albany, N.Y.

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In charge of W. W. Coxe, director educational research division, State department of education, Albany, N.Y.

Coxe, W. W. Levels and Ranges of Ability in New York State High Schools. State department of education, Albany, N.Y.

*North Carolina*

Information submitted by J. Henry Highsmith, director division of instructional service, State department of public instruction, Raleigh, N.C.

*North Dakota*

In charge of John A. Page, director of secondary education, department of public instruction, Bismarck, N.Dak.

*Ohio**(a) Scholastic aptitude (intelligence) test program.*

In charge of Herbert A. Toops, department of psychology, Ohio State University, Columbus, Ohio.

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In charge of Ray G. Wood, director scholarship tests, State department of education, Columbus, Ohio.

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*Texas*

In charge of Gladys Little, first assistant State superintendent of education, State department of education, Austin, Tex.

*Wisconsin*

Information furnished by F. O. Holt, registrar and director bureau of guidance and records, University of Wisconsin, Madison, Wis.

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