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# ELEMENTARY SCHOOL GRADUATING EXAMINATIONS

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## CONTENTS

	Page
FOREWORD.....	v
CHAPTER	
I. The problem.....	1
II. Regulations and practices in different States.....	3
Local freedom, county dominance, and State dominance in testing.....	4
Mandatory regulations concerning testing.....	6
Regulations and practices by States.....	8
Conclusions.....	33
III. Analysis of examinations used.....	34
Types of examinations.....	34
Types of test items found in locally constructed examinations.....	36
Relation of the graduating examinations to other testing programs.....	40
IV. Evaluation of and suggestions for elementary school examinations.....	42
Use of graduation examinations for the supervision of teachers.....	42
Graduation examinations in relation to the "essential" elements of education.....	43
Substitution of a broad program of testing for graduating examinations.....	44
Selection of standardized tests for a broad program of testing.....	46
Construction of elementary school test batteries.....	50
Step 1. Subject fields from which to select test items.....	51
Step 2. Construction of test items.....	51
Step 3. Securing reliability and validity.....	56
V. Summary of findings and recommendations.....	60
Findings.....	60
Recommendations.....	62
BIBLIOGRAPHY.....	63

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## FOREWORD

**A**LTHOUGH in most of the schools of our cities and large towns various types of testing have become an integral part of the instructional and guidance procedures, the introduction of measurement practices has been relatively slow in our rural areas because of the smallness of the administrative units and because of the lack of funds and adequate supervision.

It is therefore timely that the problems involved in testing in rural areas be studied. In rural schools the practice of administering examinations to seventh- and eighth-grade pupils to determine their eligibility for graduation was already in existence at the time of the early development in new-type testing. This study shows the changes which have occurred in the form and use of these examinations under the influence of the testing movement and the advancement in educational theory and practice. Suggestions regarding the general problem of the use of tests in rural schools and the improvement of examinations are made.

It is hoped that the bulletin will be of value to all those who have to do with the supervision and administration of instruction in the rural and village schools of the country.

BESS GOODYKOONTZ,  
*Assistant Commissioner.*

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# ELEMENTARY SCHOOL GRADUATING EXAMINATIONS

## CHAPTER I: THE PROBLEM

ONE of the important testing practices in the rural and village schools of the United States is the elementary-school graduating or leaving examination. In spite of the wide-spread nature of this procedure, very little time or effort has been expended in studying it. It was therefore thought advisable to make a study of these examinations upon which to such a large extent the promotion of pupils from the elementary school is dependent. The plan was to answer as far as possible such questions as the following: By whom are these tests sponsored? Were special construction methods followed? Is there any uniformity in the construction and administration of these examinations in the different States? Are these tests an aid or a hindrance to the child's progress? Are the test items well constructed? Are the tests used merely to measure accumulated facts, or are they attempts to measure the growth of the child in terms of his mental capacities? Are the tests placed at a period of the child's school career where they will be of most benefit as an aid to further development? These questions arise as one contemplates the fact that in many schools of our country these are the only formal tests given to a child during his elementary-school career.

It seemed probable that a perusal of these graduation-examination programs and procedures would bring to light commendable practices in some States which would prove of value to others and, in general, be a basis for suggesting further improvements.

The early history of the elementary school leaving examination shows that it developed without the benefit of much concentrated direction. Most educators know that as the grade-school system developed in this country there developed a system of examinations to serve the ungraded schools.

## 2 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

in order that it might be determined whether or not the pupils of these ungraded schools and village schools were sufficiently advanced to progress to the higher branches of learning. Even after many of these rural and small-town schools had adopted grade divisions this examination persisted. The theory upon which the examination was based after grade divisions were introduced in the rural schools was that since teachers in these rural areas had no direct supervision, some test of the achievement of the pupils was necessary. At that time the examinations were of the essay type involving questions or directions such as, "Describe", "Compare", "Outline", "State", "Give reasons for", etc., the answers to which involve considerable writing on the part of the pupil.

Many changes have occurred both in the rural schools and in the theory and use of examinations since the nineteenth century. What has happened in the meantime to the elementary-school graduating examination? Was the search for these examinations to be a hunt for some last specimen, or would there be found a development difficult to recognize as having grown from these earlier examinations?

In order to be ready to check on information obtained from the field, the first step in the study was to make a note of all State statutes pertaining to elementary school graduating examinations. Next, inquiry was made of the State departments of education and the county superintendents as to the regulations and practices regarding these examinations. In all, 48 State departments of education and 92 county superintendents furnished information.

The facts as found are given in chapter II, and an analysis of the problem is made in chapters III and IV.

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## CHAPTER II.—REGULATIONS AND PRACTICES IN DIFFERENT STATES

**T**HIS chapter deals with the regulations and practices found in the different States in regard to the elementary school leaving examination. In school systems having a 7-grade elementary school the examination is given at the end of the seventh grade; in others it is given at the end of the eighth grade. One common variation among examination systems is the practice in 8-grade elementary schools of giving seventh-grade pupils the option to take some of the graduating tests. This is often done because the examination involves a subject studied in the seventh grade but not in the eighth, and taking the examination at the time the pupil is finishing the subject increases his chance of passing. This common practice shows at least the partial dependence of this examination system on the subject matter of particular courses and not upon the general growth of the child's mental faculties.

In most cases the examinations described are those given in the schools of counties which are under the direct supervision of the county superintendent. This usually means schools in the open country and in small villages and towns. States differ in their rules regarding the formation of school districts, so that the size of towns under the supervision of the county superintendent's office will not be the same in different States.

In the following pages the States of the Union are grouped under two general classifications, to show (1) where responsibility lies for giving the examinations—local freedom, county dominance, or State dominance, and (2) mandatory regulations which are in effect concerning testing.

#### 4 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

##### LOCAL FREEDOM, COUNTY DOMINANCE, AND STATE DOMINANCE IN TESTING

###### I. Local freedom States or those not giving uniform examinations.

Arkansas	New Hampshire
Connecticut	New Jersey
Florida	Rhode Island
Kentucky	Utah
Louisiana	Vermont
Massachusetts	

###### II. County dominance States, or those States giving examinations in some or all counties through the authority or initiative of the county superintendent without any formal aid from the State department of education.

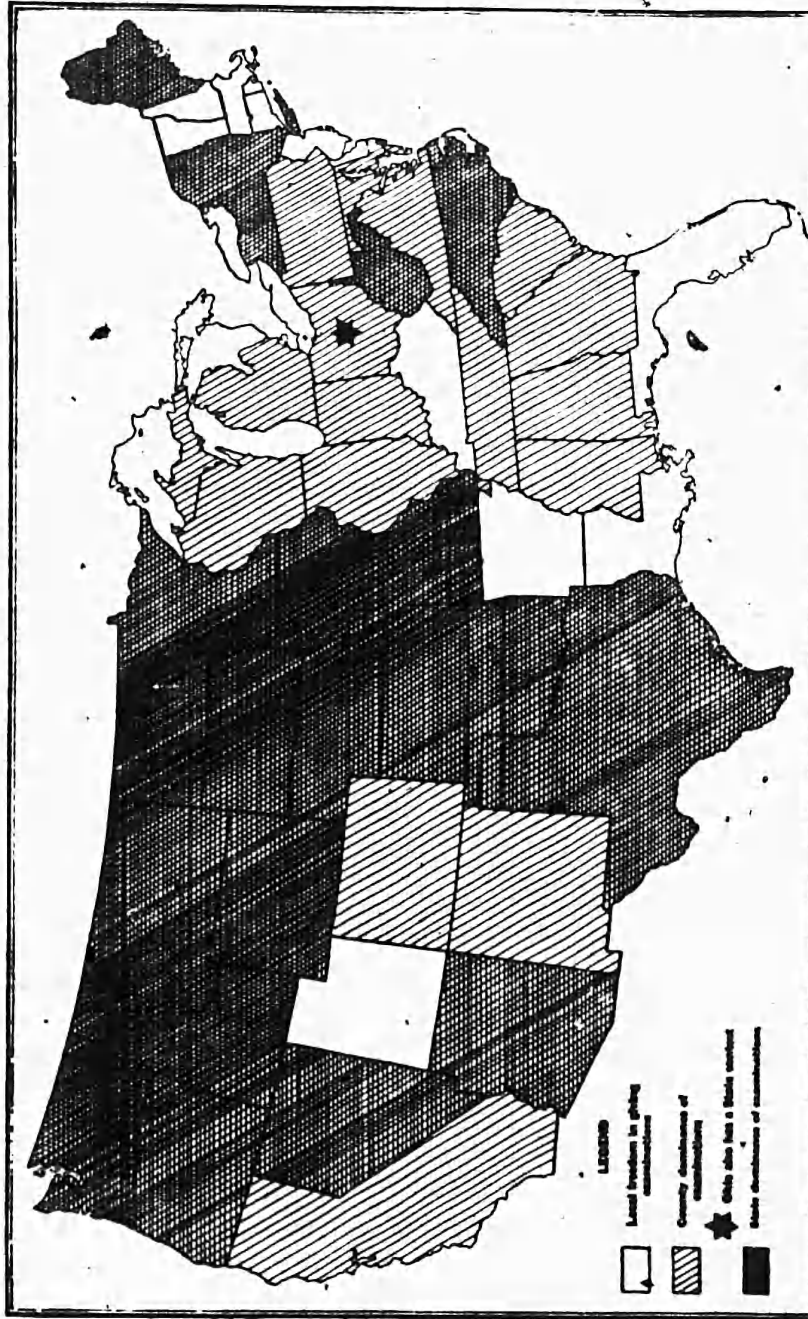
Alabama	Mississippi
California	New Mexico
Colorado	Ohio <sup>1</sup>
Georgia	Pennsylvania
Illinois	South Carolina
Indiana	Tennessee
Maryland	Virginia
Michigan	Wisconsin

###### III. State dominance States are those in which the testing is connected in an official way with the State department. In some cases the only obligation which the State department assumes is the preparation of the examination, while in other cases the State department is concerned not only with the construction of the tests, but also with the procedure in the examination period and with the analysis of the results.

Arizona	New York
Delaware	North Carolina
Idaho	North Dakota
Iowa	Oklahoma
Kansas	Oregon
Maine	South Dakota
Minnesota	Texas
Missouri	Washington
Montana	West Virginia
Nebraska	Wyoming
Nevada	

<sup>1</sup> Although Ohio does have an eighth grade State contest it is placed in this list because the results of the State test are not used for promotion purposes except in rare instances.

The accompanying map of the United States shows the distribution of these different types of examination systems.





MANDATORY REGULATIONS CONCERNING TESTING

I. States in which some or all counties give uniform examinations in rural or village schools, but which have no mandatory regulations.

Alabama	Ohio
Arizona	Pennsylvania
California	South Carolina
Colorado	Tennessee
Georgia	Texas
Illinois	Virginia
Michigan	Wisconsin
Mississippi	Wyoming
New Mexico	

II. Mandatory by State law for all rural or village schools.

Indiana	Missouri
Iowa	New York
Kansas	

III. Mandatory by State law for all rural or village schools with certain schools exempted.

Idaho—certain superior schools exempted.

Maine—for certification of pupils from school districts without high schools.

Nebraska—for certification of pupils from school districts without high schools.

Nevada—for certification of pupils for entrance into county high schools.

North Dakota—for certification of pupils from school districts without high schools.

Oklahoma—interpreted by State board of education to mean unaccredited elementary schools.

Oregon—State superintendent is empowered to accept in any county an organized plan of supervision and testing in lieu of State examination.

Washington—schools maintaining certain minimum standards exempted.

IV. Mandatory ruling of the State board of education or State superintendent of instruction for all rural or village schools except where indicated.

Delaware.

Maryland.

Minnesota—for unaccredited schools.

Montana—for unaccredited schools.

Nebraska—(see also Nebraska in list III above).

North Carolina—(not only rural or village schools but all schools of State).

North Dakota—for all unclassified, graded, and consolidated schools. (See also North Dakota in list III).

South Dakota.

West Virginia—certain superior schools exempted.

As a rule State departments of education and county superintendents have followed the State statutes if these provided for examinations, regardless of whether or not the provisions were mandatory or voluntary. An exception to this, however, is found in the case of Florida.<sup>2</sup>

No attempt has been made to trace through the years the influences at work on these elementary school examinations. However, some of the more recent changes in State laws relating to examinations and other changes were described by State department officials and county superintendents in their reports. While some States have added laws or regulations strengthening the provisions for examinations, other States have passed legislation which does away with such examinations. As far as the whole country is concerned, there is no one trend discernible in regard to the continuance or discontinuance of these examinations.

<sup>2</sup> This State had the following school law passed in 1925:

" BOARD AUTHORIZED TO PROVIDE EXAMINATIONS FOR HIGH SCHOOLS

" That the said board of control are hereby authorized and empowered to provide a system and course of written examinations by question and answers for all the public high schools in the State and that no pupil shall be admitted to said high schools or be advanced to any successive grade therein, or shall be permitted to enter any institution created or maintained in and by this act until such examinations have been had according to such procedure, and the result of said examinations shall have been approved by the said board of control in each instance and a certificate of such admission or advancement issued by the said board of control, and the said board of control shall have the power to alter and change these rules and regulations from time to time where it shall be deemed necessary."

Although this law is very definite in suggesting the use of examinations, apparently no examinations have been established. The State director of instruction states (Sept. 20, 1934) that the law of 1925 referred to (the one above) has never been put into practice by the State board of control. The State board of education has never given any examinations either to elementary pupils or to high-school pupils within the grades of the high schools or passed any resolution changing the regulation which provides for the examinations as far as it could be determined. The only examinations which might be considered as given under their direction are entrance examinations given to the students coming to the State institutions from nonaccredited high schools.

## REGULATIONS AND PRACTICES BY STATES

**ALABAMA.**—There are no State laws or regulations governing elementary school examinations in Alabama. However, many of the counties give tests in their sixth grades to aid in determining graduation. In Alabama the school system is usually a 6-3-3 system, and the elementary period ends with the sixth year. Different types of tests are used. In some counties standardized tests are used; in others they are locally constructed.

**ARIZONA.**—There are no State laws on the subject. The State department last year encouraged the giving of a State-wide test to pupils in the eighth grade. Participation was voluntary. The test used was the Arizona elementary school survey test of 1934. This test was constructed by members of the faculty of the Arizona State Teachers College at Flagstaff. It is probable that the test had some trial on small groups before being used as a State examination. The examination consisted of tests in language, arithmetic, social studies, reading, geography, literature, physiology and health, spelling, and handwriting.

No standards were set by the State department for passing or graduation from the elementary school. Each county superintendent used the examination according to his own interest and ideas. The test scores were used by many counties, however, as achievement indexes.

The Department of Education of Arizona encourages the use of tests for many purposes. These purposes are stated in the report of the testing done throughout the schools by the State department during the year previous to the giving of the Arizona elementary school survey test. They are as follows:

- (a) It would provide definite contact between the State department and the individual school and teacher.
- (b) It would serve to provide a definite check on the classroom work of individual teachers.
- (c) It would encourage close attention to subject matter.
- (d) It would provide information regarding how well the teaching job is being done in this State.
- (e) It would serve as an incentive to better work on the part of both pupil and teacher.

(f) It would provide information by which comparison of children in different schools and different counties could be made.

(g) It, too, would give confirmation regarding the value of text-books being used in the schools.

CALIFORNIA.—The State law definitely leaves the matter of holding elementary school graduating examinations to the discretion of the county boards of education. The law reads:

County boards of education shall have power to provide for the conferring of diplomas of graduation, by examination, and to issue such diplomas of graduation from the elementary schools of the county except city schools governed by city boards of education.

Nothing herein shall be construed as prohibiting the county board of education from issuing diplomas of graduation without examination to the pupils in any school which has been accredited by the county board of education.

The diplomas of graduation from elementary schools hereinbefore provided for shall be conferred only upon such pupils as have completed the course of study prescribed by the county board of education.

All diplomas granted by the county board of education shall be on blanks furnished by the superintendent of public instruction, and shall be signed by the president and secretary of the board.

County boards in California give examinations in only 10 counties, according to reports from 50 out of the 58 counties in the State. The exact procedure varies in the different counties. The examinations do not usually cover all the elementary school subjects. The following program furnished by the State department of education is fairly typical of that in each of the 10 counties.

Quarterly tests are given by the county board of education in arithmetic, spelling, civics, history, and English. The work is planned so that a definite amount of work is covered each quarter and questions are prepared covering that period. Standard graduation tests are given at the end of the term, results of the two tests are averaged, and anyone receiving 75 percent or more is graduated. Teachers' recommendations are taken in case of doubt. Pupils 15 years of age or over are promoted to high school with the understanding that they may have a diploma of graduation in exchange for the certificate of promotion if the high school principal reports satisfactory work at the end of the first year in high school.

## 10 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

Apparently in those counties which do not give official county board examinations there are often tests given in the eighth grade to aid in determining graduation from the elementary school. The California State department reports as follows:

In counties reporting no official examination given by the county board of education, the following procedure reported by one county is typical:

Graduation is based upon:

1. A standardized achievement test.
2. A standardized ability test.
3. Recommendations of the teachers.
4. Recommendations of the superintendent and supervisors.
5. Daily record of the pupil.

It is the plan to graduate any student who has shown growth according to his ability through the elementary grades.

The chief of the division of elementary education and rural schools of the State department of education writes further that the trend in California is definitely away from formal subject-matter examinations. This trend is probably traceable to three factors: (1) the increase in the number of well-qualified and adequately prepared teachers in all types of elementary schools; (2) the availability of rural supervision which provides for continuous professional guidance of the work of the teacher; (3) the changing emphasis in education from the acquisition of knowledge as a major objective to the point of view which sees education as a means of developing the total personality of the child.

COLORADO.—The State law does not mention county elementary school graduating examinations. The law does state, however, that the high-school committee in the union high-school districts "shall have the power to establish and prescribe the qualifications and manner of examinations for admittance to high school." This authority is not generally used by these union high-school districts.

About half the counties of Colorado give uniform examinations to graduating elementary pupils. These examinations are usually constructed by the county superintendent or a committee of teachers, and are not tried out in advance. In a few counties the Stanford Achievement Test is used. The results of the tests are used in connection with teachers'

marks in determining graduation. In counties not using the Stanford Achievement Examinations the subjects tested are usually arithmetic, history, reading (including literature), civics, agriculture, and grammar. The Stanford examination contains subtests in arithmetic, reading, spelling, language usage, literature, history and civics, geography, physiology and hygiene.

**DELAWARE.**—The State of Delaware, although it does not have any State law on the subject, has a well-developed State testing program in all the grades of all elementary schools except the first. In April 1934 the short form of the Modern School Achievement Test was given in the eighth grade. This short form contains subtests in reading, arithmetic, spelling, and language usage. For promotion all pupils must have a "C" average in arithmetic, reading, and English in the regular class work, and a general average of a "C" which is the median mark. The general promotion average is found by adding 2 times the yearly average for all subjects to the general average for standard tests and dividing by 3.

**GEORGIA.**—There are no State laws or regulations regarding elementary school examinations. Several of the counties, however, give uniform examinations in elementary schools throughout their counties under the general authority given to county superintendents to supervise instruction. Examinations constructed by the county superintendent's office have been used, as have also standardized tests. Standardized tests mentioned as having been used include the Unit Scales of Attainment, the Stanford Achievement Test, and the Public-School Achievement Tests. Graduation from the elementary school has not depended entirely on the results of these tests. In practically all cases the marks of the teachers have also been used. The testing program in these Georgia counties quite often covers all or most of the grades of the elementary school.

**IDAHO.**—There are certain school laws in the Idaho Statutes which give the authority to prescribe examinations to the State board of education. These laws read as follows:

It shall be the duty of the State board of education to prescribe, from time to time, such rules and regulations as appear

## 12. ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

to be necessary governing the promotion of pupils through the several grades and classes in all schools of the State, and to require a type of examination, or examinations, as will best serve the needs of the school system.

High schools to receive nonresident pupils—exceptions.

Provided further—that high schools shall not be required to admit pupils who have not passed the eighth-grade State examination or in some other manner established their fitness to enter said high school.

In accordance with this permissive legislation the State board through the State superintendent of instruction administers a testing program covering all eighth-grade pupils in the State, except those in independent class A districts and a few other specially exempted independent districts. The Standard Graduation Examination plus two specially prepared tests is used. The standard graduation examination consists of subtests in spelling, reading, vocabulary, arithmetic, grammar, language usage, literature, history, and geography. The two specially prepared standardized tests cover (a) Idaho history and civics and (b) physiology and health.

The different counties of the State arranged independently the marks into which the results of the examination were to be translated. The daily marks and the results of this examination were used, each contributing equally, to determine graduation. A report of the superintendent of public instruction regarding the use of these tests in Idaho is instructive. A part of this report follows:<sup>3</sup>

The schools of Idaho purchased approximately 8,575 standard graduation tests for the present State-wide testing program. Some schools did not report the results of the test, and some results were received too late to be included in the official compilation of data. Entire, or partial, reports were received from 43 counties totaling 5,730 cases upon which the State medians will be computed. This gives each county an opportunity of comparing its median with the median of the entire State.

The standardized objective tests, such as the standard graduation examination, have many advantages over the typical teacher's examination, or subjective test. In the objective tests the questions are more carefully selected, the time element is constant, scoring is more

<sup>3</sup> The report, a part of which is here given, was prepared by Frank P. Baird and W. W. Gartin.

uniform, the personal element is eliminated, and norms as standards are provided for comparison.

The median score of any group is commonly used to compare the achievement of that group with the achievement of some other group, or the achievement of the individuals who took that test throughout the entire State. It is possible to tell at a glance whether the median score in spelling for one county is above or below the State median in that subject. The range of distribution of the test scores is also very important. A narrow distribution may indicate rather uniform achievement, while a wide distribution might indicate a lack of uniformity in achievement, and possibly poor teaching somewhere in the county. The use of the standard deviation from the mean is commonly used as the best possible check upon the deviation of the scores from the mean. Medians have been secured for the State and for each county in every test. Any superintendent desiring additional information or computation should write to the State office.

The expenditure of time and money in giving the standard graduation examination, or any other standardized test, is not justified purely because these scores are to be used to determine the number of grade school diplomas to be issued. Their real value lies in their use as a basis for the improvement in instruction and efficiency of the schools. It is apparent that the test indicates more than just the achievement during the eighth grade. They measure the achievement of the child in all eight grades. It might be desirable to test all the pupils in all the grades as has been done in several counties in the State. However, the money, and the time and training are not always available at the right time, and sufficient data have been obtained from the eighth grade tests to start some constructive and effective work.

It is desirable to treat the compiled data with professional discretion. That the median of one county is the highest in the State on a particular test is commendable, but publicity does not of itself increase the effectiveness of the school. That another county has the lowest median in a particular subject is not necessarily a reflection upon the teachers of the county. It merely outlines a job to be done, a piece of work that calls for concentrated, intelligent effort during the coming year. In every test there must be a high and a low. Professional consideration of results calms exultation for individual high scores and the realization of the problems at hand puts the low scores in a new light before the supervisor. The following comments are very general and merely indicate a general course of action to be followed by the supervisors.

The grouping of all the scores in each test and the computation of the average and median scores enable the critic to point out the counties where by comparison the achievement in a subject is better or poorer than the State average or median. The county superintendent, therefore, has some accurate objective knowledge as to the



## 14 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

comparative excellence of achievement in the county. A special graph has been worked out for each county showing the medians for that county in comparison to those of the State. If a county superintendent finds all the medians for that county approximately the average excepting one (say in geography), and that one considerably below average, her immediate problem is somewhat simplified. It might be concluded that the work is normal, and in general satisfactory over the county excepting for that one subject. Two jobs are then outlined: First, a study must be made of that particular subject, the textbooks and supplementary material used, the length of the period, the preparation of the teachers, etc., until a reason is found that will explain the comparatively low score registered over the entire county. Then, within the county, even though the county median is average or above, a study should be made of those schools whose group scores fall in the lowest 50 percent, and particularly those below the twenty-fifth percentile. In this way the county superintendent can strengthen the instruction in the subjects where low scores were made, and will have a definite idea as to which schools within the county are doing the best or the poorest work.

However, no one teacher, and perhaps no individual school, should be blamed for a poor or mediocre score. The children have been working for 8 years and their inherent ability or intelligence varies. Special consideration should be given these cases and arbitrary judgments and cutting criticisms should be replaced by tactful discussions of the problems at hand. Even though a county has a high median in one test, or in all tests, the county superintendent may still have a number of schools with low scores which would indicate and definitely point out a place for constructive supervision and counsel. No one test should be accepted as an absolute check on work done. Common sense judgments of the particular cases are necessary.

**ILLINOIS.**—The law relative to the examinations in the elementary school is as follows:

Upon the approval of the county superintendent of schools any high school pupil may attend a recognized high school more convenient in some district other than the high-school district in which he resided \* \* \*. If a recognized 2- or 3-year high school is conducted in a township, located in a non-high-school district, any eighth grade graduate residing in such township upon the approval of the county superintendent of schools, may attend a recognized high school more convenient in some district other than the township in which he resides and his tuition shall be paid by the board of education of the non-high-school district in which he resides. If no recognized 2- or 3-year high school is conducted in a township located in a non-high-school district, then any eighth grade graduate residing in such township may attend any recognized 2-, 3-, or 4-year high school, and his tuition shall

be paid by the board of education of the non-high-school district in which he resides.

An eighth grade graduate in the meaning of this act is any person of school age who gives satisfactory evidence of having completed the first eight grades of school work by presenting a certificate of promotion issued by the home school board, or by passing an examination given by the county superintendent of schools, or by passing an examination given by the school attended.

According to these laws it is not compulsory that county eighth-grade examinations be given. However, all the counties in the State given final examinations to eighth-grade pupils in rural schools. Standardized tests are used in some counties, while locally constructed tests are used in others. Some of the locally constructed tests are made in conjunction with teacher-training institutions. There is no uniformity in the giving of these examinations, each county setting up its own rules. Many of the counties will issue graduation certificates solely on the basis of examination results, while others use the examination results in conjunction with the teacher's judgment of the achievement of the pupils.

INDIANA.—The school law of Indiana relative to elementary graduating examinations is as follows:

*Examinations for graduation.*—The county superintendent shall provide for the examination of all applicants for graduation in the common school branches from township, district, or town schools during the months of March, April, and May, and furnish them certificates of graduation if entitled thereto.

Most of the counties of the State give examinations according to the provisions of this law. Many of the county superintendents of Indiana have banded themselves together in a county superintendents' association. This association, with the aid of test specialists and subject-matter specialists, prepares an annual test for each of the school grades in all elementary schools, called the "Indiana new-type test." The eighth-grade examination consists of tests in arithmetic, history, reading, language, general science, and spelling. Each county sets its own standard of graduation from the average of this test and the teachers' marks. The State department of education compiles norms from the results of the test for use by the counties.

## 16 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS.

IOWA.—The State superintendent prepares examinations which are given by the county superintendents in all counties of the State under the provisions of the following State laws:

*Duties.*—The superintendent of public instruction shall:

Prepare and supply questions for the examination of applicants for teachers' certificates and pupils completing the eighth grade in the rural schools, and fix the times of such examinations.

*Requirements for admission.*—Any person applying for admission to any high school under the provisions of the preceding section shall present to the officials thereof the affidavit of his parent or guardian, or if he have neither, his next friend, that such applicant is entitled to attend the public schools, and a resident of a school district of this State, specifying the district. He shall also present a certificate signed by the county superintendent showing proficiency in the common branches, reading, orthography, arithmetic, physiology, grammar, civics of Iowa, geography, United States history, penmanship, and music.

No such certificate or affidavit shall be required for admission to the high school in any school corporation when he has finished the common-school branches in the same corporation.

The practice now is for the State superintendent's office to make out two sets of test items—one of the objective type and the other of the essay type—and also to make possible the substitution of a standard test in any or all subjects. Regulations sent out by the State department in regard to music and penmanship are:

1. All eighth-grade pupils who are doing acceptable choir work may be excused from the eighth-grade examination in music.
2. No penmanship questions are included as the county superintendent will probably wish to grade this subject on the general appearance of the papers.

The scores on the examination are not sent to the State department but are used locally by the county superintendents to aid in the determination of graduation from the elementary school. Some counties use the results of these tests as the only basis for determining graduation; in other counties the results are used as contributory evidence; and in still other counties the test results are not considered at all for this purpose.

KANSAS.—The examination system in Kansas is carried out under the general direction of the State superintendent

in all the counties of the State in accordance with the provisions of the law, extracts of which are as follows:

*Examinations.*—That public examinations for common-school diplomas shall be held for rural schools on the third and fourth Saturdays in April, and for graded schools on the second Saturday in May and the Friday next preceding, in each year at the county seat or at such place or places as may be designated by the county superintendent of public instruction and shall be graded by the board of county examiners or under the direction of said board by assistants appointed for the purpose by the county superintendent; and diplomas shall be issued to applicants entitled thereto by the board of county examiners.

*Questions prepared by State board.*—The questions for the examination provided for in this act shall be prepared by the State board of education, and shall be mailed by the State superintendent to the county superintendent, at least 10 days before they are to be used.

*Examinations uniform.*—The examinations provided for in this act shall be uniform, as to date and subject matter, throughout the State.

The subjects tested in the eighth grade in 1934 were reading, arithmetic, civil government, Kansas history, penmanship, United States history, spelling, English, and agriculture, while the same year in the seventh grade there were tests in physiology and geography. Kansas history was an optional test in the seventh grade. Each county superintendent has the option of using the examination results as a sole determinant of elementary school graduation or of allowing up to, but not more than, 50 percent credit for regular class work.

**MAINE.**—In Maine the State superintendent is required to furnish examinations for use by those towns not having high schools and which have pupils desiring to attend high schools in other districts. More than one half of the towns give these examinations. It is mandatory for the State department to furnish examinations upon request, but it is a voluntary matter for the individual school districts or towns to give them. The law is as follows:

Any youth who resides with a parent or guardian in any town which does not support and maintain a standard secondary school, may attend any approved secondary school to which he may gain entrance by permission of those having charge thereof, provided the said youth shall attend a school or schools whose courses are

## 18 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

approved by the State superintendent of schools, and in such case the tuition of said youth shall be paid by the town in which he resides as aforesaid (chapter 173), said tuition so paid, shall be made a part of the school fund of the town receiving the same; and towns shall raise annually, as other school moneys are raised, a sum sufficient to pay such tuition charges: *Provided, however,* That no youth shall be entitled to free tuition under the provisions of this section unless he shall have satisfactorily passed an examination in common school branches, said examination having been given under the direction of the superintendent of schools wherein such youth resides, on papers procured from the State superintendent of public schools or unless such youths shall have satisfactorily completed a standard common school course of study which has been approved by the State superintendent of schools.

Some towns rely to a great extent on the results of these State examinations in determining graduation from the elementary school. The State department of education, however, urges the schools not to base their eighth-grade promotions entirely on such examinations.

**MARYLAND.**—The following regulation made by the State board of education of Maryland requires county superintendents to examine the pupils in all schools in all grades above the third:

Bylaw 20. He shall cause to be held twice in each scholastic year an examination of pupils above the third grade in the various branches of their grade. The first examination shall be held in the month of January of each year, and the second, during the last week of the school year, or the week preceding. Each examination shall be based upon the half of the year's work prescribed in the course of study. The questions for the test for the first half of the work prescribed in the course of study shall be prepared by the county superintendent, or, at his discretion, by the teachers, and a copy of such questions prepared by the teachers, together with the answer papers written by the pupils, shall be preserved at the schoolhouse for 6 months and be open to the inspection of any interested person. The questions for the examination based upon the second half of the work prescribed in the course of study shall be prepared by the county superintendent, or under his direction in his office, and sent to each principal teacher in due time; and the package containing the questions shall not be opened until the day of the examination. The county superintendent shall prepare a schedule of examinations which shall be followed in all schools in his county. The examination questions and answer papers shall be preserved at the schoolhouse for 6 months, and shall be accessible to any interested person.

The different counties of Maryland interpret this regulation in various ways, so that no uniform description of the practice can be given. In some counties the examinations constructed and given by the individual teachers in the different schools satisfy the requirements of this law. In other counties a uniform examination is given throughout all the schools of the county. Some of the examinations used are constructed locally, and some are standardized achievement tests. There is no uniform rule regarding the use of tests in determining graduation from the elementary school. Usually the examination result is weighted equally with the teacher's rating in determining promotion.

**MICHIGAN.**—Several counties in Michigan give examinations to elementary school graduation candidates. In some counties the tests are locally constructed, and in other counties various standardized tests are used. The test results are usually used only in conjunction with teachers' estimates of achievement and other factors in determining promotion.

**MINNESOTA.**—The State board of education has made regulations for the State board examinations, which in the eighth grade are required in unaccredited rural schools and optional in accredited graded and rural schools. The regulation regarding the unaccredited rural schools is as follows:

(2) For a pupil from a nonaccredited ungraded elementary school in any county in this State or from any private school in this State, the certificate shall be signed by the superintendent of schools of such county or by the head of such private school, respectively, certifying to the following:

(a) The completion of the 8 years of the State curriculum for elementary schools.

(b) The local school standing in each subject completed.

(c) Pass marks in State-board tests in accordance with one of the following plans:

1. For pupils completing the work of the eighth year in 1933 or earlier, State pass marks in at least six of the elementary school subjects in which State tests are given, including not less than four of the following: American history, arithmetic, geography, grammar-composition, and reading.

2. For pupils completing the work of the eighth year in 1934 or later, State pass marks in at least four of the five following subject fields: Geography, English, general science, mathematics, social studies.

The examinations are constructed by specialists appointed by the State board of education in accordance with certain specified regulations. The first six of these regulations are here quoted.

*Instructions for the Preparation of State Board Examinations*

1. Persons charged with the preparation of the State-board examinations should bear in mind the primary purposes of the examinations, which should be threefold: First, to measure the achievement of pupils; second, to improve the quality of instruction; and third, to serve as an administrative and supervisory agency.
2. For grades 7 to 12, inclusive, the State-board examinations shall be based on the new State syllabi.
3. For testing pupils' knowledge of factual material, the objective types of test questions should be used as far as possible. The essay type of questions, however, should not be eliminated. They are needed in testing pupils' ability to interpret facts, to reason from cause to effect, to organize subject matter logically and to present it effectively.
4. The following types of test questions are suggested: Completion, multiple choice, matching, specific answer, classification, and essay. Not more than 20 of any one type of test items should be used in one group or part of an examination. All test items should be numbered in the following manner, the number to be placed at the end of the blank: Example, — 1 or — — 2, 3. The true-false type of questions should not be included, as they have been found to be unsatisfactory in small groups.
5. The matching questions that are used should be set up in the following manner:

*Example:*—Match each of the cities in group 1 with the correct item in group 2, by writing the name of the city in group 1 in the proper blank in group 2.

<i>Group 1</i>	<i>Group 2</i>
Halifax	1 Dominion capital..... 1
Churchill	2 Winter port on eastern coast..... 2
Ottawa	3 A city in northern British Columbia..... 3
Prince Rupert	4 Capital of Alberta..... 4
Port Arthur	5 French city of Canada..... 5
Edmonton	6 Wheat port on Lake Superior..... 6
Quebec	7 Hudson Bay port..... 7

6. Tests should be as comprehensive as possible. Each test should contain about 150 questions or test items. They should be of varying degrees of difficulty so as to measure the achieve-

ments of both the slower and the brighter pupils. It is suggested that one-third of the questions be fairly easy so that even the poorer pupils can do something with them, one-third moderately difficult, and one-third sufficiently difficult to test the achievement of the best pupils.

There are two uses to which the State-board examinations are put in Minnesota as indicated by the State-board regulations and the instructions for the preparation of State-board examinations. One is as a factor in determining graduation from the elementary school and the other is as a State supervisory tool.

**MISSISSIPPI.**—A few counties in the State conduct uniform examinations in order to determine eligibility for graduation. In some cases they are used as a partial determinant; in others they are a sole criterion for graduation. Standardized tests are used.

**MISSOURI.**—The law of Missouri states: "The county superintendent shall inaugurate and maintain a system of final examinations and graduation of pupils who complete the State course of study for rural schools." The State department of education constructs and distributes the examinations required by this law. The following regulations are issued by it for examinations in grades 5 to 8.

*Quarterly examinations.*—In view of the fact that schools are of unequal length and begin on different dates, it is recommended that every school give the quarterly examinations on some Friday in October, December, February, and April of each year. A date should be set by the county superintendent each quarter and the examinations should be given throughout the county on that date. Each group of quarterly examination questions will be based on the work outlined by the courses of study for that quarter. The grades obtained from these examinations may count one-fourth of the pupil's quarterly grade.

Teachers should do the work outlined in the courses of study and then the pupils may easily answer the examination questions. After the quarterly examinations have been given and the papers graded the teacher should make a permanent record of all grades of each pupil. Report cards showing the attendance, deportment, and scholastic grades of each pupil should be made out and sent to parents at the close of each quarter.

*Final examinations.*—The final examination questions for rural graduation will be based on the work outlined in the courses of study for all grades. The questions should be given on the same day throughout the State and it is recommended



## 22 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

that the papers be graded in the office of the county superintendent. The grade received on the final examination should count at least one-third of the pupil's final grade. In order to be eligible to take the final examinations, a pupil must spend 2 full years in the A class and pass satisfactorily the quarterly examinations each quarter.

Certificates of attainment should be issued all pupils who pass the examinations satisfactorily and made satisfactory class grades. No pupil should receive such certificates who has not maintained an average grade of M or above on all subjects outlined in the State courses of study, the grade in no subject being less than I.

The purposes of giving these examinations, besides that of aiding in determining graduation from the elementary school, are: (1) To measure pupil's progress; (2) to provide a means for diagnosing pupil's difficulties; (3) to furnish a measure for the teacher's success in following the State courses of study. The subjects tested in the eighth grade are English, health, history, geography, reading, spelling, agriculture, and arithmetic.

MONTANA.—The school law of Montana states:

*Powers and duties.*—The State board of education shall have power and it shall be its duty: \* \* \*

To prescribe standards of promotion to the high school department of all public schools of the State and to accredit such high schools as maintain the standards of work prescribed by the board; *provided*, that in all examinations which shall be given by this board and shall be conducted by the county board of educational examiners, to determine the scholarship of candidates for promotion to high school, fifty percent of the credits required shall be based upon the eighth grade work completed in any school of this State and certified to the county superintendent by the principal or teacher of such grade.

As an aid in determining graduation, the State board of education requires an examination to be given in all elementary schools except those which are rated as superior. Practically all graded schools are exempt, while about half the rural 1- and 2-room schools are. However, according to the regulations of the State board of education, pupils in 1- and 2-room schools are required to take an examination provided by the county superintendent of schools. In the regulations providing for these county examinations, as well as in the law prescribing the State examinations, it is provided

that the final credit for promotion to high school shall always be based one half, or 50 percent, on the class grade, and the other half, or 50 percent, on the examination. The State examination is constructed by or under the supervision of the State board of education. The county examinations are often standardized tests, and in some cases they are the Standard Graduation Examination.

The subjects usually tested are civics, history, grammar, reading, arithmetic, spelling, and geography.

*Nebraska.*—The school law of Nebraska requires that eighth-grade pupils pass an examination before they can attend high school in a different district than that in which they reside. The law states:

Every pupil after taking this course of study (subjects of the first eight grades) may by applying to the county superintendent take examinations in these subjects, such examinations to be held at a time and place designated by the county superintendent and held by him or his assistant, and at no time shall they be held by a teacher any of whose pupils are taking the examination. The questions used in such examination shall be furnished by the State superintendent and be the same in all counties each year. \* \* \*

\* \* \*. Each member of said board (board of five to be appointed by the county superintendent) shall give careful consideration to the grading of each paper \* \* \* and if pupils have passed with an average of 75 percent in the subjects named in this chapter, no subject less than 60 percent, the county superintendent shall issue a certificate stating the pupil is entitled to free high-school tuition, providing the ninth grade is not being taught in the district where pupil's parents or guardians reside.

Although the State law is mandatory only in regard to pupils who desire to attend high school in some other district than the one in which they reside, the State department of public instruction encourages all rural schools to give these same examinations to all their graduating pupils. County superintendents make their own rules for graduation in their respective counties. The regulations made by the State department provide that seventh-grade pupils may take tests in some of the subjects and also that tests in other subjects may be taken at the end of the first half year in the eighth grade. The subjects tested are the

subjects in the elementary school course of study. These are drawing, writing, mental arithmetic, spelling, civics, arithmetic, grammar, history, general geography, English composition, reading, agriculture, geography of Nebraska, physiology, and bookkeeping or farm accounting. All counties in the State use this examination. In the suggestions made in Bulletin K of the department of public instruction "Rural Education Looking Forward", it is interesting to note the following admonition:

Pupils should avoid spending too much time in cramming for eighth-grade examinations. The other grades in school should not be neglected by the teacher.

NEVADA.—The State law provides for uniform examinations for the admission of eighth-grade graduates to county high schools. It reads:

All county high schools shall be open for the admission of graduates holding diplomas from the eighth grade of the elementary schools of the State: *Provided*, That the examinations for the said diplomas shall have been given under the direction and authority of the State board of education; and to such other pupils as shall pass the examination for admission to the county high school, which examination shall be conducted under the authority and direction of the State board of education.

Since the high schools of the State of Nevada are, in the main, county high schools, the use of this examination is State-wide. The exception is stated by the State superintendent's office as follows:

Students in the first-class schools (the larger urban communities employing 10 or more teachers) receive their certificates of graduation from the eighth grade without taking the examinations especially prepared by the State, since their work is supervised by trained administrators and meets the same standard required by the State department for the rural district schools.

The testing program in Nevada is peculiar in that two separate examinations are provided. The first test is given in each school under the general direction of the deputy State superintendent. Pupils must have attained a certain rating in their regular class work before being allowed to take the examinations. Those pupils failing to pass this first examination are then required to take a second examination which is the State test. The subjects tested are: Penman-

ship, United States history, mental arithmetic, written arithmetic, music, grammar and composition, drawing, orthography, reading, current events, geography, physiology and hygiene, elementary bookkeeping and business forms, and civics.

**NEW MEXICO.**—No uniform eighth-grade tests are provided for by State law or regulation. A few counties give examinations—some construct their own and others use standardized tests. The results are used in part to determine promotion.

**NEW YORK.**—The State department of New York (the University of the State of New York) requires an examination (called the "preliminary regents examination") for determining graduation from the elementary school in all schools or school districts not employing superintendents, which means localities of less than 4,500 population. Practically all other elementary schools in the State, with the exception of those in New York City, Buffalo, and Rochester, also give this examination.

The examination consists of tests in silent reading, writing, spelling, geography, arithmetic, elementary English, and elementary United States history with civics. The State department furnishes examinations in all subjects except writing. The principal of each school determines the mark in writing, but the State department recommends that a standardized rating scale be used for this purpose. The regents examination papers are corrected by the principal or someone appointed by him, and the papers marked passing are held by him for 1 year and are subject to inspection by the State department. In those schools in which the examination is required the results are used as a sole determinant of elementary school graduation; in other schools other factors are usually taken into account along with the results from the regents examination.

The construction of these examinations has involved a considerable number of persons. The test items are made first by committees of teachers or representative teachers. These test items are then reviewed by subject-matter specialists in the State department and in some cases by a special committee called the "board of revision."

**NORTH CAROLINA.**—A program of testing is carried on by the State department of public instruction in the seventh grade (the last grade of the elementary school) in all schools of the State. A standardized test is used which covers the fundamental subjects of the elementary school course. The State department suggests to the superintendents that the results be used only as one factor in determining graduation. It also makes analyses of the test results and issues its studies to the schools. This elementary school-leaving examination is given under the general authority of the State department of public instruction to supervise the schools of the State. There is no State law or regulation of any State body requiring it. The North Carolina examination is the most comprehensive of the State testing programs, since it is a uniform examination and is given in all schools of the State.

**NORTH DAKOTA.**—The provisions of the State board of North Dakota relative to elementary school graduation examinations are as follows:

He [the superintendent of public instruction] shall have charge and supervision of the . . . examinations for eighth-grade and high-school pupils . . .

Any public grades in any city or incorporated village or township, organized into a district . . . which shall give instruction according to the terms and provisions of this act, and shall admit pupils of either sex from any part of the State without charge for tuition in the secondary school or high-school department, shall be entitled to be classified as a State high school, and to receive pecuniary aid as hereinafter specified: *Provided, however,* That no school shall be required to admit nonresident pupils unless they pass an examination in orthography, reading in English, penmanship, arithmetic, language and grammar, modern geography, and the history of the United States.

The State department of public instruction requires the examination of pupils in unclassified, graded, and consolidated schools, since it is from these schools that nonresident pupils mentioned in the law will come.

The examination is prepared by the State department with the cooperation of the teachers colleges. The county superintendent is responsible for seeing that the examination is given and for the scoring of the papers. The law is specific

in its requirement that admission to high school shall be based on the results of an examination. Graduation from the elementary school is therefore dependent upon the results of this examination if the graduating pupils are to go on to high school. In some exceptional cases pupils are graduated without passing this examination.

**OHIO.**—Many counties in Ohio conduct county examinations prepared by the county superintendent's office. These results are used in part to determine eligibility for graduation from the elementary school.

There is also an "Ohio 8-year test" sponsored by the State department of education. This examination is made up for the purpose of competition for awards. Some of the schools which give these competitive examinations use the results as a factor in promoting pupils to high school.

**OKLAHOMA.**—The law provides that the State board of education "prepare examination questions for graduates from the eighth grade of the public school." The State board now requires the eighth grade examination to be given in all unaccredited elementary schools. The examination is constructed by the State board of education with such help as seems desirable from the teachers colleges. The examination is used as a sole determinant in promoting pupils from these unaccredited elementary schools to high school. The subjects tested are physiology, geography, agriculture or domestic science, Oklahoma history, arithmetic, civics, grammar, composition, United States history, reading, spelling, and writing. Seventh-grade pupils may take examinations in the first four of these subjects and if passing marks are obtained be excused from taking these subjects when they are in the eighth grade.

**OREGON.**—The State of Oregon has provided by law that examinations for eighth-grade pupils shall be prepared by the State department of public instruction, the passing of which will entitle the pupil to a certificate of admission to the ninth grade. It has also provided, however, that the State superintendent of public instruction may accept an organized county plan of supervision and testing in lieu of the State examination for that county.

It shall be the duty of the superintendent of public instruction, at such time as he may deem advisable, but not oftener than three times each year, to prepare questions for use in the examination of the pupils of the schools of this State who have completed the eighth grade in accordance with the provisions of the State course of study; to prescribe uniform rules and regulations for the conducting of such examinations; and to prepare blank certificates of graduation for pupils successfully passing such examinations according to the standard prescribed by the State board of education, which certificates shall be executed by the county superintendents of their respective counties; and a certificate so granted shall entitle the holder thereof to entrance into any ninth grade in the State without further examination; *Provided*, That the superintendent of public instruction may accept an organized plan of supervision and testing when proposed by the county school superintendent of any county in lieu of the State eighth-grade examination for that county; *And provided*, That nothing in this act shall be construed as compelling district school boards to admit nonresident pupils without tuition charge.

Under the provisions of this law five different plans for testing have been evolved through conferences with county superintendents to satisfy the different conditions of administration and supervision in the different counties.

**PLAN No. 1:**

At least two *objective* tests in the sixth, seventh, and eighth grades in the subjects of

Arithmetic, language, and spelling in grade 6.

Arithmetic, language, spelling, history, and geography in grade 7.

Arithmetic, language, spelling, history, and civics in grade 8.

**NOTE.**—Tests in fifth grade are advisable but are optional with the county school superintendent. Reading tests are advisable but are optional with the superintendent.

**PLAN No. 2:**

A definitely planned and organized supervisory program of *standard* testing and special remedial work in one or more main subjects through several grades, or *standard* testing in certain specified subjects in certain grades extending over a period of 1 or more years.

**NOTE.**—This plan has been devised particularly for counties having a regular supervisor in addition to the superintendent.

**PLAN No. 3:**

At least two *objective* tests as under plan no. 1, but limited to fewer subjects, in sixth, seventh, and eighth grades, these *objective* tests to be supplemented by the use of *standard* tests in a certain designated subject or subjects in specified grades or by other definitely planned supervisory measures.

## PLAN No. 4:

A *standard* form test or detailed *objective* test in specified subjects to be given to seventh and eighth grades by a certain date in the fall (suggest end of first month or first 6 weeks). A definitely planned program of remedial work throughout the year is to be based on the correction of pupil weaknesses brought out in the results of the first testing. Another form of the same *standard* test is to be given in the spring, or one or more *objective* tests in specified subjects are to be given throughout the year.

## PLAN No. 5:

The regular uniform eighth grade State examinations.

In 1933-34 plan no. 1 was used by 24 counties; plan no. 3 by 4 counties; plan no. 4 by 1 county; and plan no. 5 by 2 counties. The material for the objective tests is made up under the direction of test and subject-matter specialists in the Oregon normal schools, the University, and the Oregon State College. The general plan for promotion to high school is to count one-third on the examination and two-thirds on the daily work.

**PENNSYLVANIA.**—The law of this State under which eighth-grade examinations in some counties are held is as follows:

All pupils desiring to attend any high school outside the district in which they reside shall first satisfy the superintendent having supervision of the district in which they reside, as well as the superintendent or principal of said high school, of their fitness to enter the same.

Many of the counties of Pennsylvania give examinations in order to get satisfactory evidence of ability to do high-school work. Some counties give standardized tests and others construct their own. One of the few studies which have been made of county examinations was made in Pennsylvania by D. B. Kraybill. Entitled "The Problem of Admitting Rural Pupils to High School", it was published as Pennsylvania State College Bulletin, Vol. XXI, No. 35, December 15, 1927. This bulletin reviews the methods used for admitting rural pupils of Pennsylvania into high schools and analyzes the results of using different types of tests in an experimental situation in some seven counties of the State.

**SOUTH CAROLINA.**—About 15 counties of the State give examinations to their seventh-grade pupils to aid in selecting those who are to receive promotion certificates. Some



counties use standardized tests, but for the most part locally constructed examinations are used.

**SOUTH DAKOTA.**—There are no laws on the subject of elementary school examinations. However, the State department of education constructs a final examination for use in all rural schools of the State. The county superintendents score the papers. The test scores are used in conjunction with the teachers' marks in determining promotion. The subjects tested in the eighth grade are reading, writing, spelling, arithmetic, geography, language and grammar, science and hygiene, United States history, civics, and drawing.

**TENNESSEE.**—Tennessee has no State laws or regulations concerning elementary school examinations. However, the State department of education does recommend that in each county uniform examinations be made by the county superintendent or a committee selected by him for the purpose; that these examinations be given in central locations throughout the county under the supervision of persons who can be depended upon; that the papers be graded by a committee selected by the county superintendent; and that promotions be determined by the results of this examination and in addition by the opinion of the teachers.

Some counties construct their own tests and others use standardized tests.

**TEXAS.**—The State department of education suggests each year a standardized examination to be used by counties in the seventh grade (the last year of the elementary school) and cooperates with them in working up results from this examination. A large number of the counties (160 counties in 1933-34) participate in this program. A special test prepared for Texas by the Harlow Publishing Co. was used in 1933-34. The subjects tested were reading, literature, English, spelling, United States history, geography, citizenship, sanitation and hygiene, and arithmetic. The tests are not used as a sole means for determining eligibility for graduation. In one county, however, participation in the county graduation exercises was made dependent upon passing the examination, although graduation from the elementary school was not necessarily precluded.

**VIRGINIA.**—Some counties in Virginia administer standardized or other examinations to candidates for graduation from the elementary schools.

**WEST VIRGINIA.**—The State department of education requires that in each county in the State rural consolidated schools use either (1) an examination prepared by the State department, (2) standardized tests, or (3) a county-prepared examination approved by the State department, as an aid in determining promotion out of the eighth grade. Schools attaining a rating as a model school or a first-class school are exempt from the final examination. However, such schools are not exempt from the general testing program set up by the county superintendents as an aid to supervision. The State examination covers the following subjects: Health, arithmetic, spelling, language and composition, reading and literature, geography, agriculture, penmanship, history, and civics.

**WASHINGTON.**—State examinations are given in all counties of the State under the State law relating to the powers and duties of the State board of education and the State superintendent of public instruction. The law is as follows:

**STATE BOARD OF EDUCATION, POWERS AND DUTIES OF THE BOARD**

No. 10: To prepare uniform questions for use in the examination of pupils of the State completing the grammar-school course of study, and to prescribe uniform rules and regulations for the conducting of such examination.

**QUESTIONS EXAMINATIONS**

It shall be the duty of the superintendent of public instruction at such times as he may deem it advisable, but not oftener than three times a year, to forward questions prepared by the State board of education for use in the examination of pupils having completed the grammar course of study, to fix the date for such examination, and to grant certificates of promotion to pupils successfully passing such examination according to the standard prescribed by the State board of education; which said certificate shall entitle the holder thereof to entrance into any high school of the State without further examination: *Provided*, That such examination shall be optional in any school district in which standard supervision is maintained in accordance with rules and regulations of the State board of education.

About 65 percent of the elementary school children are in schools having standard supervision and are, therefore, exempt from taking these examinations.

WISCONSIN.—Practically all of the counties of the State give eighth-grade examinations in the rural schools, the results of which are used in part to determine graduation from the elementary school. In several portions of the State, a number of the county superintendents have met in groups and have cooperated in the preparation of the examinations to be used in their particular group. The numbers of counties in each group range from 10 to 22. There are no State laws or regulations on the subject.

WYOMING.—The State department of Wyoming administers a State testing program in the rural schools in all counties of the State except one. This program includes testing in the eighth grade, the results of which are used in part in making promotions into the high school. The examination questions are made up under the supervision of the State department of education by a committee formed from the County Superintendents' Association. The tests are scored in the counties under the supervision of the county superintendent, and the test results are analyzed by the State department cooperating with the County Superintendents' Association. Distributions of scores are then sent back to the counties so that the results in each county and school may be interpreted. The Wyoming testing program is the result of a voluntary cooperative effort. A study of rural school organization by McLeod<sup>4</sup> has influenced the testing procedures in Wyoming. Her study was an evaluation of the methods used by rural schools in alternating certain subjects of the curriculum. In her study, history, agriculture, hygiene, and civics were alternated. This means that one year all seventh- and eighth-grade pupils were taught two of these subjects, and that the next year all seventh- and eighth-grade pupils were taught the other two subjects. McLeod evaluated this practice by comparing test results on the subjects alternated with the test results in arithmetic and language in which the instruction was not

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<sup>4</sup>McLeod, Beatrice. An Evaluation of an Alternate Plan of Rural School Organization. Ph. D. Thesis, University of Washington, 1933. (Unpublished.)

alternated. She found that alternation was no deterrent to learning. In working out her testing program for the evaluation she improved the methods of testing used in Wyoming.

#### CONCLUSIONS

From the foregoing descriptions of State testing programs several conclusions may be drawn:

1. So far as direct State laws are concerned the only purpose for the testing recognized is that of promotion. Other uses of test results are not mentioned. Regulations made by State boards of education, however, do mention other uses.

2. Since there are many States which give uniform examinations in the rural schools without direct statutory provisions therefor, it is evident that the school officials themselves advocate these examinations.

3. Most of the examinations used are based very definitely on the elementary course of study, and particularly on the seventh- and eighth-grade course of study. Even where standardized texts are used there is an attempt to justify their use by adding tests which cover the local course of study. For example, Idaho uses the regular Standard Graduation Examination, but has added to this examination two others—physiology and health, and Idaho history and civics.

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## CHAPTER III: ANALYSIS OF EXAMINATIONS USED

### TYPES OF EXAMINATIONS

**A** TOTAL OF 83 examinations were reported upon by States having State programs of testing and by counties in States not having a State-directed program. These may be classified into four general types:

(1) *The locally constructed unstandardized examination.*—This is one that has been more or less hastily thrown together and has had no preliminary try-out on sample groups to insure its being valid and reliable. The examinations constructed by the individual counties are usually of this type. There were 35 such examinations reported upon by States and counties.

(2) *The locally constructed standardized or partly standardized examination.*—This is the examination which has been constructed with considerable care. Usually a committee of subject-matter and test specialists handles the construction of the test. The examination is often tried out and the questions evaluated before being used. Most of the State-prepared examinations were of this type. The examinations reported upon which come under this classification are as follows:

Arizona elementary survey test	Ohio State contest
Indiana new-type test	Oregon State examinations
Minnesota State board examination	Wyoming State examinations
Regents examination (New York)	Comprehensive achievement tests for Texas

(3) *The nationally standardized achievement test.*—The names of these standardized tests and the number of times each was used in State testing programs or in county programs in States not having a State-directed program are as follows:

Name	Number of times reported
Stanford .....	14
Standard Graduation .....	13
Modern School .....	3
Unit Scales of Attainment .....	3

Name	Number of times reported
Metropolitan.....	2
Columbian.....	1
Pintner.....	1

(4) *The nationally standardized general mental ability test.*—There were only three different kinds of such tests reported and each was reported but once. They were (a) Henman Nelson, (b) Otis classification, and (c) Otis mental.

Very little expert direction in constructing the local tests was apparent. In a few cases test items were made up by members of staffs of teachers colleges; in many cases teachers in the schools in which the tests were to be given furnished test items; but in a large majority of cases the preparation of test items has been assumed by members of State departments of education and county superintendents' offices which were already heavily loaded with regular administrative or supervisory duties.

The preparation of unambiguous test items, fitted to the ability of the students to be tested as well as to the course of study, and a tryout of these test items are very important points in the preparation of examination questions. The locally constructed examinations show many types of poor questions. In view of the fact that they are not tried out beforehand, and because the questions often lack definiteness, it is almost certain that the examinations differ considerably in difficulty. Definite statistical proof is lacking, however.

Pertinent to this problem are the data gathered in regard to the percentage mark for passing set up by the county superintendents and the proportionate number of pupils who pass the examinations. The percentage mark of passing was fairly uniformly set by the different counties at 60 for individual subjects and 70 or 75 for the average of all the tests. Since most of these tests were of the objective type, if one examiner marked a paper 75 percent any other examiner would also mark the same paper approximately 75 percent. Parts of a few of the examinations were, however, of the essay type where variation might be expected. It may be reasonably assumed that, in general, the tests were objective and the marking strict.

36 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

Therefore, if 75 percent is the universally used passing mark, any difference in the number of pupils passing in the different counties would result either from (a) a difference in difficulty in the examination, or (b) a difference in the actual achievement of pupils, which in turn results either from differences in instruction or in the mental capacity of the pupils. Are there differences in the number of elementary school pupils passed or failed by these examinations? Table 1 gives the data for 60 counties reporting on this point. This table shows that the number of pupils passing ranges from 99 percent in one county to 60 percent in another county. Inversely this means that the failure rate varies from 1 percent to 40 percent. Since these examinations are all given in fairly large rural areas (counties), no great variation in the ability of pupils or the efficiency of the teachers should be evident. It seems probable therefore that the variation between counties in regard to the percentage of pupils passing the elementary school graduating examinations reflects mainly differences in the difficulty of the examinations.

TABLE 1.—PERCENT OF PUPILS REPORTED AS PASSING ELEMENTARY SCHOOL EXAMINATIONS IN THE 60 DIFFERENT COUNTIES REPORTING.

Percent	Number of counties	Percent	Number of counties
99	1	87	2
98	2	85	1
95	9	80	10
94	2	75	8
93	2	74	1
92	1	70	1
90	17	65	2
		60	1

TYPES OF TEST ITEMS FOUND IN LOCALLY CONSTRUCTED EXAMINATIONS

The nationally standardized tests used are made up entirely of new-type short answer test items. The locally constructed tests are also composed mainly of such test items. Some of the examinations, however, do have a few essay-type questions. There are, no doubt, many counties which still use essay-type questions entirely.

All of the common forms of new-type question items were found in the locally constructed examinations. The forms of questions used will be illustrated by items taken from the examinations submitted. Reference to these samples will be made later in the section devoted to methods suggested for the construction of test items and the improvement of examinations.

One or more illustrations of the different types of test questions follows:

**ESSAY TYPE:**

1. How did the United States come to possess Alaska?
2. Describe the act of 1883.
3. What memorable law was passed during Cleveland's first term?
4. What effect had the Western railroads on settlement?  
(From a history test.)

**DIRECT RECALL OR SINGLE ANSWER:**

Of the objective type questions this is most closely allied to the essay type. It consists of a direct question or its equivalent. The answer is definite but not suggested by the question. It is different from the completion item in that the answer does not occur as a part of or within the question itself. Sample:

Who wrote the following poems?

- A. Chambered Nautilus.....
- B. The Pied Piper of Hamelin.....
- C. The Raven.....
- D. Sir Galahad.....
- E. The Barefoot Boy.....
- F. Crossing the Bar.....
- G. In School Days.....
- H. The Recessional.....
- I. The Cowboy's Prayer.....
- J. America for Me.....

(From a reading test.)

**COMPLETION:**

This is defined as a sentence or longer passage which has a word or words omitted which must be supplied. Sample:

*Direction:* Fill in the appropriate terms.

In the New England colonies a large measure of self-government was attained through the -----; in the South through the -----.

(From a history test.)



38 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

ALTERNATE TESTS—TWO RESPONSES:

This is a test in which a pupil chooses one of two responses.  
Sample:

*Direction:* Underline one of the two grammatical forms given:

She asked, "Is it him / he who made the best record?"

(From a language test.)

ALTERNATE TESTS—TRUE-FALSE:

This is a test which presents a situation where the pupil is to react on the truth or the falsity of the matter presented.  
Sample:

*Direction:* In the space at the right of the questions write "F" if you believe the statement to be false and write "T" if you believe it to be true.

1. The eye should not be rubbed to remove a foreign body..... ( ) 1
2. Sneezing may be called an example of reflex action..... ( ) 2
3. Good health habits are most easily formed in childhood..... ( ) 3
4. Fresh air may be injurious to persons who are overworked..... ( ) 4
5. The cerebrum is the seat of the conscious mind. ( ) 5

(From a health test.)

MULTIPLE CHOICE:

A multiple choice item is one in which a statement or question is given which has several (more than two) completions or choices given, only one of which is correct. Sample:

*Direction:* Write the number of the best completion of the sentence in the space to the left of the item.

----- The Courtship of Miles Standish is a story about (1) Jamestown colony in Virginia, (2) Acadia in Newfoundland, (3) San Xavier Mission in Arizona, (4) Plymouth colony in Massachusetts.

MATCHING (MODIFIED MULTIPLE CHOICE):

Sample: Each person named below in column 1 is closely identified with some statement made in column 2. Place the number of the individual on the space by the related statement.

- |                         |                                     |
|-------------------------|-------------------------------------|
| 1. Florence Nightingale | ---- Vaccination for smallpox.      |
| 2. Louis Pasteur        | ---- Introduced nursing.            |
| 3. Edward Jenner        | ---- Bacteria the cause of disease. |
| 4. Walter Reed          | ---- Discovered blood circulation.  |
| 5. William Harvey       | ---- Found cause of yellow fever.   |
| 6. "Typhoid" Mary       | ---- Discovered insulin.            |
|                         | ---- Carried disease germs.         |

Among the variations of these standard types of test items the three following are typical:

**TYPE No. 1:**

Number the items in each of the following five groups in order of their occurrence in American history.

1. ( ) Laying the Atlantic Cable.  
    ( ) West Virginia admitted to the Union.  
    ( ) The Missouri Compromise.  
    ( ) The attack on Fort Sumter.
2. ( ) Settlement of Pennsylvania.  
    ( ) Marco Polo's voyage.  
    ( ) Settlement at Jamestown.  
    ( ) Settlement at Plymouth.
3. ( ) Discovery of gold in California.  
    ( ) The introduction of slavery into North America.  
    ( ) The Boston Tea Party.  
    ( ) Commodore Perry's visit to Japan.
4. ( ) The acquisition of Florida.  
    ( ) The acquisition of California.  
    ( ) The acquisition of Louisiana Territory.  
    ( ) The acquisition of the Philippines.
5. ( ) The era of water power.  
    ( ) The era of transportation by canal and rivers.  
    ( ) The era of business expansion.  
    ( ) The era of reconstruction of the South.

**TYPE No. 2:**

Faulty sentences. Each sentence below should be stated in better form. Rewrite each sentence correctly in the blank provided.

The school house is easily found coming down Elm Street.

1. ----- 1.  
We had ought to feed the wild birds in winter.
2. ----- 2.  
The lack of rain was why we raised poor crops.
3. ----- 3.  
An island is where the land is surrounded by water.
4. ----- 4.  
Having said goodbye, the car turned homeward.
5. ----- 5.  
My grandma she lives in Chicago.
6. ----- 6.

## 40 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

### TYPE No. 3:

A knowledge of the factors that have tended to develop one city may be used with profit for purposes of comparison in studying other cities. Under group 1 below are listed factors that promoted the growth of Seattle. In the blank spaces in group 2 compare Los Angeles with Seattle. Then answer questions numbered 8 and 9 regarding these two cities.

<i>Group 1</i>	<i>Group 2</i>
SEATTLE	LOS ANGELES
1. Has plenty of rainfall.	----- 1
2. Has a very productive hinterland.	----- 2
3. Has a splendid natural harbor.	----- 3
4. Has abundant waterpower near at hand.	----- 4
5. Has coal nearby.	----- 5
6. Is well situated for trade with Alaska and Asia.	----- 6
7. Has several trunk railroads con- necting it with the East.	----- 7
8. Which is the larger city?	----- 8
9. What is the most important reason for its greater growth?	----- 9

### RELATION OF THE GRADUATING EXAMINATIONS TO OTHER TESTING PROGRAMS

At the time that elementary school graduating examinations were first introduced and for some time thereafter there were no other formal examinations or tests beyond those set by the individual teacher in the classroom. It is therefore interesting to note not only the influence of new-type testing on the kind of questions now used in the graduating examinations, but also any relationships appearing between these graduating examinations and other new-type testing or standardized testing work of the school. No special attempt was made in this study to get descriptions of testing programs for the elementary school as a whole. Those reported are programs of testing so closely knit to the graduating examinations that the one could not be easily reported without mentioning the other.

The programs in most cases followed one of the three following plans:

*Plan No. 1.*—End of year achievement testing programs in the upper elementary grades (grades 4 through 8).

A standardized elementary school test battery was the commonly used kind of test in such programs. Sometimes only one or two subjects are tested, such as reading and arithmetic. The main use for such achievement testing seems to be in determining promotion.

*Plan No. 2.*—Testing program at the beginning of the year in the upper elementary grades (grades 4 through 8). Standardized elementary school test batteries were also the commonly used kind of examination in these testing programs. In some cases testing is carried on in some one subject which is to be the objective of a special study or drive for the year. The objective for giving tests at the beginning of the year is generally for supervision and the placement of pupils.

*Plan No. 3.*—Tests given at certain intervals during the school year. For this standardized or locally constructed tests are used. All or only a few subjects are tested. The chief purpose is to diagnose pupil and class difficulties so that instruction may be modified.

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## CHAPTER IV: EVALUATION OF AND SUGGESTIONS FOR ELEMENTARY SCHOOL EXAMINATIONS

THE previous chapters have presented the situation over the country with regard to elementary school graduation examinations. Some educators are opposed to these formal elementary school leaving examinations; others believe they are necessary. This chapter will attempt to discover the practical objectives of elementary school examinations, to discuss their value in the last year of the elementary school, and to present suggestions for an improved program of testing.

### USE OF GRADUATION EXAMINATIONS FOR SUPERVISION OF TEACHERS

In order to understand the uses which may be made of tests in the elementary school it is necessary to consider carefully the school situation. Rural and village schools of the United States are frequently without adequate supervision. The same can also be said for many city schools. Teachers in the rural schools vary considerably in their training. Some have little or no training beyond the elementary school itself, whereas others have degrees obtained from teachers colleges and universities. There is little uniformity between the different parts of the country in regard to the training of teachers. Are elementary school examinations useful for supervision of these elementary school teachers with their varied background of training? There seems to be a difference of opinion among educators in the matter. In one State the State supervisor in charge of rural education states that these examinations have been discontinued because of adequate supervision and the high quality of the teachers. In another State the supervisor of rural education states that examinations can be held to advantage in certain counties because rural supervisors have been placed in those counties. Actually the situations are entirely differ-

ent in the two States. In the first State very long and formal examinations had been arbitrarily administered in rural schools without any effort being made to coordinate these examinations with the more modern course of study the teachers were trying to follow. In this case omitting the examination was a progressive step. In the other State the rural supervisors were in close touch with their schools and introduced the tests as a part of a coordinated plan of supervision. This also proved to be a progressive step.

GRADUATION EXAMINATIONS IN RELATION TO THE  
"ESSENTIAL" ELEMENTS OF EDUCATION

The elementary school, more than any other of the segments of our school system, must teach the fundamentals of skills, knowledge, and appreciation insofar as these fundamentals are sensed by curriculum makers. The elementary school graduation examination has been used to determine what proportion of these fundamentals the pupils have acquired. That proportion has been arbitrarily set by school officials and until recent years has been the same for all pupils in any one school system. About two decades ago, however, the elementary schools began to liberalize their strict insistence that all pupils master the curriculum at the same rate. It was found that due to differences in ability among individual pupils the acquisition of the fundamentals required varying time periods for different pupils. By removing some of these arbitrary standards failures have been reduced in the elementary school.

Coincident with the liberalization of the elementary school has been the growth and development of the junior high school, based on the idea that the boys and girls of about the age of 12 to 15 (pupils generally found in the seventh and eighth grades and the first year of high school) require an opportunity to sample a wider type of experience than that found either in the last 2 years of the elementary school or the first year of the usual high school. The experience sought for these pupils was one which would broaden their knowledge in many fields, give them

a chance to explore prevocational fields, and help them to develop desirable social traits. It was felt that the continued emphasis in the seventh and eighth grades on the skill subjects with the quick transition into entirely different subject fields in the high school was not the best procedure for pupils.

These changes in elementary and early secondary education have changed our concept of the "essential" elements in education. The essentials of education which the pupil must acquire have come to be influenced by two factors in the pupil—his age and his ability to learn. If the ability of the pupil is such that the rate of learning is so low as to preclude his graduating with 1, or at the most, 2 years of retardation, then graduation should take place on the basis of age and number of years in school, not on the basis of his ability to pass a standard examination. It therefore follows that the strict adherence to a certain standard of achievement for all pupils as an absolute standard for graduation is not justifiable.

What then is the function of formalized testing in the elementary grades? According to the general principle just discussed, which insists that the child be adjusted to the curriculum in accordance with his interests and abilities, testing becomes an instrument to be used in the placement of pupils; in the individual and class diagnosis of strengths and weaknesses; in checking on the achievement of the class as a whole; and in checking the progress of the individual compared with his expected achievement.

#### SUBSTITUTION OF A BROAD PROGRAM OF TESTING FOR GRADUATING EXAMINATIONS

Studies have shown that results on well-constructed examinations in the elementary school do predict, within limits, success in high school, just as they do success in elementary school subjects. Elementary school teachers' marks also predict high-school success with a fair degree of accuracy. The position taken in this bulletin in regard to elementary graduation examinations is that testing at other times during the elementary school grades will furnish as good, if not a better, basis for guidance in the secondary school, and at the

same time the results can be used immediately for instructional purposes.

The trends in modern education emphasize that children should be studied and education adapted to their needs. Under this conception of education testing becomes something which should go along with each step in the educational process so that each pupil will always have the optimum chance for learning. The tendency of teachers in those schools which rely largely on graduating examinations to neglect the work of the lower grades and concentrate their efforts on the pupils who are going to take the examinations is another factor which bears out the statement that testing should be done at strategic points throughout the course rather than concentrated at the end.

The amount of testing which should be carried on will depend largely upon the resources of the school and the ability of principals, supervisors, and teachers to make use of test results. If only one test can be given in the elementary school it is suggested this be at the end of the fifth grade or the beginning of the sixth grade. It is at that point that pupils have been exposed long enough to various educational influences to make a score on different lines of activity meaningful. Also, there is time left in the elementary school to do something about the test results.

Assuming that the fundamental subjects are tested at this level, or at spaced intervals, what uses can and should be made of the test results? In the first place, they may be used for a better understanding of the individual pupil: (a) The pupil's general level of achievement in all subjects as indicated by the test results may be used as a guide to his general placement in the class, i. e., to determine whether the group with which he works is the one for which he is best fitted. (b) The pupil's achievement in each subject should be investigated. If he is found to be weak in a subject the causes should be sought, and if they are remediable appropriate instruction should be given. If he is found to be especially good in any subject or subjects he should be encouraged in his work in those subjects. In some cases his interest in one subject may be used to stimulate interest in another. (c) In each subject the tests may show the particular points in



which the pupil is weak. Instruction may, as a result, become more efficient. (d) The score on each of the tests and the average score should be recorded for use whenever the long-time guidance of the pupil is involved.

Test results may also be used in studying the class as a whole. (a) They will show the general level of achievement and thus indicate the general level of instructional activity to be pursued. (b) The average scores by subjects will indicate specific weaknesses and strengths of the class as a whole and provide thereby a lead as to the need for remedial instruction as a class procedure.<sup>1</sup>

In those States in which the State law requires an elementary school graduating examination the test results should be used with other data in guiding the pupil into the type of high school and the course in high school best fitted to his needs, interests, and abilities. It cannot be emphasized too strongly that if a testing program using valid tests is used in the various grades of the elementary school very little can be gained, so far as the prediction of success in high school is concerned, by giving an achievement test at the end of the elementary school period.

#### SELECTION OF STANDARDIZED TESTS FOR A BROAD PROGRAM OF TESTING

The use of standardized tests has been of value in some rural schools because the areas of subject matter covered by the tests have been greater than those taught by the teacher, thus influencing the teacher to broaden her instructional approach. It has been pointed out so often that the use of tests for the rating of achievement might influence the teacher to restrict her teaching to the areas covered by the examination, but the converse influence—that good tests can show teachers new content or objectives—has been almost entirely lost sight of. It is admitted that this must not be the primary purpose in using tests, since they should not take the place of the written course of study.

As was shown in the previous chapter, both standardized and unstandardized tests have been used in the elementary

<sup>1</sup> List A in the bibliography is a short selected list of references on the use of test results.

leaving examinations. The standardized tests used were of three types: (a) The standard graduation examination—a test battery made up especially for elementary school pupils who are about to graduate; (b) elementary school test batteries; and (c) intelligence tests. If only a prediction of aptitude for high-school work is desired, the intelligence test is a fairly good instrument. However, since the standardized achievement test in general gives so much more information of value in guidance, if one test is to be given, it is recommended that an elementary test battery be used. Elementary school test batteries cover several elementary school grades, usually all the grades above the second. These tests have national norms and the question items are based as far as possible on the common elements found in typical elementary school curriculums over the country. Most of these standardized intelligence and achievement tests have been carefully constructed. A list of available tests batteries, including the standard graduation examination, follows:

**Every pupil primary achievement test.** Published by the Bureau of educational measurements, Kansas State teachers college, Emporia, Kans.

For grades 1-3. Two forms.

Subjects tested: (a) Arithmetic computation; (b) reading arithmetic; (c) sentence spelling; (d) word knowledge; (e) sentence understanding; (f) paragraph meaning.

**Illinois examination.** Published by the Public school publishing company, Bloomington, Ill.

No. 1 for grades 3-5, inclusive.

No. 2 for grades 6-8, inclusive. Two forms each.

Subjects tested: (a) Arithmetic; (b) silent reading; (also general intelligence).

**Indiana composite achievement test.** Published by the Bureau of cooperative research, University of Indiana, Bloomington, Ind.

For grades 7 and 8.

Subjects tested: (a) Arithmetic; (b) American history; (c) Indiana history; (d) civics; (e) geography; (f) language; (g) reading; (h) physiology; (i) spelling.

**Metropolitan achievement tests.** Two editions: National, and New York city. Published by the World book company, Yonkers, N. Y.

Primary I. For grade 1. Three forms.

Subjects tested: (a) Word picture; (b) word recognition; (c) word meaning; (d) numbers.

Primary II. For grades 2 and 3. Three forms.

48 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

Metropolitan achievement tests—Continued.

Subjects tested: (a) Reading completion; (b) paragraph meaning; (c) vocabulary; (d) arithmetic fundamentals; (e) arithmetic problems; (f) language; (g) spelling.

Intermediate. For grades 4-6. Five forms.

Subjects tested: (a) Spelling; (b) reading; (c) vocabulary; (d) arithmetic problems; (e) arithmetic fundamentals; (f) language usage; (g) punctuation and capitalization; (h) literature; (i) history and civics; (j) geography; (k) spelling.

Advanced. For grades 7 and 8. Five forms.

Subjects tested: As in the Intermediate battery, and in addition, grammar.

Modern school achievement tests. Published by the Bureau of publications, Teachers college, Columbia university, New York city.

For grades 3-8. Two forms.

Subjects tested: (a) Reading comprehension; (b) reading speed; (c) arithmetic computation; (d) arithmetic reasoning; (e) spelling; (f) health knowledge; (g) language usage; (h) history and civics; (i) geography; (j) elementary science.

New-South achievement tests. Published by the Steck company, Austin, Tex.

For grades 4-7. Three forms.

Subjects tested: (a) Language; (b) literature; (c) spelling; (d) vocabulary; (e) reading comprehension; (f) social studies; (g) knowledge of physical education; (h) arithmetic reasoning; (i) arithmetic computation.

New Stanford achievement test. Published by the World book company, Yonkers, N. Y.

Primary examination for grades 2 and 3. Five forms.

Subjects tested: (a) Paragraph meaning; (b) word meaning; (c) computation; (d) arithmetic reasoning; (e) dictation (spelling).

Advanced examination for grades 4-9, inclusive. Five forms.

Subjects tested: (a) Paragraph meaning; (b) word meaning; (c) dictation (spelling); (d) arithmetic reasoning; (e) arithmetic computation; (f) literature; (g) history and civics; (h) geography; (i) physiology and hygiene; (j) language usage.

O'Rourke attainment tests. Published by the Educational and personnel publishing company, 3506 Patterson street NW., Washington, D. C.

For the elementary grades.

Subjects tested: (a) Vocabulary; (b) arithmetic fundamentals; (c) arithmetic reasoning; (d) language.

Plitner educational achievement test. Published by the Bureau of publications, Teachers college, Columbia university, New York city.

For grades 4-8, inclusive. Four forms.

Pintner educational achievement test—Continued.

Subjects tested: (a) Information (geography, history, health, civics, etc.); (b) spelling; (c) arithmetic (computation and problems); (d) vocabulary; (e) reading.

Pressey second grade attainment scale. Published by the Public school publishing company, Bloomington, Ill.

Two forms.

Subjects tested: (a) Spelling; (b) arithmetic (fundamental operations and problems); (c) silent reading (rate and comprehension).

Progressive achievement tests. Published by the Southern California school book depository, Los Angeles, Calif.

Two forms.

Primary battery. For grades 1-3.

Elementary battery. For grades 4-6.

Intermediate battery. For grades 7-9.

Subjects tested: (a) Vocabulary; (b) reading comprehension; (c) arithmetic reasoning; (d) arithmetic fundamentals; (e) language (includes spelling and handwriting).

Public school achievement tests. Published by the Public school publishing company, Bloomington, Ill.

Battery A, for grades 3-8, inclusive. Four forms.

Subjects tested: (a) Reading; (b) computation; (c) arithmetic reasoning; (d) language usage; (e) spelling.

Battery B, for grades 6-8, inclusive. Four forms.

Subjects tested: (a) Grammar; (b) history; (c) geography.

Battery C, for grades 4-8, inclusive. Four forms.

Subjects tested: (a) Nature study; (b) health.

Standard graduation examination. Published by the World book company, Yonkers, N. Y.

A new form each spring. For use with elementary school graduating pupils in either 7- or 8-grade school systems.

Subjects tested: (a) Spelling; (b) reading comprehension; (c) vocabulary; (d) arithmetic computation; (e) arithmetic reasoning; (f) grammar; (g) language usage; (h) literature; (i) history; (j) geography.

Unit scales of attainment. Published by the Educational test bureau, Minneapolis, Minn.

Three forms.

Division I for grades 3 and 4.

Division II for grades 5 and 6.

Division III for grades 7 and 8.

Subjects tested: (a) Reading; (b) geography; (c) literature; (d) elementary science; (e) American history; (f) arithmetic problems; (g) arithmetic—fundamental operations; (h) spelling; (i) English—capitalization; (j) English—punctuation; (k) English—usage.

## CONSTRUCTION OF ELEMENTARY SCHOOL TEST BATTERIES

Many schools prefer to construct their own tests rather than to use standardized ones. They say: (1) the cost of locally constructed tests may be less; (2) the subject content of the standardized tests does not fit the course of study sufficiently to be acceptable; and (3) there may not be a sufficient number of comparable forms of the test. The last reason would not apply to the Standard Graduation Examination, since a new form is issued every year.

The making of valid and reliable tests necessarily requires personnel familiar with the essential elements of test construction. Basically, personnel for test construction is needed which has (a) knowledge of the course of study, (b) skill in construction of test items, (c) technical knowledge sufficient to make an internal validation of test items, i. e., ability to figure difficulty of individual items and from such difficulty indexes judge the validity of the items, and (d) knowledge and practice in interpreting test results. No one person is expected to have skill in all four factors mentioned. The personnel for (a) may be found among supervisors in city schools, instructors in teachers colleges, supervisors in State departments of education, specialists in curriculum construction in universities or city school systems, and among the classroom teachers. The personnel for (b) and (c) may be found among instructors in colleges and universities. The personnel for (d) may be found among instructors in colleges and universities, supervisors in State departments of education, and in county superintendents' offices. There are many teachers who are qualified to construct examinations. The foregoing suggestions of personnel are made not only with the idea in mind of suggesting where qualified persons might be obtained, but also those who would have the time to undertake work of this nature.

The central control of the test construction work should ordinarily rest in the same authority that is responsible for the administration of the testing program. In most States this is the State department. Where the State department of education is fairly well equipped it is the logical place for centralizing this work. In some States the State university or some association of teachers col-

leges should function well as a central agency. It seems probable that single counties should not attempt to construct test batteries if particularly reliable instruments are desired. Facilities for constructing tests are lacking and persons available for their construction are in the main those who have heavy responsibilities in connection with supervision and administration of the schools of the county. It is recommended that the unit of administration for constructing tests be a State or some similar-sized unit.

The most important steps in the construction of a test are here outlined. It will be assumed that the test to be constructed is one which covers grades 4 to 8.

**STEP 1. SUBJECT FIELDS FROM WHICH TO SELECT TEST ITEMS.**—The importance of each subject field in the courses of study for grades 4 to 8 must be first determined. This should result in a tentative outline of the tests and subtests to be constructed, which will include the approximate number of test items desired in each section. There should be about twice as many test items constructed for the initial test as are expected to be used in the final form of the examination, which should include from 40 to 60 test items. In arithmetic fundamentals and arithmetic problems the number will necessarily be less—from 20 to 40 items each being satisfactory. At the same time that the number of items to be used is determined, the type of test item, i. e., multiple choice, sentence completion, simple recall, matching, etc., must be tentatively decided upon for each subject. The number of test types for each subject examination should be restricted to one or two. The number of different types for the whole examination should be kept to a minimum.

**STEP 2. CONSTRUCTION OF TEST ITEMS.**—This step involves the initial construction of test items in each subject. In some subjects the field should be analyzed into important subtopics and the test items constructed should be apportioned among these topics. This would be true in such subjects as history, geography, and health. In a skill subject, as reading, the important thing is to get a graded series of exercises. Samples of different types of tests found

in elementary school graduating examinations have already been given.

The following rules for constructing the main types of test items have been adapted from Rinsland's manual on test construction.<sup>2</sup> His manual gives sample items in practically all subjects of the curriculum.

#### RULES FOR CONSTRUCTING MULTIPLE CHOICE ITEMS

1. Be sure to use 4 or 5 choices in each item. If ideas or items do not lend themselves to about 5 choices, omit them or change them to test a little different phase of the same point. Four choices are satisfactory to grade 5; 5 choices from grade 5 up are preferable.

2. Use choices which might be plausible answers; if obviously silly choices are included, the real thinking situation is reduced to only 2 or 3 choices.

3. Be sure that *each* choice is in the same grammatical form as the main part of the question and makes complete *grammatical* sense when used alone with it.

4. Be sure that *only one* of the choices is correct, according to every possible interpretation, all authorities, and dates.

5. Do not try to test points acknowledged to be disputed by authorities or varying from time to time.

6. Avoid wording questions and choices so that the answer is perfectly obvious. The question should be a test of subject matter and not just common sense.

7. Word questions in the simplest possible manner.

8. Where possible, keep the choices short. Where it does not alter the point being tested, long wordy choices can be avoided by transposing the question.

9. Avoid the use of "a" or "an" as a final word before the listing of the choices, as these words are definite clues to the correct answer. If all choices do not go with one or the other of these articles, place the proper article at the beginning of each choice.

<sup>2</sup> Rinsland, H. D. *Manual for Constructing Objective Tests and Improving Grading in Elementary and High School Subjects*. St. Louis, Mo., John S. Swift Co. Rev. ed., 1935.

10. Make the first, second, third, etc., choices the correct response in about equal numbers. Do not allow the correct response to occur in the same position for more than 2 or 3 successive items, but do not allow a regular cycle.

#### RULES FOR CONSTRUCTING SENTENCE COMPLETION ITEMS

1. The greatest difficulty in making up this form is to make the sentences definite. In some cases different answers may fill the blank and make true and correct statements. In other cases the same answer may be stated in different ways. On the other hand, items should not be so worded that the answer is perfectly obvious.

2. The number of blanks in a single sentence affect the difficulty of an item; the larger the number of blanks, the more difficult, other things being equal. So many words may be omitted that there are not sufficient words left on which to build any thought.

3. Do not make up completion items by simply taking excerpts from a text, then omitting occasional words. Compose the sentence with some central or *key* word or phrase omitted.

4. The best mechanical arrangement of the completion is to number the blanks within the sentence and then provide correspondingly numbered blanks to the right in which the words or phrases are to be written. This facilitates scoring.

5. Make the directions to the pupil clear and distinct. The following is a wording found clear to all pupils above the fourth grade:

*Directions.*—In each of the sentences below one or more words, numbers, or dates are needed in the numbered spaces to make the sentences complete and true. Place the word or words in the correspondingly numbered blank to the right.

#### RULES FOR CONSTRUCTING SIMPLE RECALL ITEMS

1. There are three possible forms of simple recall. The first is a simple short (objective) answer to a direct question; the second is a test item that instructs the student to name something or give specific information; and the third gives a stimulus word or phrase.



## 54 ELEMENTARY SCHOOL GRADUATION EXAMINATIONS

2. Many of the questions of the old essay examination are either simple recall which have simple definite answers, or they can be broken up into several recall items. When this is done the test is made objective if each separate response contains one point.

3. The response should call for definite subject-matter information. If the response can be determined by general intelligence the test will not measure subject-matter knowledge.

4. If it is impossible for the response to call for a single word, phrase, or number when there are phrases that are excellent answers, the key of answers must contain every possible correct response or the test should be rewritten in another form.

5. When the test items are worded as questions and statements for the student to recall (as mentioned under no. 1 above) it is better to put all of the questions together in one group, and all of the statements together in another group.

### RULES FOR CONSTRUCTION OF MATCHING ITEMS

1. The best arrangement of matching items is to place together questions requiring the *same type* of answer, thus not mixing in the right-hand column entirely different types of answers, which reduces the number of plausible choices and ultimately resolves the exercise into a multiple choice with only 2 or 3 choices for certain items. For example, such items as:

1. ( ) We learned to swim. The italicized part is called an  
----- phrase.
2. ( ) Robert Louis Stevenson wrote -----

The first tests grammatical forms, and the second, which tests the knowledge of authors and their works, requires an answer of an entirely different category. Each matching group should sample the same general type of responses. The number of responses should always exceed 4 or 5, since that number is used in multiple choice form, and the principal advantage of the matching is that it offers more choices than the multiple choice.

2. Do not try to match items which have only a vague connection, and be sure the connection between the items of the two columns is clear. A sample of good matching is:

- |  |                   |
|--|-------------------|
| 1. ( ) The man who crossed the Isthmus of Panama and discovered the Pacific was _____. | 1. Balboa.        |
| 2. ( ) The new leader chosen to lead De Soto's men into Mexico was _____.              | 2. Cartier.       |
| 3. ( ) The man who explored Florida searching for a "fountain of youth" was _____.     | 3. Columbia.      |
| 4. ( ) The chief of the Aztec Indians of Mexico was _____.                             | 4. Cortez.        |
| 5. ( ) Labrador was probably discovered by _____.                                      | 5. Eriasson.      |
| 6. ( ) America might have been better called _____.                                    | 6. Moscoso.       |
| 7. ( ) In 1535 the St. Lawrence River was explored by _____.                           | 7. Montezuma.     |
|  | 8. Pizarro.       |
|  | 9. Ponce de Leon. |
|  | 10. Quivira.      |

3. Put more items in the column from which the choices are being made than in the other, if possible. This gives an opportunity for putting in a few wrong choices, but these wrong choices should be *real* and sensible.

4. Check to see that *only one* word in the choices given (right column in the sample) could possibly fit in the blank in each sentence and make a true statement.

Rules for constructing true-false test items will not be given, as such items are not recommended for use in the elementary school.

A point which should be emphasized in the construction of test items is that all the objectives set forth for each subject should be tested, if possible. By this is meant that the tests should cover more than a bare knowledge of facts; they should cover knowledge of principles, the correct application of principles, the ability to locate material relevant to the subject, and the skills necessary to the proper study of the subject. In some subjects other objectives, such as appreciation and attitudes, may also be important. If tests are constructed covering these various objectives the examination will not only be a better test both of general achieve-

ment and for diagnostic purposes, but will serve in some degree as a reminder to the teacher that there is more than one type of objective to the courses she teaches.

**STEP 3. SECURING RELIABILITY AND VALIDITY.**—Reliability is the degree of consistency with which a test measures whatever it actually does measure, while validity is the degree of accuracy with which a test measures what it claims to measure. The statistical measure of reliability is the coefficient of correlation between scores made by the same set of candidates in two equivalent forms of the test or between two approximately equal parts of the same test corrected for attenuation. The statistical measure of the validity of a test is the coefficient of correlation between test scores and an accepted criterion.

*Reliability.*—The reliability of a test is increased as the validity of the test is increased. For this reason the matter of validity is emphasized in this bulletin, since this is the economical method of securing the best possible tests. For the best diagnostic work it is important to know the reliability coefficient.<sup>3</sup>

*Validity.*—Since usually no satisfactory measure of the subjects to be tested already exists in the local situation, it is not recommended that any coefficient of correlation to indicate validity be calculated. Care in all the steps mentioned here for the construction of test items and tests will improve the validity of the tests. In this step the special statistical methods for determining and improving the validity of tests are given. These are as follows:

After the tests have been constructed they should be tried out in the various grades for which they are intended. It has been assumed here that a test battery for grades 4 to 8 is being constructed. Typical grades should be chosen for this try-out. For good results there should be about 100 pupils tested in each of the 5 grades. The percentage of passing on each item of each test through all five grades should be compiled. Those items are most valid which show

<sup>3</sup> The method for calculating the coefficient of correlation is given in U. S. Office of Education Bulletin, 1934, no. 15, *The Prediction of Success in College*. Washington, U. S. Government Printing Office.

an increased percentage of passing through the grades. Also the average difficulty of the test items as a whole should be about 50 percent, i. e., a test item has the best discriminatory power when about half the pupils get it right and about half get it wrong. The ideal condition for a test to be used to cover grades 4 to 8 would be to have some items which are of 50-percent difficulty for fourth-grade pupils, some items of 50-percent difficulty for fifth-grade pupils, etc., up through the eighth grade.\* A few items which will be passed by most fourth graders and a few items which are very difficult for eighth graders should also be included. The ideal distribution of items is illustrated for a 50-item test in table 2.

TABLE 2.—SUGGESTED DISTRIBUTION OF TEST ITEMS ON THE BASIS OF DIFFICULTY FOR A TEST COVERING GRADES 4 TO 8 (50 ITEMS)

Number of test items	Percent of difficulty by grades				
	4	5	6	7	8
3.....	20	15	10	5	0
4.....	35	27.5	20	12.5	5
7.....	50	40	30	20	10
7.....	60	50	40	30	20
8.....	70	60	50	40	30
7.....	80	70	60	50	40
7.....	90	80	70	60	50
4.....	95	87.5	80	72.5	65
3.....	100	95	90	85	80
Average for 50 items.....	68.0	59.0	50.0	41.0	32.0

*Explanation.*—The table suggests that the test items be so constructed that in the fourth grade 20 percent of the pupils will fail on 3 items, 35 percent of the pupils will fail on 4 items, 50 percent of the pupils will fail on 7 items, etc. The figures for the other grades are to be read in a similar manner.

For a subject which does not run through several years the method of getting valid test items through a decrease in difficulty does not, of course, apply. For a test which is given in one grade only, one of the methods of internal validation may be used. These various methods have been brought together in a technical bulletin by Long, Sandiford,

\*For a discussion of test-item difficulty see: Symonds, P. M., Choice of Items for a Test on a Basis of Difficulty. *Journal of Education Psychology*, 20: 481-493, October 1929.

et al.<sup>5</sup> In general the method of internal validation consists of finding the validity of each item in discriminating between pupils of different levels of ability. Discriminating power may be defined as the degree to which success or failure on the item is in itself indicative of ability in the general function presumed to be measured by the test as a whole. An item is perfect in discriminating power when any pupil who responds correctly to it ranks higher in the appropriate ability than any pupil who responds incorrectly. One of the simple methods of doing this is as follows:

1. Arrange the test papers in order of the size of the total test scores.
2. Divide the papers into two groups—one the poorest 27 percent of the papers and the other highest 27 percent of the papers. Discard the other papers.
3. For each of these 2 groups, examine each item of the test, making the following three calculations in respect of it:
  - (a) The percentage of good pupils passing the item.
  - (b) The percentage of poor pupils passing the item.
  - (c) Subtract (b) from (a).

If this is done the validity of each item may be judged by the size of the difference obtained in (c). An example of the first few test items following this procedure might be as follows:

Item	Percentage of right answers		Difference
	Highest 27 percent	Lowest 27 percent	
1.....	46	72	-26
2.....	8	9	-1
3.....	80	50	30
4.....	75	42	33
5.....	33	33	0
6.....	18	5	13
7.....	64	53	11
8.....	98	95	3

The validity of items 3, 4, 6, and 7 is good, since the good pupils pass with considerably greater frequency than the poor pupils. Items 2, 5, and 8 appear to have little discriminating

<sup>5</sup> Long, J. A.; Sandford, P.; et al. *The Validation of Test Items*. Bulletin no. 3, Department of Educational Research, University of Toronto, Toronto, Canada.

power, while with item 1 the poor pupils do actually better than the good pupils. While investigating the validity of test items by this method the average percentage of right answers or failures for all pupils may also be calculated. Items that average about 50 percent in difficulty are to be preferred over others.

On the basis of the results of the item difficulty count, the final test for each subject may be arranged. The percentages given here would be most applicable if the tests were given at about the middle of the year. If the tests are given at the beginning of the year the percentages of difficulty should be a little higher, and if the tests are given at the end of the year the percentages should be lower.

Since the examination is designed to encourage the pupil to do his best, the highest validity is secured by a steady performance on the part of the pupil. The steadiest performance is probably obtained when the pupil is working at his maximum capacity. Therefore the questions should be arranged in order of increasing difficulty, since this is perhaps the best method of securing the pupil's interest and effort. If the pupil succeeds with the earlier and easier questions, he is encouraged to continue his efforts with the later and more difficult ones.

If it is desired to have definite norms established before the test is given over a wide area, this final test should be given to a sufficient sample in each grade. A table of grade equivalents can then be worked out. Although this enhances the immediate value of the tests it is not a necessary part of the preliminary work, since such grade equivalents can be quickly worked out from the regular testing results and sent to teachers for use in interpreting test scores.

The time necessary for the various tests can be judged from the time it takes the pupils to finish each test in the preliminary try-out. These time limits should be generous. The time allowed on the whole test battery should be such that the test can be administered easily during one school day. There should be definite time limits on the different subjects to insure an even distribution of effort over the different subjects of the curriculum.

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## CHAPTER V: SUMMARY OF FINDINGS AND RECOMMENDATIONS

### FINDINGS

1. **Extent of the use of elementary school graduating examinations:**

(a) **Twenty-one States administer State-wide examinations at the end of the elementary school period as an aid in determining eligibility for graduation.**

(b) **In 16 other States all or some of the counties administer graduating examinations on a county-wide basis.**

2. **State and county official regulations regarding elementary school graduating examinations:**

**Some States have statutory regulations for the administration of examinations on either a State-wide basis or in counties in the rural and village schools. In other States the State boards of education have set up regulations for such examinations. Where the State boards of education make their own regulations the elementary school graduation examinations are sometimes given in all the schools of the State. In States not having mandatory regulations concerning these examinations some of the counties have given examinations over such a long period of time that the custom has become as strong as law.**

3. **Types of examinations used and subjects tested:**

**Standardized elementary school test batteries are used in some States. For the most part, however, locally constructed tests are used. The subjects tested usually include arithmetic, reading, spelling, English, history and civics, geography, and physiology and hygiene. The examinations are invariably based upon the State course of study.**

#### 4. Methods of constructing examinations:

Committees of subject-matter specialists and experts in test construction collaborated in constructing some of the examinations. In such cases the test items were carefully selected. Sometimes a revision was made of the test items selected by trying out the items on a small group. Most examinations, however, have been made up without much analysis of the course of study; without preliminary study of the test items; and without a try-out of the material.

#### 5. Types of questions:

The standardized tests are composed of the new-type, short answer test items. The locally constructed examinations were also in the main of this type. A few examinations are still composed entirely of essay-type questions. Many of the questions are good. There are, however, many test items, which although adhering to the new-type form, are poorly worded.

#### 6. Validity of the test results:

The validity of the test results is necessarily dependent in part upon the methods used in constructing the examinations. The validity of these examinations for use in determining eligibility for graduation from the elementary school also is dependent upon the comparability of the scores on the examinations for different years. Except for the standardized tests, no such comparable scores or arrangements for finding comparable scores were reported. Since the new examinations constructed year after year have no known comparability, the percentage of pupils passing differs year by year. Actually these tests furnish no definite standard for promotion.

#### 7. Relation of the elementary school graduating examination to other testing programs of the school.

In most schools the graduating examination was the only formal type of testing carried on in the school. However, in some States and counties this final examination was but a part of a broader program of testing carried on through several or all of the elementary grades.



## RECOMMENDATIONS

1. That examinations which are used mainly to determine eligibility for graduation from the elementary school be discontinued.
2. That legislation be secured which will give the authority to make rules and regulations regarding the accrediting and supervision of elementary schools to the State boards of education. Such authority will make possible a flexibility in the testing program of each State.
3. That in those States where a need for better pupil guidance, knowledge of individual differences, or a check upon the efficiency of the curriculum is felt a testing program be established. Some suggestions regarding the important points of such a program are as follows:
  - (a) An examination to be used in rural and village schools over a whole State or large portion of the State.
  - (b) An examination which covers several of the elementary school grades. If only one grade can be economically tested, this should be the sixth grade in 8-year elementary school systems or the fifth or sixth grade in 7-year elementary school systems.
  - (c) An examination which is constructed by a committee of test specialists and subject-matter specialists appointed for the purpose.
  - (d) An examination which covers as many of the objectives of the subjects tested as possible.
  - (e) As far as possible the tests should be constructed so that the diagnosis of pupil weaknesses and strengths can be made in order that remedial instruction may follow.
4. The teacher should give and score the examination under the direction of the county superintendent and the State department of education. The scores for the different pupils should be made available to the county superintendent for use in compiling average scores by grades and in the supervision of instruction.

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