

A COMPARISON OF THE USE VERSUS NON-USE OF COMPETITIVE
MARKING AND OF FORMAL VERSUS CHILD-CENTERED
METHODS OF TEACHING IN THE FIELD
OF PUBLIC SCHOOL ART

Conclusions Drawn From A Set Of Experimental Units
In Art Conducted In The Sixth And Seventh Grades
Of The Laboratory School Of Southwest Texas State
Teachers College, San Marcos, Texas

Approved:

E. O. Wiley
E. O. Garner
Sue Taylor

Approved:

Hubert H. Rolfe
Chairman of the Graduate Council.

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THESIS

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the Requirements

For the Degree of

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By

Margaret Kyle McClung Walker, B. S.

San Marcos, Texas

San Marcos, Texas

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FOREWORD

This study has been made possible by the assistance and cooperation of many people. Among these, the writer is indebted especially to Dr. Edward Orlando Wiley of the Southwest Texas State Teachers College, San Marcos, Texas, under whose immediate direction, as chairman of the committee, the study was made. His help and inspiration so generously given, his untiring assistance and encouragement in carrying the study to completion are gratefully acknowledged. Also, special acknowledgment is made of the whole-hearted cooperation and aid of Miss Sue Taylor, of the English department of Southwest Texas State Teachers College and of Dr. Eugene O. Tanner, a member of the department of Social Sciences in the college. These members of the committee contributed valuable time and energy in checking the manuscript and were unflinching in their courtesy and enthusiasm. Their assistance was immeasurably helpful, and the writer is deeply grateful for the patient consideration given each detail of this manuscript by all three members of the committee. The actual teaching of the art units of this experiment was done by Mr. Ivan Johnson, Supervisor of Art in the Campus Laboratory School of Southwest Texas State Teachers College, San Marcos, and acknowledgment of his skill, enthusiastic

support, and interest in every phase of the experiment is gratefully given. I am also grateful for the kindness and cooperation of Mr. L. J. Berry, Superintendent of the San Marcos Public Schools, of which the Campus School is a part, and to Dr. David F. Votaw of the department of Education. Acknowledgment is made of the aid of the children of the sixth and seventh grades in the Campus School who lent themselves to the experiment, and to two interested fellow members of the graduate school, Miss Rosa Commander and Mr. Kenneth A. Miller, who assisted in giving the standardized tests required by the experiment, and to all others who had any part in contributing to this thesis.

Finally, acknowledgment is hereby made to the Southern California School Book Depository, Ltd., 3636 Beverly Boulevard, Los Angeles, California, the holders of the copyright for the Alfred S. Lewerenz Tests in Fundamental Abilities of Visual Art, for their courtesy in granting to the writer permission to bind within the body of this thesis samples of the tests, manuals, and Standardized Test Construction Report No. 7.

Margaret McClung Walker

San Marcos, Texas

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CONTENTS

Chapter	Page
I. INTRODUCTION	1
1. The Problem Stated	1
2. Why the Problem Was Selected	1
3. The Limitations of the Present Problem	3
4. Other Investigations in the Same Field	3
5. Method of Collecting Data.	6
II. NEW TRENDS IN CURRICULUM AS THEY AFFECT THIS EXPERIMENT.	8
1. The Child-centered School.	8
A. The Movement Traced and Defined	8
B. Some Philosophers and Teachers Who Have Influenced the Philosophy of General Education . . . . .	.10
C. Teachers Who Have Influenced Phil- osophy in Art Education. . . . .	.22
D. The Place of Art in the Child- centered School. . . . .	.30
E. Today's Child . . . . .	.34
2. Trends in Marking. . . . .	.38
III. DISCUSSION OF THE PRESENT EXPERIMENT. . . . .	.46
1. How It Was Conducted . . . . .	.46
2. Discussion of the Lewerenz Tests . . . . .	.49
3. The Difference Between Old and New Methods of Teaching Art . . . . .	.52
4. Application to the Present Experiment. . . . .	.55
5. Limitations of the Experimental Method . . . . .	.57
6. Detailed Discussion of Progress of the Experiment. . . . .	.58
7. Collection and Tabulation of Data. . . . .	.61
IV. CLASSROOM VISITS DURING THE CONDUCTING OF THE EXPERIMENT. . . . .	.63
V. RESULTS, CONCLUSIONS AND RECOMMENDATIONS. . . . .	.70
1. Results and Conclusions. . . . .	.70
1. The Competitive Marking Experimentation	70
2. The Child-centered and Formal Methods Part of the Experiment . . . . .	.74
2. Recommendations. . . . .	.76

Page

APPENDICES:

A. Report Number Seven.	79
B. Copy of Tests.	83
C. Manual	97
D. Sample of Case Sheet . . . . .	.120
E. Tabulation of Data from Case Sheets. . . . .	.121
F. Raw, Norm and Ability Rating Scores for All Four Sections125
BIBLIOGRAPHY133

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CHAPTER I

INTRODUCTION

1. The Problem Stated

- (1) The main problem of this study is to draw some conclusions as to the effect of competitive marking on the results of art units taught in the sixth and seventh grades.
- (2) A supplementary problem of the study is to compare the results of formal and child-centered methods of teaching art in the same grades.

2. Why the Problem Was Selected

A prominent place is being given to art by progressive schools. The public is becoming aware of the fact that art education is related to life. Art has been accepted for a long time in the primary and elementary schools and more recently in the secondary schools, and the general feeling now is that its place is secure in the entire secondary field. The theory and practice of the American mass school conform closely to the mass mind of America.

During class discussions of a lively nature, when the idea was expressed that cultural subjects such as art, music, and literature are of best and most lasting benefit to the child when assimilated on a non-competitive basis, the present experiment was selected in order to satisfy the writer's curiosity which was aroused. No preconceived hypothesis was formed. The experiment was conducted to ascertain what results were significant when two sections of the sixth grade and two sections of the seventh grade were taught a number of art units with the method remaining constant. The method in the case of the sixth grade was child-centered and in the case of the seventh grade was formal or teacher-directed. The marking was the variable, as it differed in both sections of the sixth grade and also in both sections of the seventh grade. In the sixth grade the work in one section was carefully marked on the competitive basis and the work of the other section was unmarked. The system of marking thus provided the necessary variable for experimentation while the method remained constant. The seventh grade also was competitively marked in one section and unmarked in the other, the difference in marking again furnishing the necessary variable while the teaching method remained constant.

No disappointment was expected from whatever outcome the experiment might produce. If one method showed marked superiority over the other, that would be significant; and the same would be the case if no significant difference was found.

3. The Limitations of the Present Problem

The scope of experimentation of this problem is confined to one school and to a population of one hundred twenty-five pupils. The sampling was considered sufficient for this experiment. Though it is not wide in scope and the conclusions derived therefrom may not be of importance to education as a whole, it is generally conceded that constructive conclusions may result from experimentation even in a narrow localized group. The writer feels rewarded if they are of benefit to the one conducting the research in his chosen field, and to even a limited number of other interested persons. Surely, education recognizes the significance of research that benefits most the one who conducts it.

4. Other Investigations in the Same Field

There seems to be a lack of recent research ventures in the field of art. One of the most recent studies was A Survey of Art Education in the Secondary Schools of Texas, a master's thesis written by Sara Frances Hewett, University of Texas, 1933. Also, in 1933, there appeared an Office of Education Bulletin, Instruction in Music and Art by Anne E. Pierce and R. S. Hilpert. The writer made a careful study of the literature in the field and of published lists of theses and bulletins, and brought to light no manuscripts or bulletins similar to the present experiment. Frequent footnotes in books studied point out the need of research

in the field of art. Good, Barr, and Scates in the Appendix of The Methodology of Educational Research suggest the need of a comprehensive study of the art curriculum in secondary schools, research on the extent to which knowledge and appreciation of art function in adult life, and the development of a proposed curriculum based on this research. A start was made on this study in Minneapolis in 1932. Also the same source suggests the need for a study of "the influence of training on ability in art by comparison of paired groups of those who do not take art with those who take it in high school. (This study would also include a comparison of different methods of instruction.)"¹ A study in method to determine how to conserve self-expression and creativeness and preserve skill in technical values is needed. At the present, there is under way the creation and evaluation of a better type of art test by Elias Katz, a graduate student in the Advanced School of Education, Columbia University. This work is not in a completed state, and has not been released for use.

The following list was selected from The Bibliography of Research Studies in Education, 1932-1933 and 1933-1934, prepared by Ruth A. Gray in the Library Division, United States Department of the Interior, Office of Education. The entire art list is not given, only the theses touching in anyway fields similar to the field of the present thesis.

1. Good, Barr, and Scates, The Methodology of Educational Research, p. 312.

1. Cook, Elizabeth V., Present Trends in Art Education. Master's thesis, 1934, Southern Methodist University, 94 p. ms.
2. Digby, Edwin Eldon, A Comparative Study of Two Methods of Teaching Drawing. Master's thesis, 1933, Ohio (Abstract in Ohio State University Abstracts of Masters' Theses, 12:65-67).
3. Feldman, Dorothy Arden, Modern Trends in Art Education. Master's thesis, 1934, University of Southern California.
4. Fetcher, Clyde, A History of Art Education. Master's thesis, 1933, Brigham Young, ms.
5. Glace, Margaret F. Shaeffer, Art Education: A Vitalizing Factor in the Elementary Activities Program. Master's thesis, 1933, George Peabody, 90 p. ms.
6. Kaiser, Estelle Elizabeth, An Analysis of the Art Curriculum in the Secondary School. Master's thesis, 1933, Pittsburgh (Abstract in University of Pittsburgh, Abstracts of Theses, Researches in Progress, and Bibliography of Publications, 9:393-94).
7. Lee, Lowell M., Teaching Methods for Art Schools and Academies. Master's thesis, 1934, Western Reserve, 55 p. ms.
8. McVitty, Lawrence F., The Rise of Art Education. Master's thesis, 1934, Pittsburgh (Abstract in University of Pittsburgh, Abstracts of Theses, Researches in Progress, and Bibliography of Publications, 10:497).
9. Meeter, Ruth Young, An Experimental Analysis of the Art Ability of Junior High School Students. Master's thesis, 1934, University of Southern California.
10. Meredith, Mrs. Alice Adkins, Art Education in the Junior High School. Master's thesis, 1934. Southern Methodist University, 130 p. ms.
11. Stevenson, Robert Louis, The Function of Art Education in the Junior High School. Master's thesis, 1933, Boston University, 114 p. ms.
12. Sumerwell, Bernece, Relative Values of Incidental and Formal Teaching of Art Principles. Master's thesis, 1933, University of Southern California, (California Quarterly of Secondary Education, 9:91, October, 1933).

To the writer three of the theses listed above appear to be specially significant. The thesis by Margaret Glace,

number five listed above, indicates that the study of art can be used as a supplement to and an integration of all the other subjects of the curriculum, and that it functions best when used in this way. The Rise of Art Education by Lawrence F. McVitty, number eight on the list, traces the growth of art education, considering the people, institutions, and other factors that have influenced it. Number eleven, The Function of Art Education in the Junior High School by Robert Louis Stevenson, gives a brief history of art education in the United States, discusses the value and present trend of art education, the development and function of the junior high school, and the function of art education in the junior high school. The above brief descriptions of the theses mentioned were taken from The Bibliography of Research Studies in Education, prepared in the United States Office of Education.

5. Methods of Collecting Data

The data for this study were collected in the laboratory school of Southwest Texas State Teachers College. The Lewerenz Art Tests, parts I, II, and III were given to the sections to be involved and the groups were properly paired off to secure an equal start. A case sheet on each child was kept. The same teacher taught, the same person graded, and all external influences likely to affect the experiment were controlled. Four units were taught, and at the conclusion, the tests were given again. It has been previously

stated that both sections of the seventh grade were conducted by formal methods, one being marked competitively and the other not so marked. The procedures in both of the sixth grade sections were child-centered, one section being marked competitively and one not so marked.

The method used in this study is experimental, involving rotation and one variable. Everything else was kept constant as nearly as it is possible to control external influences in like situations. A survey of a great deal of literature dealing with recent educational trends and art trends was made, as well as a study of fundamental philosophies in both general and art education. Professional periodicals were studied diligently and regular observations made of the units being taught. From the above discussion, it will be seen that the method employed is a combination of the historical, descriptive, analytic (in determining the type of tests to be used), experimental, and statistical (in evaluating results of two sets of tests).

A full discussion of the conduct of this experiment is given in Chapter III with details of observations made during the study and samples of some of the work done by the pupils.

CHAPTER II

NEW TRENDS IN CURRICULUM AS THEY AFFECT THIS EXPERIMENT

1. The Child-Centered School

a. The Movement Traced and Defined

The frontier in America has virtually disappeared. Conditions are not unfavorable, however, to the creative mind. "Education is one of the great opportunities for present day pioneering. It is also one of the fields which is hedged about with greatest difficulties."²

That our ancestors were followers of tradition was of no moment because they were far away from the source of their pattern and their everyday lives gave them a fresher, newer experience. In spite of all changes much traditionalism is retained in our schools.

The bare fact that a child goes to school in order to learn tends to make learning a synonym for taking in and reproducing what other persons have already found out. Ready-made materials in material things have their oppressive counterpart in ready-made intellectual information and ideas, and education is supposed to consist in a transfer of these goods into the mind.³

2. Dewey, John, Construction and Criticism, pamphlet, the First Davies Memorial Lecture delivered for the Institute of Arts and Sciences (February 25, 1930), p. 9.

3. Ibid., p. 9.

The current educational change has come to a head in what is termed the child-centered schools. That is, the school is now an activity center and the conformist type of school is no longer in good repute. The individual, his growth and self-expression are the concern of educators. The child is a dynamic individual and his whole being is education's concern, not merely certain phases of his growth. The transformation, however, is not complete nor has that which has been done been accomplished painlessly. It is a conflict that is old. Thinkers are apt to belong to one of two camps.

There are, on the one hand, those who center education on adjustment to society; there are, on the other, the protagonists of self-expression and maximum child growth. The mind of the former group pays chief allegiance to society, race experience, logical organization of subject matter. Boldly guiding the philosophy of the other group is the concept of Self. The present educational situation, therefore, confronts us with the age-long conflict: Society? ... Self? ... Which shall orient educational reconstruction? ... If neither one alone, how shall the two be reconciled? ... Corresponding to these two conflicting concepts of orientation are two others of method. ... Conformity? ... Self-expression?⁴

Most people who think of the matter at all are on one side or the other, but the majority are in favor of adaptation to society. There are a few fighters who ardently support the idea of education having as its aim

4. Rugg, Harold and Shumaker, Ann, The Child-Centered School, Foreword, p. vii.

the development of the individual and his personality to the fullest degree. Those who support adaptation to society are of the adult-centered school believing that education is from without. This theory has been supported by the psychology and the philosophy of early days and has dominated Europe and therefore America for generations.

The advocates of the child-centered school believe that education comes from within. It is a question of experiences of the child and the guiding of the child to the experiences that give him the proper adjustment between the accumulated knowledge of the race and his own expression. This last theory belongs to our own age. It is new--having been in practice only about three decades. Rugg in the Foreword of the source just cited says that the child-centered school needs sympathy and understanding and not more criticism. As a pioneering institution full of enthusiasm, it may have placed too great stress upon self-expression, but with time, adjustment will come. There have been "new" educational philosophies or schools of thought that have scandalized the conservatives in every generation.

b. Some Philosophers and Teachers Who Have Influenced the
Philosophy of General Education

It is only fitting that a few of the great philosophers of the past and present who have contributed their philosophic

deductions to the New Education be given a brief word in passing.

There were three philosophers who exercised great influence on the nationalistic idealism of Germany and through Germany, of the modern world today. Among these great figures in the development of modern culture was Kant, 1724-1804. He is spoken of as the "author of the intellectual and moral revolution which brought forward and fashioned a radical conception of the significance of humanity."⁵ He instigated the revolutionary critical philosophy that dealt with a wide range of subject matter. He believed in self-education and that the unity of experience appears with harmony of judgment.

Hegel, 1770-1831, was a contemporary of Kant but differed with him somewhat as Kant was an avowed dualist. Hegel was more evolutionistic as well as idealistic in his philosophy. Hegel maintained that classical studies formed the only sure basis for later intellectual work and development. At the same time he seized every opportunity to widen the curriculum and develop various interests in the pupils. Military drill was introduced while he was in charge of two hundred boys in a school in Nuremberg. "The great German idealistic movement which, beginning with Kant, was developed in different ways by Fichte and Schelling reached its culmination and most complete presentment in the writings of Hegel."⁶ In recent years there has appeared a revival of

5. Monroe, Paul, ed., A Cyclopedia of Education, Vol. 3, p. 585.

6. Ibid., p. 244.

his influence in the educational thought of America and England. He exercised great influence on Froebel.

The third of this triumvirate was Fichte, 1762-1814, and probably the most interesting to us because of his being credited with preparing the way for pragmatism. Fichte was obliged to sever his connections with the university at Jena because he was accused of being atheistic. He was an idealist--believing that "the life of the practical man is an attempt to bring an external object or another will into harmony with his own will."⁷ Fichte agreed with certain Pestalozzian doctrines and he believed that the only hope of German recovery after the Napoleonic War was complete educational reform. This was his important contribution to educational thought, and to present-day students of education, it is significant because of his being identified as the "father of pragmatism."

Rousseau, Pestalozzi, Herbart, Stowe, Froebel, Pierce, Barnard, and Mann, all set forth new ideas that influenced the educational philosophy in America. The Englishman, Owen, and Bronson Alcott were full of revolutionary imported ideas and before the Civil War, Susan Blow was considered a rank radical with her kindergarten and child-centered ideas. These various movements or theories resulted in changes that were merely surface disturbances. It was not until the twentieth century began that any real headway was made.

7. Monroe, Paul, op. cit., Vol. 2, p. 606.

The American school has always lagged behind American life. The child-centered school strives to bring together adult life and curriculum. Just as positive is the effort to bring together the child and his needs and the curriculum. No one theory or reform has ever been able to do this. We are not doing it yet, but progress is certainly notable.

If the world had not broken away from such dogmatism as that expressed by St. Anselm, there would in all probability be no New Education. "I do not seek to understand in order that I may believe; but I believe that I may understand. For this, too, I believe, that unless I first believe, I shall not understand."⁸ This remarkable statement came from the lips of St. Anselm of Canterbury (d. 1109) and is the essence of the spirit of scholastic philosophy of the school men of the Middle Ages. This same philosophy of the Middle Ages was dominated by theology, and experiment was frowned upon. Such men as Francis Bacon who believed in "logical consistency but also practical fertility of knowledge"⁹ and who revived the experimental method of Aristotle were forerunners of the agnostic pragmatists of the school of John Dewey of our own times. Bacon considered science dealing with tangible things and their relations more important than philosophy.

8. Demiashkevich, Michael, An Introduction to the Philosophy of Education, p. 67.

9. Ibid., p. 69.

When Descartes followed Bacon, the agnostic, who dared question medieval cant and doctrine, he established a dualistic system of philosophy that credits him with being the father of modern philosophy.

Impressed with the fact that knowledge which we obtain through one's senses and from tradition is often deceptive and plainly fake, Descartes decided that the only way to purge our knowledge of fake notions was to subject everything to doubt and inquiry. But then if we should be justified in doubting the existence of everything else before we can prove such existence, we cannot doubt the existence of our doubt, consequently our own existence as thinking begins. Hence the celebrated formula of Descartes, Cogito ergo sum (if I doubt, then it follows that I think and that I exist.)¹⁰

A more literal translation would be "I ponder, therefore I am."

Hobbs (d. 1679), a fellow philosopher of Descartes, asserted that sensation is the source of knowledge. We begin to sense something that has a flavor of the philosophy of the great John Dewey. Then Locke attributed to God the origin of our power of understanding, and further declared that knowledge comes only through sensation. Hume and Kant delved further into the matter of thought processes and we have the words of Kant "that all our knowledge begins with experience there can be no doubt..."¹¹

10. Demiashevich, Michael, op. cit., p. 70.

11. Ibid., p. 79.

Great modern philosophers and educators revive many doctrines of these philosophers, just mentioned, who belonged to another age but were advocates of the theory of sensationalism, or that all knowledge had its source in sensation. Herbert Spencer was one of the most noteworthy. He was the outstanding exponent of science in education in modern times. He believed that the aim of education is complete living in five fields, these being physical well-being, vocational efficiency, parenthood, citizenship and enjoyment. He claimed that a knowledge of science was the best method of obtaining this result.

There have been philosophers who have contributed much to both education and politics. In this study educational contributors are under consideration and a special word must be said of Rousseau, the cynic. Cynic, in its proper sense, means one who believes in frugality and simplicity, though the word is often interpreted to mean other than this. Rousseau bitterly hated the contemporary rationalistic educational philosophy of his day. He made himself strongly felt by his denunciation of the corrupt in both politics and education. Also, we must cite Froebel, the father of the kindergarten. The child, to him, was the channel "through which heaven floweth," and he must develop from "the inside out" and not from the "outside in." Herbart, another of this group of philosophers, believed that our ideas need clarification. He originated the celebrated general method

of teaching, consisting of the five formal steps, preparation, presentation, association, systematization and application, which were, until recently, the foundation of lesson learning.¹²

The schools of thought based on "evolutionistic materialism" or "naturalism," and those based on "instrumentalism" have furnished inspiration for the child-centered school. At the present day, various philosophies have been synthesized until there are now just three schools of philosophy regarded as fundamental and which are a part of the background for our New Education. These are known as the realist, idealist, and pragmatist schools of philosophic thought. The realist regards the world as "objective and factual," and the world of physical reality as the truly important thing in experience. The realist has an almost religious regard for fidelity to method and fact. The idealist believes that self is primary in our experience and that things hold a secondary place. We live in a world created by our ideas. The mind furnishes the standard and ideals which give our experience structure. The pragmatist never looks before or after and he is positively interested in what is, here and now. He is interested in life around him and enters into it.¹³

12. Demiashkevich, Michael, op. cit., pp. 32-42, passim.

13. Lodge, Rupert C., Philosophy of Education, chap. I, passim.

As has been previously stated, Fichte laid the foundations for another philosophy. In his time only two philosophies were accepted, but in his theory that philosophy seeks to discover the ground of experience, Fichte prepared for the third type known as pragmatism.

The pragmatist believes that we are essentially biological and social organisms acting always only on biological and social stimulation, living from moment to moment and from problem to problem. Life is never systematic and never abstract. The way in which physicists regard reality, as matter in motion according to a system of fixed law, seems to pragmatists a one-sided and abstract fiction, suitable for the quite one-sided purpose of physical scientists, but unsuitable and misleading when accepted by philosophers as the basis for life in general. To pragmatists, the sciences of psychology and sociology in all their branches seem to present a picture more in accord with the concrete nature of our experience than does mathematical physics; and pragmatists consequently insist that their own view is more realistic than physical realism. They call themselves, accordingly, concrete realists, in contrast with the one-sided, abstract nature of mathematical physics. They avoid also the systematic way of linking together past and future which characterizes the historical point of view. Their gaze is fixed upon the problem of the moment, and they look toward the immediate future.¹⁴

The pragmatist wants to see life, not as a whole, but bit by bit. We find that a great many people have a streak of pragmatic philosophy and react to biological stimuli. Such people enter into things wholeheartedly, and life is of the moment.

14. Lodge, Rupert, op. cit., p. 15.

The pragmatist, in calling himself an empirical idealist, believes his purpose of trying to solve the here-and-now problems is essentially more idealistic than retiring into day dreams. Only when an abstract ideal is applied in a concrete manner may a child fully grasp it. The pragmatist is an experimentalist, a trial-and-error man, solving his problems as they arise.

The word "pragmatism" is derived from the Greek pragma meaning a thing done. Many schools of philosophy, whether called pragmatic or not, have the thought that knowledge has as its true purpose practical application. The doctrine of Dewey is an extension of the doctrine of Auguste Comte and his school. He believed that only knowledge of facts is certain. His positivistic philosophy was pragmatic. It was Charles Peirce who revived the philosophy in America when he published in Popular Science Monthly, January, 1878, his paper entitled "How to Make Our Ideas Clear." William James, another member of the pragmatic school of philosophy, dates the beginning of the pragmatist school of thought in this country from this. William James, in common with Peirce, distrusted idealistic speculation.¹⁵

But the third and most influential exponent of pragmatism is John Dewey and his contribution to progressivism is spoken

15. Demiashevich, Michael, op. cit., p. 109.

of as "instrumentalism." The general outline of his doctrine is as follows:

Man seeks certainty. Where can true certainty be found? It can be found in such an adjustment between the organism and the environment in which organism finds itself as will lead to the most satisfactory adjustment between the exigencies, possibilities, and limitations of nature, on the one hand, and man's social life, on the other. What is the way to certainty? It is knowledge. But what is knowledge? It is experience. True experience, and consequently, true knowledge, is functional. Its function consists in devising means, or tools, or instruments, with the help of which we can meet situations demanding adjustments and solve problems as they arise. In other words, knowledge or experience is functional as to its origin, its purpose, and the process of its growth. The final goal of its function is the reconstruction of society in the sense of betterment or 'amelioration.' Consequently, 'social' is synonymous with 'moral,' and truth is the quality ascribed to a hypothesis which sufficiently stands the test of action. The doctrine of Dewey is, in substance, an extension and perfection of the doctrine of Auguste Comte and his school. ... 'The standards of certainty are furnished by the experimental sciences; that in order to avoid getting lost in empty verbalism, the human mind must limit its work to the experience derivable from tangible things, and must renounce all attempt at building knowledge upon an a priori foundation; that things-in-themselves are inaccessible to the human mind, which must, therefore, confine its effort to the study of their relations and of the laws governing these relations.'¹⁶

The substance of the foregoing discussion has a bearing on the present problem if we are to consider the background of the New Education and its product, the child-centered

16. Demiashkevich, Michael, op. cit., pp. 112-113.

school. Art, as we shall see, has a place in the forefront of the child-centered school. It has a vital part in general education and it is only fitting, as has been stated in the beginning of this part of our discussion, that a few of the great philosophers of the past and present who have contributed their philosophic deductions to the New Education be given this brief word in passing.

Before turning to the field of art to discuss those who have contributed to the new educational trends in that field, we may say that since the World War important changes in education have been worked out that are significant and will influence democracy. Demiashkevich says that very properly these theories, little discussed before the World War, may be grouped under the broad terms Progressive Education or New Education. In justice to Demiashkevich we may say that though he judges these theories to belong to Progressive Education, he does not accept them personally in their entirety.

The principle doctrines are:¹⁷

1. Formal discipline, bookish facts should cease being the diet for children.
2. The school may be true to real life, and be the scene of physical activity. "To save the wits of children from getting as worn as their elbows, their inventive powers and creative instincts are to be set free in workshops."
3. Fit the child to face the problems of real life.

17. Demiashkevich, Michael, op. cit., pp. 118-21, passim.

4. The student should recognize the purpose of learning in order to stimulate him to work independently.
5. Each child wishes to learn his way at his rate of speed and not by traditional chalk and talk officially regulated.
6. Not marks and systems of reward and punishment but interests already present should stimulate the child.
7. Project methods that allow full play to swim in life's current are the order of the day.
8. The self-activity school requires a new kind of teacher. She is no longer a talking dictator.
9. The education that carries out the above-mentioned principles will be the only natural way of education of the child.

Progressive education does not emphasize sequential curricula--but the activity method that gives joy and spontaneity to teaching and learning. Demiashkevich believes in sequential curricula.

There is a great deal of evidence "that the judgments that the pupil makes for himself and puts into systems largely through his own efforts are infinitely more valuable to him than those in which the thought connections are supplied--in which the reasoning is done for him."¹⁸

In order to have initiative a great deal more is required than being "progressive." It is "thinking" that must be independent; otherwise, our activities are merely undirected bodily movements, which is not the same thing in any sense as the mental freedom which creates. The child's body, his hands, ears, eyes may all be free and uncramped, but this

18. Bagley, William Chandler, The Educative Process, p. 260.

is not the real freedom and progress we talk of--only a condition that attends it.

c. Teachers Who Have Influenced Philosophy
In Art Education

Art teachers of the past have shared with teachers in other fields the belief that to obey produced strong character in a child. To be a real artist was to be an excellent copyist. With St. Anselm of Canterbury, the child was not to seek to understand but to do as he was told and rub out and do over by fool-proof rules. No matter what the child planned to be, or to do, he had to hold a pencil at a certain angle to draw the same thing in tune or the top-sergeant teacher would have a right to chastise him. Sad, depressed "copies" resulted and love of art in any form was doomed as imagination and expression were squelched. All these children wished was to make the grade necessary to pass the course and so get to something really attractive.

In contrast, compare the above procedure with what the writer sees every day in the laboratory school where the present experiment was conducted. The children and the instructor are engaged in every possible phase of integrated activity with other subjects (and the subjects in which integration with art is possible are numerous). All kinds of problems from puppet shows to boy-scout activities are laid before the instructor by the children, who tarry long after the closing time to work at these problems and discuss them with him.

How has it come about that cut and dried methods, distressing "nature mort," complicated and contradictory theories about geometrical drawing and perspective, which only confuse the child, have disappeared? The hostility between teacher and pupil has disappeared and art has become a part of the educational fabric and not a despised adjunct. "The recent grant, by the Carnegie Corporation, to the American Institute of Architects, for the encouragement of art courses at Harvard was accompanied by a statement from President Keppel that 'art constitutes the great field for adult education.' As its importance in the education of the child has been acknowledged for some time this pronouncement would seem to mark the climax of the phenomenal comeback staged by art in the field of education."¹⁹

In the first three centuries of industrialism very few creative artists emerged in any field. But during the latter decades of the nineteenth century Cezanne and the French moderns gave us startling examples of creative art.

Among the ones most responsible for giving art teaching its place in the sun are Cizek, Thetter, Rothe, Oskar Rainer, Mme. Galka Scheyer, and Miss Crane. These are contemporaries. The late Professor Dow also belonged to the group.

Cizek, Thetter and Rothe do not hold the same theories but each is a student of psychology and the common bond is,

19. Cox, George J., "Modern Trends in Art Education", Teachers College Record, March, 1930, p. 511.

after all, vital. They sympathize with childhood and adolescence.

Cizek, the Viennese, believes only a few children are capable of significant work. His classes are selected and surrounded with an environment of freedom that inspires. No formal instruction is given but each student works as his fancy dictates.

It has been maintained by some that copying has value in securing, analyzing, and retaining information. It is a means of gaining a knowledge of the technique of an artist. But Cizek maintains that copying is absolutely valueless. It has been said of him that he does not allow his pupils to work in the museums or even to look into art shop windows. Only the imagination is allowed full play and he declares that thinking and disturbing the mind with remembered facts causes art work to decline. These ideas seem radical and yet the work of Cizek's pupils has thrilled the world. Cizek's school has no counterpart in America, since the advanced pupils in his school do not follow other school subjects but start professional training early. It is a step in the self-expression method. The teacher is there merely for helpful suggestions and comments, if needed. The pupils work in groups and therefore there is a similarity in their work. Work of previous students is on display. So Cizek's claim that all pupils are totally uninfluenced is

wrong. A child's imagination cannot be kept absolutely pure and free.²⁰

The objective of Cizek's plan, which is, that pupils must work independently of the teacher, that suggestions and not directions be given and that very talented pupils be allowed to take a special course of study, deserves careful attention from progressive art teachers the world over.

Another Viennese, Rothe, opposes such a scheme with its aristocratic flavor and is more democratic, believing that every child possesses a gift that will develop under proper instruction. He advocates instruction rather than the absolute freedom of Cizek's pupils. "As an example of the procedure he employed, should the subject chosen deal with an animal, its natural habits and characteristics are studied at first hand, in the zoo or at large; interest is maintained by discussion in class, followed by an examination of primitive and modern artists' treatments of the subject. After such a reasoned approach each student is left free to make his own interpretation, objectively or imaginatively--as he feels the urge--without intervention of the teacher except at an impasse. The results under such a system are surprisingly good and of a notably high

20. Klar, Walter Hughes, Winslow, Leon L., and Kirby, C. Valentine, Art Education in Principle and Practice, chap. IV, passim.

standard." The foregoing methods are set forth pictorially in a series of small books, published under his name by the Deutscher Verlag fur Jugend und Volk, Vienna.²¹

Dr. Von Pechman of Munich has collected many drawings by pupils of these men, and supplements them with histories of the young artists. The American Federation of Arts recently exhibited a collection from German schools.

Thetter, another one of the group of Viennese teachers who have so influenced modern art, does not follow the method of either Cizek or Rothe. He disregards technical factors and life-like representation and cares only to stimulate creative imagination. The results are unorthodox and provocative but have a primitive flavor not to be disregarded. He says that a child learns from his own experience. Give him a ball and soon he will learn the law of gravity through experience. Thus in the same way "every natural child responds to a piece of wood, a paint box, colored glass, clay, etc., as also to the elements of speech and to numbers. A child can, therefore, develop in this way not only with respect to the production of art works, but also with exceptional results in languages or mathematics. But this can only be done under one condition, namely, one must let the child be a child and not try to

21. Cox, George J., op. cit., p. 515.

make a 'little adult' of it, as parents and teachers generally do nowadays."²²

Children have the courage to express themselves as they see things. Their world is different from the world of adults and to understand it one must have the power to project himself into the child's mind, and see the creative ability there. To be a human being means to be able to translate one's inner self. Each child's development is a recapitulation of the psychic history of the race. He passes through periods that correspond to the cultural periods of the race. Young children produce work like the primitives, older children work that resembles the Middle Ages and still older ones work that resembles the Renaissance and so on to the present.

Modern people suffer from a lack of power to develop individual capacity, from inferiority complexes, too stark realism and inhibitions. We misuse our energies and to avoid this, childhood should have its capacities recognized and protected so that in adult life these energies may produce in richer, freer channels.²³

The work done under these three Viennese teachers has subjective fancy and high objective quality as well. It is freedom but runs from fancy to finished style. All the

22. Thetzer, Friedrich, Creative Arts of Childhood, a pamphlet distributed in the Hall of Social Science, A Century of Progress, 1933.

23. Ibid., passim.

various methods in vogue in Europe and America today may be traced back to these three men. Littlejohn, the exponent of New Art Education in England, acknowledges their inspiration. Both great and small art centers show their influence. The modern artist may also get inspiration from the work done in Wiener Kunstgewerbeschule and from the illustrations in L. W. Rochowanski's Form Wille der Zeit. The Duncan school in Salzburg is one of those which employs the method of Cizek.²⁴

Oskar Rainer advocates music to stimulate creative imagination. But the idea is fantastic and disapproved by many as too stimulating for the very sensitive.

Mme. Galka Scheyer of Berkeley, California, and Miss Crane of New York have modified these various methods to suit American needs. These efforts are somewhat in the formative stage at present, but the next generation may see a definite American style or type of public school art.

It is prophesied that Mexico rather than Austria may give us the balance wheel we need, as Mexican art has a native simplicity and sincerity that is unconscious of style. This, combined with the attractive, sophisticated American style, may prove very unique. Among American exhibits at Prague at the last International Congress for Art the school art of California stood out, but it had, surprisingly, no distinct Mexican quality. European teachers were interested

24. Cox, George J., op. cit., p. 516.

in the Chouinaid School Art of the Anna Head School, Los Angeles. It was emotional and spontaneous in quality. The work of Miss Gerehart's pupils of Los Angeles was noteworthy because it bore the stamp of the influence of the late Professor Dow, who was her instructor. Professor Dow did not cater to the neurotic or phlegmatic in art trends. He held a sensible balance which gives a firm foundation for art teaching, and is in good repute. Miss Gerehart had captured its spirit and passed it to her pupils.²⁵

Briefly, art changes are reducible to a few general statements. Art is no longer an isolated subject but part of school activity; it is no longer a matter of hand and eye. The child passes through the manipulative stage to the stage of discrete guidance and later gains greater accuracy. Self-expression is allowed full sway. All progressive educators in other fields than art respect the instincts, capacities and emotions of the child. The art teacher has changed too. She no longer looks for every child to give a divine revelation through art. She knows that there are individual differences. The raw materials for manipulation have not changed through the ages, but there is an expression for all capacities. Genuine talent is recognized.

The situation is the same as it is in life. For confirmation, we come to the writings of John Dewey. In Dewey's

25. Cox, George J., op. cit., pp. 511-21, passim.

philosophy we bring to a focus point the theories and philosophies of general education so briefly touched in references to Descartes, Bacon, Hobbs and others, as well as to the art philosophies of Cizek, Rothe and Thetter.

"Taking it by and large, art teaching in America is in a healthy condition."²⁶ The American boy and girl have opportunities that compare well with the opportunities of European boys and girls.

What does art mean? It is more than mere opportunity; it is more than drawing, as that is only one form of self-expression. It is creative, for real art is not copying. It demands an activity of mind--dictation is not art. It is more than mere handwork. Real art experience is obtained by self-expression. All fine art is the result of design; therefore, structure and design are important.

d. The Place of Art in the Child-Centered School

Why do we teach it in public school? There are several reasons: Fine art, presupposing it to be aesthetic and beautiful, is an aid to better citizenship because ugliness is a curse to civilization. Every child should be taught good taste and every child has the right to experience the pleasure of manipulation of art materials. Every child should be helped to develop skill enough to express himself and he should be familiar with some of the best examples of the crafts which are the art heritages of mankind. He

26. Cox, George J., op. cit., p. 520.

should be able to enjoy outdoor beauty and he should have a chance to grow to his full capacity. Industry demands beauty. Art develops personality and it helps toward a constructive use of leisure time; it contributes to the social life of the school.²⁷

There is unquestionably a place for art in the child-centered school. Most children are hampered by a lack of funds for a special course in art after high school graduation, and it is very necessary in the public school, for

art should not be for the few any more than liberty is for the few. The power to feel and to express, to judge and to execute, lies dormant in every soul; in some to a greater degree than in others. Those with the greater inherited capacity and better training will become creative artists, perhaps; but all may become, at least to some extent, users of good judgment and taste. So intimately are we in touch with art principles in our daily lives that we constantly use or misuse them.²⁸

Art is self-motivating in a sense because it is aggressive, develops an appreciation for the beautiful, cultivates accuracy of observation, develops judgment, gives pleasure, develops ability and contributes to our knowledge of the past. When we fully realize that it develops us mentally, physically (because of muscular coordination), and spiritually, our

27. Tannahill, Sallie Belle, Fine Arts for Public School Administration, pp. 1-17, passim.

28. Howard, Winona, "Art in the Curriculum", School Arts Magazine, December, 1931, p. 205.

country will be trained to develop American art, and give it a recognized place in the course of study in the elementary schools, high schools and colleges, and to promote the interest and appreciation of art in the home, through the schools. Art in the curriculum is necessary because the only other guide to that which is artistic is given our children in books and magazine articles and fashion plates, many of which are without distinction or merit. Our children must know how to master our environment and bring out beauty to live with.

The State Department of Education Bulletin, May, 1936, number 359, is the Tentative Course of Study for Years One Through Six. Each division of that bulletin from the statements beginning with that of the Director of Supervision, President of the Texas State Teachers Association, the State Superintendent, President of the State Board of Education and continuing through the various introductory remarks, including the introductions of Language Arts, Social Studies, Creative and Recreative Arts, Physical Education and Science and Mathematics, expresses one common idea. The function of whatever course it is that is under consideration is declared to be to make it possible for the student to become increasingly competent in meeting those situations involving human relationships with which he is and will be confronted.

In part V of this course of study, dealing with art, this statement is made:

With art functioning as a part of life and contributing to the individual development, it is important and fundamental in the education of all individuals. It helps each person derive more pleasure and satisfaction out of himself, his home, his community, his associates, and his leisure hours, and enables him to contribute to the happiness of others. Art remains vital to the integrated curriculum and the development of the individual only when it is thought of in terms of the child, his needs and interests, rather than in terms of subject matter or 'art for art's sake.' The native powers and capacities of the child are developed through creative expression and active participation in natural learning processes. This development is evaluated in terms of child values. The visible records of the child's own creative self-expression reveal the necessary developments which should take place.²⁹

The teacher may evaluate her work to determine whether finer personality, greater emotional stability, greater ability to think creatively, greater ability to organize mental problems, greater ability to apply art to life and greater appreciation and enjoyment have resulted.

The state course in art endeavors to aid the pupil to discover individual self, to develop a desire for self-expression, develop initiative, awaken an interest in art as a part of life, to have an understanding of fundamental values of structure, to develop an appreciation of surroundings,

29. State Department of Education Bulletin, no. 359, Tentative Course of Study for Years One Through Six, Vol. XII, no. 7, May, 1936, p. 243.

appreciation of art values, develop emotional stability, powers of observation, critical capacity, appreciation for our own and other's work, skill in tools and media, develop judgment in selecting, arranging, and creating the artistic and beautiful.³⁰

The course of study in art through all six grades deals with personal experience, the home, the community. Art is applied to life situations and in order to aid integration, leads in other fields are given through all grades. Such things as music, language arts, social studies, practical and industrial arts, health and physical education, science and mathematics have art programs outlined.

However necessary it may be to teach the basic principles of art as such, it is just as necessary that these principles find practical application. This application results by correlation with other subjects, not only giving practical training but motivating the work in the subject with which it is correlated. Graphic presentation always inspires.

c. Today's Child

Today's child is in a world never dreamed of by our forefathers. He is advancing to that stage in mental development where he will have no inhibitions. His personality evolves from within. "Witness the little girl of

30. State Department of Education Bulletin, op. cit., passim.

five in Mrs. Florence Cane's class who said of her painting, 'It looks the way you feel inside.'" Also the incident of the school master who set a stint.

'I want you to write me a poem, and I shall give you the subject.' He then gave it to her. 'And its length--about so long,' he measured; 'and I want it done for a meeting of junior high school pupils tomorrow afternoon. There will be no objection if it is humorous.'

'But,' she exclaimed, astonished at the order, 'poems are not written that way! They come because of the way I think and feel myself. I will try to write one for you, of course, but I don't think it will be the one you want, for I don't know myself what it is going to be; but it must be my own, and when you tell me what to write about--that, I'm afraid, will make me not want to write it at all, because it wouldn't be mine, you see, but'--pathetically desirous of not offending--'but yours, if you see what I mean.' He saw exactly that she understood and was glad.³¹

The desire to create and to express one's self are the same. The creative artist understands this desire in a child and when the creative artist entered the classroom the child as an artist was found. There is a sensitiveness that makes the two akin and the creative artist understands the child more fully perhaps than any one else. He does not desire to impose his personality on the child but rather

31. Rugg, Harold and Shumaker, Ann, op. cit., p. 6.

to draw the child out. The great Cizek once said to puzzled visitors to his studio in Vienna, "I take off the lid and other art masters clap the lid on--that is the only difference."³²

The child must have his mental picture first. Then, and only then, should the teacher help him. A good instructor must for a time become a child himself. Only by seeing through the eyes of the child can he get results. None know the vision of the busy little worker but himself and none has the right to interfere. Peppino Mangravite at the Patomac Park School, Washington, D. C., Miss Levin of the City and Country School and Florence Cane in the Walden School all stress the point that the art teacher is trying to get something original in expression from the child while letting the child work out unhindered his vision or inspiration. Art for the child should be left as an experiment into the unknown.³³

It may be wrong to expect originality of every one, but perhaps the way we measure originality is wrong. We should not measure just the completed article but rather set our eyes on the special way a person goes at a problem. Each person is different in this respect. A child's enthusiasm grows faint when he comes to realize that what the

32. Rugg, Harold and Shumaker, Ann, op. cit., p. 229.

33. Ibid., chap. XVI, passim.

world calls original is something he has not seen or known before. There is so much that is new to him. Everything is a discovery. He is original every time he makes a discovery even though it has been made thousands of times before--as long as it is first-hand with him. Adults should guard this gift of childhood and not discourage it.³⁴

There should be no adult standards nor grade norms in art instruction where the aim is individual growth. The development of creative art in school came somewhat late because industrial civilization was late in producing original artists who defied the Old World cult. Only in great centers did a few appear. The interest in primitive art has had much to do with starting a typical native American art. Primitive art is closer to the art of children. Some thinker noted the resemblance between the art of children and that of the childhood of the race. The final tie that held art classes to copying classical masters was loose.³⁵

The Play School, or City and Country School, of New York, organized in 1914, is one of the radicals. It is keenly sensitive to the art needs of a child. The grade teacher has done wonders to bring out the creative spirit. Rugg and Shumaker in their The Child-Centered School express the belief that such art in the grades of our progressive

34. Dewey, John, op. cit., p. 4.

35. Rugg, Harold and Shumaker, Ann, op. cit., chap. XVI, passim.

schools compares to work done by pupils of Cizek, Levin, Cane, Mangravite, Correthers, Zorach, and other leaders in the field.

Another significant feature of the creative art of the New Education is the multitude of material to which it lends itself and the broadening of vision gained thereby. All materials help the child visualize. Acids, metal, linoleum, wood, clay, copper, bronze, long tables, sewing machines, tubs, dye vessels, benches, textiles, leather, wood work tools in addition to paint, brushes and crayon are all a part of his equipment.

What shall be done about the problem of technique? Some teachers of art believe that the small child has no use for it. All followers of the new school believe in letting the child alone but they do not agree about technique. The best and safest method is freedom with control or self-expression with direction. Use the opportune moment. When a child is ready for technique he will ask for help, and then the teacher has her opportunity. Many authorities agree to postpone rules of technique until a child is past ten. For those who show marked talent, technique will assume greater importance, for the great master must be a master of his tools.

2. Trends in Marking

It has long been the writer's contention that school marks, or grades, are over-emphasized. It is strongly

contended by those who oppose report cards based upon school marks that such reports do not show the parent the true progress and adjustment of a child in school. Still, the report card has long furnished the only direct line of contact between the parent of the child and his school. Both teachers and parents recognize the unwholesome side of marking--the competition, the study to "get by" and the "pass" complex. It is held by V. L. Beggs of the Public Schools, Elmhurst, Illinois³⁶ that the range of marks is too wide and that two or three symbols in place of six or seven is better; such as, "satisfactory," "unsatisfactory."

Often a check list of character traits is included in this brief report. This is unsatisfactory as it is too brief and stands for no real analysis of the temperament of a child. Of course, time and money are required for proper analysis of character and many administrators offer this as an excuse, together with the facts that the old way is easiest and that parents demand marks of some kind. However, the validity of these objections has been tentatively tested in the Elmhurst Elementary Schools. The report card was issued as usual with its six-step rating, but a diagnostic letter was included for those children doing unsatisfactory work. Next to the personal conference the diagnostic letter secures the best cooperation of the parent. The response

36. Beggs, V. L., "Reporting Pupil Progress Without Report Cards", The Elementary School Journal, October, 1936, p. 107.

was almost unanimous and before breaking off from the old system and the "report card habit," parents were invited to tea and the new plan discussed. When it was talked over, the parents favored the new diagnostic method. The second objection, that much time is needed for preparation of letters, seemed to be met when the letters were put on a quarterly instead of a monthly basis. The fact remains, however, that clerical work is still the chief problem. No form letter was given to the teachers but instead only a list of recognized traits on personality, study habits, and academic accomplishments, and they made out their own report for those who needed it. The principal read those to be sure no ill-advised remark had been made. This method was used in Elmhurst for four years and when a questionnaire was sent to parents to find if they preferred the old or the new method, it was found without exception they preferred the new method, and even preferred it to a combination of report card and letter. Hundreds of letters poured into Elmhurst from other schools showing how prevalent the feeling is becoming that our old report card and marking system is wrong. Of especial significance to this writer, however, is the statement, "Much of the 'passing' complex and undesirable competition can be eliminated by the use of the letter."³⁷ The letter is descriptive and gives a clearer picture of the child's attainments.

37. Beggs, V. L., op. cit., pp. 107-14, passim.

Formerly, one hundred per cent was considered the perfect score and pupils were graded according to how they ranked on this one hundred per cent scale. This method is passing away because teachers varied so in giving grades that there was no validity in the method. The more recent trend is for competitive distribution on the normal curve with the A, B, C, D, and F ranges. The curve is an outgrowth of the standardized testing era where to know anything was to be able to measure it. But we cannot apply a yardstick to our school work and say three-fourths or one-half of this is right or wrong. Our teaching should be with the ultimate good of the child in mind--the ultimate value of the dynamic personality to society. Now, we find some educators strongly advocating the elimination of competitive marking from the educational program.

Among the articles that argue for the elimination of marks we find here and there a dissenting voice. There must be some goal for which to strive and if a teacher is worth much she sets a goal to be achieved. "The argument that marks are competitive and therefore valueless is beside the point. When the student gets out of school, he will find himself in a competitive world, where 'marks' will be assigned him by his employer, his fellow employees, and all people with whom he comes in contact. The success with which he accomplishes the tasks of his trade or profession

will be gaged by these 'marks' or opinions judging his skill and competence. There is no escape."³⁸

The comparison does not seem parallel. It is the opinion of many that grade-consciousness puts school subjects on a competitive basis that destroys much educational gain hoped to be accomplished. This is the case in dealing with cultural subjects, especially. If children are inspired by proper teaching to love Shakespeare, for example, they will read his works and continue to do so through life. It is the assumption of many that the love for reading Shakespeare is killed by the rigid demands, assignments calling for character sketches, scene synopses, and minimum requirements to make "C." All admiration a child may at first experience for the bard is destroyed, and in real life he seldom picks up a volume of Shakespeare. This is but one example. The same thing is held true of art. If our philosophy of education is to teach the things life will require of us, and teach them in such a way that we will love them instead of hating them, then indeed, a great goal has been reached.

"To accomplish anything worth doing still requires effort, hard work, and concentration on the task in hand. The student should never forget this. If he is made to feel that the success with which he accomplishes his tasks in school is not to be gaged, that no opinion of his

38. Wells, Mitchell, "Shall We Devalue the Mark?", The Texas Outlook, February, 1937, p. 60.

associates will make the slightest difference, he is acquiring a fatal attitude..."³⁹ Some claim a student deserves to know how well he fought the fight, and if marks are competitive, it is pointed out that the world is also.

In opposition to the ideas just expressed, there are arguments against the use of the mark on the basis of the fact it does not provide for individual differences. To avoid the pitfalls of the competitive curve some teachers advocate basing marks on individual and not group achievement. But this fails to take into consideration many factors other than just the intelligence of the individual. Marks have already been proved unreliable.

But unreliability is not the only thing. It is not intelligence alone that we live by, but many things, such as attitudes, that cannot be measured. Marks cause a spirit of jealousy, envy, and suspicion, and hinder a happy working spirit.

It has been said that if marks were done away with entirely, the ordinary high school would last about two days. High school boys and girls have been saturated for eight or nine years with false ideas about the importance of the mark. The work of the elimination of the mark should begin at the first grade. In the first grade, children

39. Wells, Mitchell, op. cit., p. 60.

should learn to do their work for pleasure. The mark could gradually be relegated to the background during elementary and secondary school life. The attitude of doing school work on the basis of interest and not for marks is what we strive for.⁴⁰ We wish motivation to come by intrinsic interest of the pupil, not because he desires a high mark.

Among other factors that influence our grading system we find that varied elements enter in, as the neatness of the work, disposition of the teacher, the sex of pupil and teacher and these again put the stamp of unreliability on marks. Such questions are asked as, "Are all pupils to compete for the same honors regardless of general ability or special abilities? Are all pupils to be required to pass the same standard before receiving a passing mark?" These questions are still unsettled.⁴¹

To summarize there is unquestionably a trend toward either doing away with marks or changing our methods of using them. Current educational magazines are carrying numerous articles on marking. Because of the peculiar problems in Art Education and its ability to lend itself to creative self-expression, which so definitely expresses the individual, and because art develops more fully when

40. LaGrone, Cyrus W., Jr., "Why Give Marks?", The Texas Outlook, October, 1936, p. 9, passim.

41. Segel, David, "To Mark or Not to Mark--An Unsolved Problem", School Life, October, 1936, p. 34, passim.

unself-conscious we have taken the problem of marking or grading into the present experiment. More will be said of the marked and unmarked groups and how they compare in the succeeding discussion.

CHAPTER III

DISCUSSION OF THE PRESENT EXPERIMENT

1. How It Was Conducted

The sixth and seventh grades, two sections of each, were used in this experiment, and the Lewerenz standardized drawing Tests in Fundamental Abilities of Visual Art, in three parts were employed.⁴² The test was not given as a test of achievement but as a basis of pairing members of equal ability in the four groups.

The first test was completed in December, 1936, and graded. Eliminations were made where it was necessary in order to pair, child for child, the members of the groups and have them start on an equal basis in the experiment. The sections were reduced to the populations listed below:

6-1	15
6-2	15
7-1	20
7-2	<u>20</u>
Total	70

The above figures concern the populations for the part of the experiment dealing with competitive marking. A full discussion of this is given in Chapter V. The entire sixth grade was re-paired with the entire seventh grade, giving a population of twenty-six for each group, for the portion of the experiment concerning method.

42. See Appendix B for copy of test.

The correlations are very high as a correlation of 1.0 is considered perfect and in these two groups correlations of .98 and .99 respectively are practically 1.0. This is to be expected of matched pair-groups. The standard deviations were also very close, showing that the groups were almost perfectly matched. For our purpose this is necessary as the pupils under consideration in each of the two grades must start equal to make our conclusions at the end of our second test of any significant value.

The number in the four sections remained the same for both sets of tests, the same children being paired in both sets of tests. The units were planned to cover subject matter range in the tests used. The seventh-grade sections were both taught by the formal method, one section being subjected to competitive marks and the other section was not. Both sections of the sixth grade were taught by the child-centered method and one section was subjected to competitive marks and the other section was not.

The experiment was concluded the second week in April, 1937. During the time allotted, four units were taught. These units covered perspective (one and two vanishing points), cylindrical perspective, landscapes, still life, figure drawing, puppets, interiors, design, block prints, stenciling, work in clay, weaving, wood carving, and a number of media were used.

At the conclusion of the last unit the same tests were given and the means, standard deviations, and correlations were taken and compared with the figures obtained from the first tests. Also, the probable error and the difference of the means were obtained on the second tests.

Throughout the duration of experimentation, private case sheets on each child were kept. Such things as interest, cooperation, work-habits, originality, skill and technique, and knowledge of fundamentals were noted and marked. The mark on fundamentals covered such things as principles of drawing and coloring, good taste, proportion, spacing, value, emphasis, balance, and knowledge of fundamental rules of perspective. All these are fundamentals subject to definite rules. The scale used by the instructor in keeping the case sheets is as follows: For fundamentals the A, B, C, D, and F system is employed, A being considered to cover the range from 90-100%; B, 80-90%; C, 75-80%; and D, 70-75%.

In grading the qualities listed above, namely, interest, cooperation, etc., E, or excellent, is considered equivalent to A, or 90-100%. G, or good, is considered to cover both B and C or the range from 75-90% and I, or inferior, is equivalent to D, or the range of from 70-75. It may be said that the pupils were unaware of these case sheets. The information they contain is for the benefit of the writer.

This same method of marking, for the teacher's record, was used for both sixth and seventh grades. The sections on a competitive-mark basis received marks on their work and were kept "mark conscious," and they were also given class tests or quizzes. A copy of these grade sheets is contained in the Appendix,⁴³ also the tabulation of data contained in them.⁴⁴

2. Discussion of the Lewerenz Tests

The test in fundamental abilities of visual art that was used was constructed by Alfred S. Lewerenz, Statistician, Psychology and Educational Research Division, Los Angeles City Schools. The test advisory committee was composed of Ernest W. Tiegs, University of Southern California, J. Harold Williams, University of California, Los Angeles, and Willis W. Clark, Los Angeles City Schools. Only one form of the test is available.

The purpose of the test is obvious from the quotation below.⁴⁵

The tests in Fundamental Abilities of Visual Art make the discovery of students who have special and unusual artistic talent. They are a valuable aid in the guidance of pupils.

43. See Appendix D.

44. See Appendix E.

45. See Appendix A.

By means of the battery of nine tests it is possible to analyze the main skills and abilities required in the field of art. These are:

- Test 1. Recognition of Proportion.
- Test 2. Originality of Line Drawing.
- Test 3. Observation of Light and Shade.
- Test 4. Knowledge of Subject Matter.
- Test 5. Visual Memory of Proportion.
- Test 6. Analysis of Problems in Cylindrical Perspective.
- Test 7. Analysis of Problems of Parallel Perspective.
- Test 8. Analysis of Problems in Angular Perspective.
- Test 9. Recognition of Color.

The evidences of validity (the extent to which the device measures what it purports to measure) in the original tests, as they were evaluated by the author of the test, are found first in the content: the individual tests were selected because they were measures of the generally accepted fundamental abilities which condition success in art work; second, in the correlation with criteria: there is a close correspondence between success on the test and success in art work as indicated by semester grades. The correlation being based on test ranking and teacher's rating gave r as .63 ($\pm .063$) in an investigation of forty-two high school art students; and third, in other evidences such as the fact that the test is a measure of ability, as is shown by negligible correlations between separate tests and I. Q. The test battery as a whole correlated with intelligence .155 using 939 cases.

The evidences of reliability (the extent to which the device attains consistent results) in the original test evaluation by the author are found, first, in the coefficients

of reliability on the basis of a retest given after one month, to one hundred pupils, securing a reliability of .872 (P. E.±.018), and second, in other evidences, such as multiple correlations, and scaling.

The objectivity was indicated by the fact that pupils make their responses in an objective manner. All tests are given according to definite time limits. All necessary directions for giving the tests are given on the tests themselves. Each test is scored by means of a key or scale. A profile chart permits diagnosis and interpretation of results in terms of the ability of other individuals of the same age and grade. The norms are based on 1,000 cases representing children from the fourth through the twelfth grades. On the basis of extensive use the norms seem valid. Scores can be converted into a numerical standing and an ability rating. Norms are provided for elementary school, junior high school, and senior high school levels. The Manual and Directions⁴⁶ gives the basis for the construction of the tests, the method of validating the tests, and directions to the examiner for giving and interpreting the results. The tests were given a preliminary try-out for more than a year in mimeographed form. The present tests have the same content as the original forms.⁴⁷

46. See Appendix C for Manual.

47. The above statistical data were taken from Report no. 7, in Tests in Fundamental Abilities of Visual Art. See Appendix A.

The Lewerenz test was not in every way the type of test that the writer wished, but there are no tests of achievement or ability in art on the market that are entirely satisfactory. There are a number of good mechanical drawing tests and excellent appreciation tests. There is no art test accepted by all teachers because the movement is from formal to informal. Art curriculum runs from the teacher- to the child-directed, and the believers in this have been the minority group heretofore. There has been no money in the minority group to evaluate tests. The child-centered movement in art has not been long enough in the assent to agree, as yet, as to tests. There is a fear that objective testing might destroy some of the glamour of the child-centered school and for that reason, art instructors have been cautious in acclaiming any one set of tests. At the present time some tests are under construction in the Graduate School of Teachers College, Columbia University, and much is anticipated from them.

The Lewerenz tests came nearer than any other to qualifying under the requirements of the experiment and were therefore used.⁴⁸

3. The Differences Between Old and New Methods of Teaching Art

There are two recognized methods of teaching art. The following list shows the differences between them. The

48. See Appendix B for a copy of the tests.

older, more formal method and the newer, more improved "child-centered" method were both used in one experiment, namely:

Old

New

Choice and Arrangement of Subject Matter

Ideas of teacher imposed upon children.
Set assignments with only the teacher's point of view considered.
Logical arrangement of subject matter by the teacher.
Limited subject matter.

Emphasis upon child interests, abilities, and ideas.
Child expression, adaptation to individual variations.
Subject matter psychologically arranged.
Broad sources. Attention to contemporary aspects of life.

Art in Relation to Other Subjects

Art an isolated subject, carried on independent of other school work or child's interests. (Some isolated work is needed, however.)

Art tied up with other subjects.
Unit work, integrated subject matter.
Activity program (too much of this prevents the more creative activity).

Technique

Technique, the chief aim. Formal, unrelated drill to obtain skill, whether needed or not.

Technique, a resultant. Expression of creative ideas develops necessary techniques.
Help is given where it is needed.
(Sometimes it is necessary to take time for drill in necessary skills.)

The Teacher

The teacher, a taskmaster, one whose personality dominates the child, dictating to him from her superior (?) position. An academic artist who knows little or no child psychology.

The teacher, a guide, one who appreciates genuine child art, who inspires, helps when needed, plans work ahead intelligently so that aims are realized, but does not insist upon her plan if a better way unfolds--is ready to adventure.

Old

A teacher of fine arts,
not a teacher of
children.

New

A creative artist, one
who can perform as
well as teach, has a
philosophy of education
and a knowledge of
child psychology.

Use of Devices

Trick adult devices used
in teaching drawing,
a quick way of obtain-
ing uniform results,
even though little or
no inner growth takes
place.
Teacher's drawings copied.

Devices made by adults
are useless. Emphasis
is placed upon real child
expression, simple though
it may be.
The child's own ability to
see should be developed.

Standard of Criticism

Adult perfection the
standard.
Emphasis upon external
results alone.
Realistic--lifelikeness.

Growth and development
of the individual child.
Childlikeness, not
adult-likeness.
Evidences of art quality
--art structure basis.

Results

Uniformity in results
desired and definitely
worked for.
Conformity to set patterns
and formulas.
Static, lifeless quality
of expression.

Evidences of individuality
in expression, consistent
with personality.
Dissimilarity, not similarity,
the aim (should not be
forced, however).
Vitality and strength of
expression.

Time Allotment

A definite and short
period given--no other
time available.

Flexible program permitting
art at times best suited
to needs.

Effect on Children

Child becomes repressed,
dull, loses interest in

Child is freed from fear
and inhibition, can

Old	New
art, becomes a copyist and an imitator.	express himself undisturbed by adult criticisms.
Dependent.	His interest is live and keen. A desire to go ahead and do more.
Lacks real appreciation.	Independent, confident, shows initiative, self-respect, and increased art sensitivity.
Supercritical.	Expansion of personality. ⁴⁹
Dissatisfied with own efforts.	
Self-conscious.	
Fearful.	

4. Application to the Present Experiment

In the present experiment the formal methods were not as restricted as the foregoing list indicates a formal method of teaching to be, but they certainly were differentiated from the child-centered units by being "representative" whereas the child-centered units were "creative." Rugg in his book Culture and Education in America says there are two kinds of expression. "Representative" art has for its initial motivation elements set outside the self. These controls may be the audience, facts in history, literature that must be followed in order to be true in meaning; and the guide to evaluation is considered communicability to others and agreement on common interpretation of the facts presented. "Creative" expression has as its origin a desire or inner drive within the child. There is no common meaning and the standard is the ability to measure up to the truth of what the "self" was inspired to produce.⁵⁰

49. The above list was taken in its entirety from Tannahill, Sallie B., Fine Arts for Public School Administration, pp. 10-12.

50. Rugg, Harold, Culture and Education in America, chap. XIX, passim.

In the present use perhaps Rugg's idea of "representative" expression is what we mean when we say formal method.

Sympathy on the part of the teacher is a condition necessary to "creative" expression. It is foolish to expect the impossible and try to make artists of all children. However, a teacher who believes every child has the creative power to some degree has confidence in the child and helps the child to have confidence in himself. Such an attitude was maintained by the instructor in the child-centered units of this experiment. The very nature of our problem necessitated a more meticulous attention to the product of creation in the formal unit. In other words, the very nature of a formal unit means that more care, as to the technique and result, is given to it by the instructor.

By "child-centered" method we mean in this experiment the method that allows the child to work in an atmosphere that draws him out rather than requires him to adapt himself to outside standards. There was no imposition of tasks and skill, to be mastered in a set time in a set way. The teacher did not set any photographic examples--the standard was inspired to be set by the child from within himself. The teacher endeavored to make the child feel that he saw through the eyes of the child. Nevertheless, the instructor was present to recognize and aid in technique problems. The objective was ever before the mind of the teacher that the major activities are building activities,

creative activities, and activities that focused attention by group discussion.

It was the writer's observation that in both types of units life situations were followed. Insofar as was acceptable to the problem all work was organized with the idea that the child wished to learn and not around the idea that the teacher intended to teach him.

5. Limitations of the Experimental Method

In any experiment certain limitations are met with. It is necessary in order to avoid confusion to interpret the experiment from the standpoint of variables rather than experimental factors. The pitfalls of the experimental method are indeed many. The most reliable method is controlled experimentation. The single variable, in specific situations, may be credited as the cause when other factors are held constant. In our present problem this fact was borne in mind. The pupils, the teacher, the place, the method, observer, tests used, time and place of giving, the person grading them were all held constant insofar as is ever possible in like situations. The fact was fully recognized that, valuable as the experimental method is, it nevertheless has its invalid elements. The factors relating to achievement were most carefully guarded.

Proper allowance was made for age, mental ability, previous learning, and equality of teaching. Some things

could not be controlled and will be allowed for in the result. That is to say, such of the children lending themselves to this experiment as were out of line with the average, in mental ability one way or the other, or were of marked ability in art, or were exceptional for the lack of it, were dropped. The standardized tests were given in the beginning in order that the pupils might be selected so as to be typical or representative of the population from which it was desired to generalize and draw conclusions for the experiment. As was stated at the beginning of this chapter, the groups were paired and several eliminations made to secure accurate pairing. The final population was seventy.

The norm scores on the first tests were matched in pairs in both grades. They were so near alike that in the use of the same method in two sections with competitive marks and without marks, the result was anticipated to be attributable to the influence of the experimental element and not to accident. They were considered equal at the start of the experiment and all significant differences obtained by the second test are due to method of teaching and marking and not to chance.

6. Detailed Discussion of Progress of the Experiment

When the groups were ready to advance into the experiment, the case sheets previously referred to were prepared

and data on each child were kept. A copy of the case sheet accompanies this material.⁵¹

The data collected on these case sheets represent most careful thought and were of aid in arriving at conclusions concerning the children, though cognizance is taken of the fact that the case sheet data are subjective, being based on teacher observation and opinion.

The time element was short enough, extending over approximately three months, that no special consideration was given it other than the knowledge that growth, to a degree, was inevitable between the first and last test.

To repeat, two sets of groups were used, two sections of sixth grade and two sections of the seventh. Four units were taught. The teacher, pupil, and environmental factors were controlled by exposing the same pupils and teacher in the same environment to both methods and both systems of marking. The carry-over from one method to the other was controlled by using the formal method for both sections of the seventh grade. The variable was kept in the element of competitive marking and non-marking. The situation in the sixth-grade sections was the same with regard to marking but with the child-centered method used in both sections. The two parts of the experiment were kept apart. The same problems to all intents and purposes

51. See Appendices D and E.

were covered in the units in all eight cases as far as the content to be covered was concerned. Of course, there was variation in the non-important elements to add variety enough to avoid dullness. In other words, when perspective units were taught all four sections, the approach and results were varied.

Matching pairs in groups reduced the possibility of sampling error, and did away with the operation of chance. The matching of pairs in groups was assumed to give more reliable results. It is acknowledged, however, that after all experimentation is completed the experimenter will wonder if the result is significant and if he is justified in his group arrangement. There is always difficulty in controlling learning material. The tests are not as satisfactory as could be desired, but are the best obtainable at the present time. To avoid monotony there was bound to be a degree of difference in the material of the several units of the same type. But it is theoretically accepted that it is an advantage to have one group serving as a check on the other.

All methods of experimentation have certain limitations. There are certain tendencies for one group to learn how to improve more rapidly with the progress of the experiment than any other group. One group may become fatigued or bored. Some shirk work. Often a teacher has a bias for

certain tests. Often there is administrative difficulty in securing the pupils to experiment with, however, this was not the case in this instance. Not all pupil attitudes lend themselves to measurement. The carry-over from pre-experimental factors is impossible of elimination and work and learning habits cannot be changed.

The writer was fortunate in having the experiment conducted by the same teacher and in being able to observe regularly.

The tests used were not to influence achievement. They were used merely as a means of determining the amount of achievement which took place between the first and last test. The test favored no method. The validity and reliability are recorded in the tables accompanying this manuscript and they are considered high. The same tests were used for all pupils, and they are objective, with definite grade norms. A copy of the test is contained in the Appendix.⁵²

7. Collection and Tabulation of Data

At the conclusion of the period of experimentation, during the second week in April, the same tests were given under the same circumstances to the same four groups of children. The means were computed, correlations made, and the standard deviations, probable error of the means, difference of the means and probable of the differences of

52. See Appendix B.

the means were computed. These procedures show whether the results obtained from the difference between the first and last set of tests are significant, how far the differences may be due to chance and how far due to experimentation. These figures are given in Chapter V.

The groups are from the same school and have been subject to the same environment and type of previous training. In every way possible the mind of both the art instructor and the writer has been kept free and open throughout, and conscientious effort used at all times to avoid influence favoring or not favoring either the competitive versus non-competitive marking groups or the formal versus child-centered methods of teaching. No preconceived opinion was entertained. The experiment was for the purpose of ascertaining if there is superiority or not in one of the two methods of marking and teaching. A discussion of the impressions received during classroom visiting, while the art units of this experiment were being taught, follows in Chapter IV.

CHAPTER IV

CLASSROOM VISITS DURING THE CONDUCTING OF THE EXPERIMENT

To one conducting research of the type employed in this problem one of the most pleasing and gratifying features connected with the process is the period of observation and classroom visiting. The children themselves were an unflinching element of interest as was the type of work they were engaged in.

Tidiness was observed in all sections. Children picked up paper and scraps, were careful of materials, and left the room neat for the next class. It was excellent training in cooperation and gave each child a feeling of responsibility for the tools he used.

Among the things completed by the sixth grade, section two, was a unit of prehistoric animals. The group was marked, though child-centered. It was very noticeable that the children of this group depended more on the art instructor than the ungraded, child-centered group. They continually asked for suggestions and ideas and lacked motivation or desire to work unless specifically directed. The condition was considered by the instructor to be a hang-over from previous years and an inherent tendency of the special group. The group was quiet and did not move around much in comparison to the other sections.

At regular intervals, however, keen interest awakened when class officers were elected. The "cabinet keepers" took real pride in their job. At one election the newly elected secretary of the group offered to exchange places with the "cabinet keeper." The class after a discussion decided that he could not, in fairness, do this.

The children in this section were allowed a choice of activities for a problem or unit. Usually eight or ten activities were offered for choice and the class voted on the ones they desired to engage in. On one occasion they were allowed to choose between outdoor and indoor work. Several elected to remain indoors at table work. In discussing work with the children the writer found that though they enjoyed drawing buildings and using their knowledge of perspective they disliked field work. This was an unexpected reaction. Only one group in the section expressed a preference for outdoor drawing. The child who had tried to exchange places with the "cabinet keeper" stayed inside and drew aeroplanes and explained them in detail.

It was the custom for the instructor to talk to them "eye to eye." He sat in the center of the group and they clustered around discussing problems or a new unit when it was being introduced. A splendid feeling of good fellowship existed between the instructor and children in all four sections. For each new unit an election was held at which

time chairmen of groups were elected and a new "cabinet keeper" was chosen. The children conducted these affairs themselves and were totally unself-conscious of observation of the instructor or the writer. Their frankness concerning the qualifications of the various nominees was likewise refreshing! Each group usually discussed their plan before actually working. The instructor visited from group to group. The children were unrestrained and unself-conscious and willing to undertake anything, as the section was child-centered. It was a marked section, however, as has been said, and somewhat quieter and less active than the other groups. Examples of the work of this 6-2 section are included in the body of this thesis. It was not possible to say until the conclusions were drawn from actual figures which of the groups was superior.

The other section of the sixth grade was the unmarked, child-centered group. Life always seemed a happy affair to these youngsters and they seemed to enjoy to a marked degree group activity. On one occasion the tables were pushed together and a huge sheet of brown paper was spread out on which the children were working on a mural of pre-historic animals. This mural was to serve as a background for the display of clay animals made by the other section of grade six. They worked enthusiastically on whatever they undertook and enjoyed explaining their problem to an observer. Perfect freedom was observed at all times.

Discipline never was bad, though unforced. The instructor was there when needed, and he was called on to help out if doubts arose, but on the whole, the children were extremely independent with their own ideas, and carried them out. Very free, informal and frank class discussions and criticisms were a part of each period. This section was never listless and it was characterized by always being pleasantly busy and never bored. Examples of the work of the 6-1 group are included in the body of this thesis.

The 7-1 section was unmarked and teacher-directed. They enjoyed working together in groups. One of their outstanding problems was a set of interiors constructed in cardboard boxes. These were very pleasing in color design and arrangement and several were of marked originality. The unit was an excellent one for interior decoration, design, and perspective. This section also asked for the privilege of making block printed curtains for the instructor's office. A sample of the design used for the block print is included in the body of this thesis.

This section built some excellent permanent looms, and principles of design were amply illustrated in the weaving, purses, scarfs and rugs made by the group. Skill and accuracy were especially needed. This group seemed to be skillful in handling tools.

The 7-2 section was marked and teacher-directed. Their noteworthy unit was one of block printing. The principles

of design and perspective were given a chance of display in the work done. Several types of media were employed. They completed in addition some panoramic scenes that were highly artistic, and characterized by simplicity of design. A number of the block prints from this section are included in the body of this thesis.

In general the writer observed that the sixth grades were more active and original than the seventh, but the seventh grades seemed to have a better control of tools. The unmarked, child-centered elements, even when only one of these elements was present, seemed to have had an expanding influence on creative ability. The marked sections of both sixth and seventh grades showed a keen interest in the marks they received on work and the reaction to marking was interesting and significant.

The writer casually discussed marking with various children in all sections. When the question of liking to be marked came up, various replies were given. Among these replies were the following:

"It doesn't matter to me."

"I want to be graded. I know what I made and what is wrong and I have a chance to please the teacher next time."

"I know how to please the teacher better when I am marked."

When one child was asked if he drew to please himself or the teacher he said, "I draw it to please me in the first place. If it is marked I change it to suit the teacher."

All the children expressed a preference for picking their own problems. All of them seemed to feel that the marking system served as an aid in "pleasing the teacher." The unmarked groups, even the teacher-directed, unmarked group, pleased themselves.

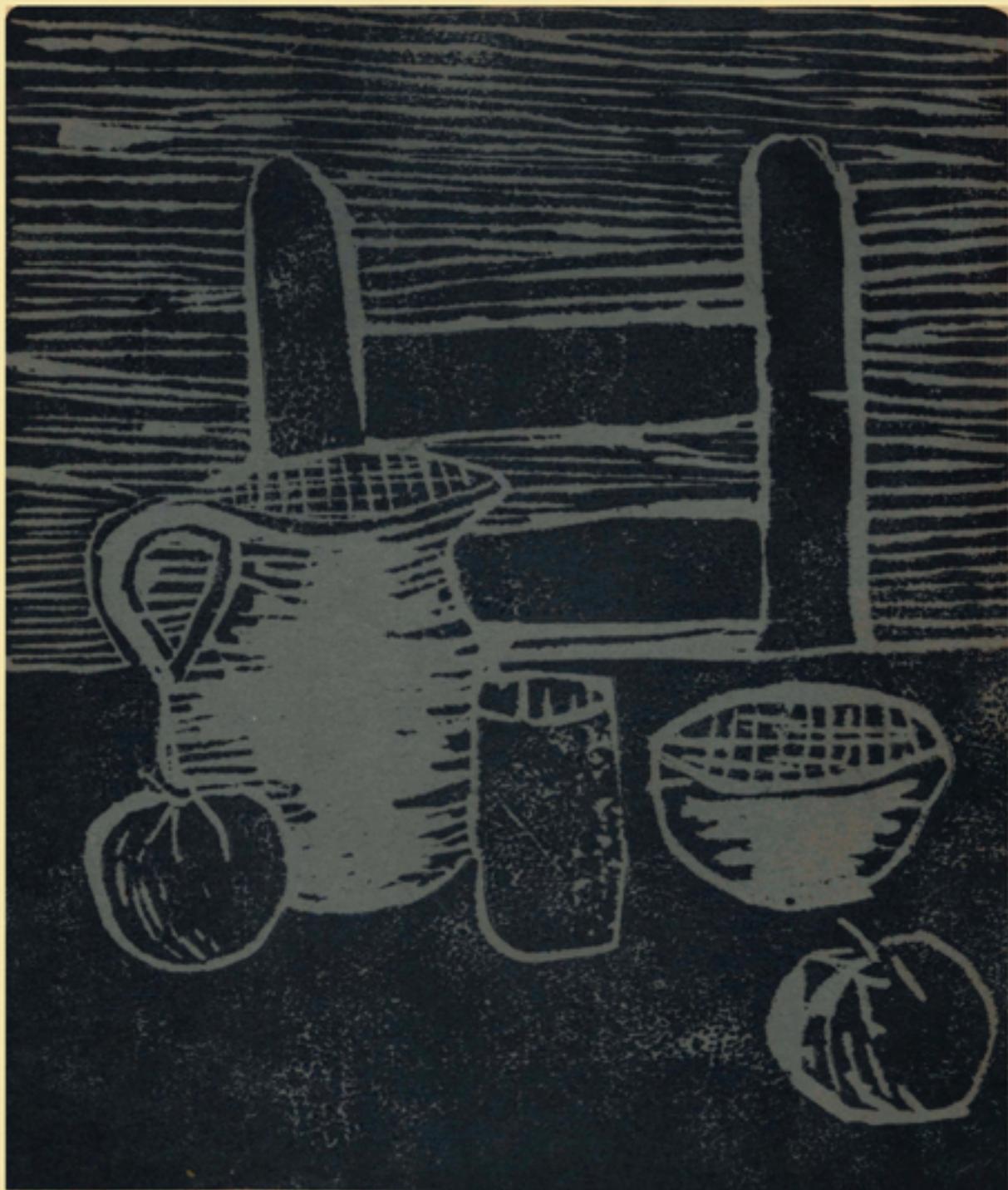
The sum total of the informal classroom observations left with the observer the feeling that the underlying philosophies of the New Education were evident in all the units taught. Life situations were always in mind. Artistic, well constructed articles were made and sold when occasion arose. The instructor was careful to use these opportunities to instill ethics of good salesmanship into those pupils who were "taking orders." The articles in question must be as perfectly made as possible, and worth the purchase price. Posters were constructed for various school projects, and most interest was taken in making articles of a high enough standard to be placed in the display cabinet. The cabinet was the ultimate goal of meritorious achievement. It was impossible not to note the influence of patient, pleasant, skillful and interested instruction in all sections. Outbursts of temperament of an unpleasant kind on the part of individual pupils never occurred. In one instance, an extremely original child, out of rapport with his group, was given special shop work to do in order to convert his individuality to useful ends. One is brought to the conclusion that the most skillful instruction to bring out the best efforts of pupils is that which is the least evident to the observer.

Systematic weekly observation from the first unit taught in December, 1936, through the last unit completed in April, 1937, brought the writer to the conclusion that regardless of quality and technique of work done, the unmarked and the child-centered elements cultivated happier, freer and more original children. The marked groups, however, were keenly interested in the marking feature and, as seems entirely logical, were anxious to please the instructor. Subjective judgment and observations of the nature just indicated gave no indication of what the second test results would show. Marking undoubtedly affected the temperamental reaction of the marked groups, as did the non-competitive element affect the other group. But whether this would have any significant effect on the achievement remained to be seen. It was with keen interest that the art instructor and the writer gave the second set of tests. The results are given in Chapter V.



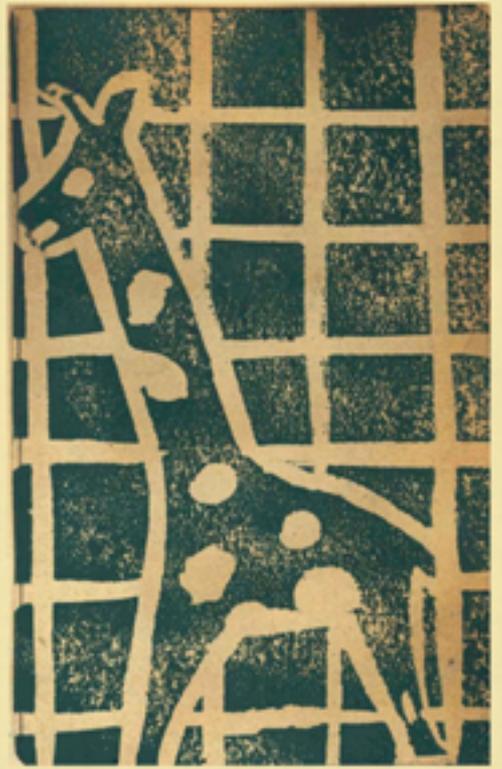














CHAPTER V

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

In the progress of this study two definite objectives were set up involving competitive marking and methods of teaching. The problem was stated in the beginning of the manuscript:

- (1) The main problem of this study is to draw some conclusions as to the effect of competitive marking on the results of art units taught in the sixth and seventh grades.
- (2) A supplementary problem of the study is to compare the results of formal and child-centered methods of teaching art in the same grades.

In accordance with these stated objectives, or purposes, of this study and upon the basis of evidence presented, the following conclusions are set down and the ensuing recommendations are made.

1. Results and Conclusions

a. The experiment was conducted as described in Chapter III and when the time came to arrive at conclusions derived from the data obtained by giving the tests two distinct sets of results were tabulated to conform with the two objectives named above.// The first half of the experiment dealing with competitive marking was worked out

first. The 6-1 and 6-2 sections were paired child for child as to scores. Fifteen children were used as only this number paired sufficiently well. The same thing was done with the two seventh-grade sections with the exception that twenty children were found to be available. These same paired individuals in both grades were used for the second set of tests as well as the first. The population of the sixth and seventh grades totaled one hundred twenty-five as stated in Chapter I, but illness and loss from pairing groups reduced the number to much smaller groups. The following table sets forth the results of computations from the first test:

<u>Section</u>	<u>Mean</u>	<u>Correlation</u>	<u>Standard Deviation</u>
6-1	2.91)	. . . . .99	.35
6-2	2.94)		.35
7-1	3.11)	. . . . .98	.362
7-2	3.12)		.363

The norm scores from which this compilation was made were computed from the tests given at the beginning of the experiment according to the directions in the Manual of Directions.⁵³ The smaller numbers denote higher rank, as 1 is considered very superior and 5 very inferior.

The correlation is very high as 1.0 is considered a perfect correlation. The standard deviations were close also. This is to be expected in such perfectly paired

53. See Appendix C for Manual of Directions.

groups. The figures show that the groups were equal to start with. The second tests tell a different story.

<u>Section</u>	<u>Mean</u>	<u>Correlation</u>	<u>Standard Deviation</u>
6-1	2.11)		.44
6-2	2.37)	. . . . . .33	.49
7-1	2.62)		.42
7-2	2.98)	. . . . . .37	.46

We find that the correlation is very low denoting that the groups are no longer matched and thus indicating changes in scores. The means are quite different and the standard deviations are not uniform. Results of experimentation are indicated. The probable errors, differences of means, and probable error of the differences of the means of the groups are as follows:

<u>Section</u>	<u>P. E.</u>	<u>Dif. of Means</u>	<u>P. E. of the Dif. of the Means</u>
6-1	.079)		
6-2	.088)	. . . . . .26	. . . . . .097
7-1	.065)		
7-2	.071)	. . . . . .36	. . . . . .08

The formulas used for computing these figures are standard formulas found in any textbook on statistics. Correlation denotes a trend of relationship. Standard deviation is a number that denotes or measures scatteration. Two-thirds of the cases fall a standard deviation above or below the mean. The larger the figure denoting standard deviation the greater the scatteration. By probable error is meant the reliability of the mean found, or the probable error of the mean indicates that that certain number above and that certain number below the computed mean will contain

the mean within that range fifty per cent of the times. By the probable error of the differences of the mean is meant a measure of reliability of the difference of two means. It is found by a given formula. If the difference of the mean is as much as three times the probable error of the difference of the means, then that difference between the means is significant.

In this part of our experiment dealing with competitive marking we find therefore that the non-competitive 7-1 group is superior to the 7-2 competitively marked group because the 7-1 mean denotes a higher ability rating than the 7-2 mean. The small standard deviation of 7-2 shows a closer grouping around the mean. The 7-1 group had a mean of 2.62 which indicates a higher average score for the unmarked group than the 7-2 mean of 2.98 indicates, and the standard deviation shows that two-thirds of the cases for 7-1 were between 2.14 and 3.08. Therefore, the 7-1 section had a greater scatteration than 7-2. The middle two-thirds of the 7-1 group have a higher average score than the middle two-thirds of the 7-2 section, which ranges between 2.56 and 3.40.

In the case of the 7-1 and 7-2 sections the difference of the means, .36, is three times, and more, greater than the probable error of the difference of the means. Most authorities on statistics agree that three times the probable error is significant and many others claim 2.5 times

is significant,⁵⁴ and therefore, our figures justify the assumption that 7-1 ungraded or non-competitive marked group shows superiority over 7-2 marked group.

In the case of the sixth-grade sections the accompanying table shows the results:

<u>Section</u>	<u>Mean</u>	<u>Cor.</u>	<u>S. D.</u>	<u>P. E.</u>	<u>Dif. of mean</u>	<u>P. E. of dif. of mean</u>
6-1	2.11)	.33	.44	.079)	.26	.097
6-2	2.37)		.49	.088)		

Examination of the table clearly indicates a superior mean for 6-1 and less scatteration. The difference of the means is 2.7 probable errors. This lacks .3 of a point of being the three probable errors many authorities set as a significant difference but it is also larger than 2.5, set by other authorities. The writer feels justified, in the light of the above figures, in stating that as 2.7 probable errors is so near three probable errors it may be safely said that this difference of the means shows superiority of the non-competitive group over the competitive group. It may be further noted that the difference follows the same trend of the difference in the seventh grade. The difference in the seventh grade was significant beyond a doubt.

b. For the second half of the experiment, the part dealing with child-centered and formal method, the scores

54. Peters, Charles C., and Van Voorhis, Walter R., Statistical Procedures and their Mathematical Bases, p. 346.

of the entire sixth grade, approximately an equal number from each section, and the scores of the entire seventh grade, an equal number from each section, were used. These were re-paired, child for child, and score for score, as in the case of the competitive-marking groups. Twenty-six pairs were available.

The following table shows results obtained on the first test:

<u>Grade</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Correlation</u>
Sixth	3.17	.36)	.99
Seventh	3.17	.42)	

The higher correlation and close standard deviation denote almost perfect pairing for an equal start.

Computations from the second test scores give the following figures:

<u>Grade</u>	<u>Mean</u>	<u>Cor.</u>	<u>S. D.</u>	<u>P. E.</u>	<u>Dif. of mean</u>	<u>P. E. of dif. of mean</u>
Sixth	2.53)	.66	.46	.06)	.48	.054
Seventh	3.01)		.53	.07)		

A study of these figures indicates the superior mean of the sixth grade, the lower correlation indicating effect of experimentation on scores, difference in standard deviation, the lesser range belonging to the sixth grade, and the difference in mean which is more than three times the probable error of the difference of the means. This significant difference in the means denotes decided superiority of the sixth grade over the seventh, or it shows in this

case that experimentation places the child-centered method as superior to formal teacher-directed method.

These gains of the non-competitive marking and the child-centered groups over the competitive and formal groups have been shown objectively by the foregoing discussion. An examination of the raw scores is also significant. A tabulation of the raw scores, as well as the norm scores for all four sections for both first and second tests, is contained in the Appendix.⁵⁵ The raw scores show unquestionable advance in the non-competitively marked child-centered group. The scale used in reaching the norms allows quite a wide range between categories and thus wide scatteration is not shown.

In tabulating the norm scores obtained by the method set down in the Manual, an interval of .3 was used--the range going from 1.0 to 4.5. The 1.0 represents the highest score in the following scale of values, as 1 denotes very superior; 2, superior; 3, average; 4, inferior, and 5, very inferior.

2. Recommendations

It is previously stated in this manuscript that elimination of marks is a trend but not an accomplished fact. The work of eliminating the mark entirely, or in

55. See Appendix F.

selected fields, would have to start in the first grade. It would take a generation to test satisfactorily the results.⁵⁶ It is also stated in this thesis that self-expression may have been too greatly stressed and to the more conservative follower of the New Education "freedom with control or self-expression with direction"⁵⁷ would be a happier technique than either extreme freedom or extreme formality. The same type of experiment as the present one would be advantageous conducted over a period of several years.

A scientific attitude of mind in research precludes any preconceived attitude or feeling of disappointment in results obtained from a conscientiously conducted experiment and accurate computation of figures obtained. The writer feels justified in saying that the result of this experiment is significant enough to permit the theory that wider study along the same lines would yield more gratifying results from the standpoint of the philosophy of the New Education. Furthermore, the writer recommends not only the possible advantage of a further and more comprehensive educational research in the art field, following the same lines as were followed in this study and covering a period of two or three years, but also a similar

56. See page 43 of this manuscript.

57. See page 38 of this manuscript.

study in music and literature. Cultural fields, art, music, and literature, seem especially adapted to experimental research of this kind, and a longer period of research with wider sampling would probably show a more pronounced difference that would indicate definite superiority or lack of it in the non-competitive element, as well as throw light on different methods.

It was also found in conducting this experiment that an art test, of a different type than any on the market, is much needed.

The following portion of this thesis is given over to samples of the tests and manuals of directions for grading the tests. The tables contain very full tabulations of all types of data compiled.

THE PROGRESSIVE TEST SERIES

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Willis W. Clark, Los Angeles City Schools

STANDARDIZED TEST CONSTRUCTION REPORT

(Note: Authors of tests are expected to submit a prospectus covering the pertinent facts indicated in the following outline.)

Name of Test or Scale *Tests in Fundamental Abilities of Visual Art.*

Author *Alfred S. Lewerenz,*

Position *Statistician, Psychology and Educational Research Division,
Los Angeles City Schools.*

Purpose of Test or Scale:

The tests in Fundamental Abilities of Visual Art make possible the discovery of students who have special and unusual artistic talent. They are a valuable aid in the guidance of pupils.

By means of the battery of nine tests it is possible to analyze the main skills and abilities required in the field of art. These are:

- Test 1. Recognition of Proportion.*
- Test 2. Originality of Line Drawing.*
- Test 3. Observation of Light and Shade.*
- Test 4. Knowledge of Subject Matter.*
- Test 5. Visual Memory of Proportion.*
- Test 6. Analysis of Problems in Cylindrical Perspective.*
- Test 7. Analysis of Problems of Parallel Perspective.*
- Test 8. Analysis of Problems in Angular Perspective.*
- Test 9. Recognition of Color.*

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Hollywood, California

I. **VALIDITY.** (The extent to which the device measures what it purports to measure.)

A. **Content.** Indicate exact source of materials, such as (1) textbooks, (2) courses of study, (3) research, (4) others tests, (5) original with author, (6) etc.

The individual tests were selected because they were measures of the generally accepted fundamental abilities which condition success in art work.

B. **Correlation* with Criteria.** Give specific information, such as (1) correlation with similar tests, (2) ratings or teachers' marks, (3) results in use, (4) follow-up record, (5) etc.

There is a close correspondence between success on the test and success in art work as indicated by semester grades. Also a correlation based on test ranking and teacher's rating gave r as $.63 (\pm .063)$ in an investigation of 42 high school art students.

C. **Other Evidences of Validity.** Give other data, such as (1) scaling, (2) correlation with intelligence tests, (3) interpretation by author, (4) etc.

That the test is a measure of ability is shown by negligible correlations between the separate tests and I. Q. The test battery as a whole correlated with intelligence $.155$ using 939 cases.

* For each coefficient of correlation indicate the following data (1) number, nature, and method of selecting cases, (2) coefficients for single grade ranges, and for total grade range, (3) method of computing correlations, (4) reliability of criteria, and (5) standard deviations for each variable.

II. **RELIABILITY.** (The extent to which the device attains consistent results.)

A. **Coefficients^o of Reliability.** Give specific data, such as (1) split-half correlations corrected by Spearman-Brown formula, (2) equivalent form correlations, (3) retest correlations, (4) probable error of estimate.

On the basis of a retest after one month given to one hundred pupils a reliability of .872 (P. E. .018) was found.

B. **Other Evidences of Reliability.** Indicate any additional data such as (1) multiple correlations, (2) scaling, (3) reliabilities of sub-sections, (4) etc.

III. **OBJECTIVITY.** Indicate factors such as (1) clarity of method of pupil response, (2) time limits, (3) methods of pupil response, (4) objectivity of responses.

Pupils make their responses in an objective manner. All tests are given according to definite time limits.

IV. **ADMINISTRATION.** Indicate factors such as (1) extent to which self-administering, (2) control of time limits, (3) directions for giving, (4) scoring device, (5) tabulation of results, (6) diagnosis of responses, (7) interpretation of results.

All necessary directions for giving the tests are given on the tests themselves. Each test is scored by means of a key or scale. A profile chart permits diagnosis and interpretation of results in terms of the ability of other individuals of the same age and grade.

V. **NORMS AND STANDARDS.** Indicate such factors as (1) adequacy of sampling, (2) age or grade norms, (3) percentiles for age or grade series, (4) norms for sub-sections, (5) norms for different groups with which test will be used.

The norms are based on 1000 cases representing children from the fourth through the twelfth grades. On the basis of extensive use the norms seem valid. Scores can be converted into a numerical standing and an ability rating. Norms are provided for elementary school, junior high school, and senior high school levels.

VI. **EQUIVALENT FORMS.** If there are alternate or equivalent forms give data such as (1) number of forms, (2) method of obtaining equivalence, (3) intercorrelations, (4) average scores, standard deviation, and range of scores by grade or age groups for the various forms.

There is one form of the test available.

VII. **MANUAL.** Indicate the extent to which data are included, such as (1) basis of construction, (2) purposes, (3) validation, (4) directions for giving, (5) directions for scoring, (6) interpretation of results.

The Manual and Directions gives the basis for the construction of the tests, the method of validating the tests, and directions to the examiner for giving and interpreting the results.

VIII. **PRELIMINARY FORMS.** Indicate data concerning preliminary forms, such as (1) page size, (2) size and style of type, (3) illustrative material, (4) changes after try-out.

The tests were given a preliminary try-out for more than a year in mimeograph form. The present tests have the same content as the original forms.

IX. **ADDITIONAL DATA.**

Price: Part I (Tests 1 and 2), \$2.00 per package of 100 tests.

Part II (Tests 3, 4 and 5), \$2.00 per package of 100 tests.

Part III (Tests 6, 7, 8 and 9), \$3.50 per package of 100 tests.

Manual of Directions, 35c each, net.

Color Chart (required for Test 9), \$4.00 each, net.

TESTS IN FUNDAMENTAL ABILITIES OF VISUAL ART

For Grades 3-12

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PART I

TEST 1. RECOGNITION OF PROPORTION, 10 Minutes

TEST 2. ORIGINALITY OF LINE DRAWING, 20 Minutes

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name..... <small>First name, initial, and last name</small>	Age..... <small>Last birthday</small>	Years.....	Profile 5 Very Inferior 4 Inferior 3 Average 2 Superior 1 Very Superior
Birthday..... <small>Month Day</small>	Grade.....		
School.....			
Teacher.....			
Date..... 192..... Period.....			
PUPILS WILL NOT WRITE BELOW THIS LINE			
Part I	Raw Score	Norm Standing	Ability Rating
Test 1. Recognition of Proportion.....			
Test 2. Originality of Line Drawing.....			
Part II			
Test 3. Observation of Light and Shade.....			
Test 4. Knowledge of Subject Matter.....			
Test 5. Visual Memory of Proportion.....			
Part III			
Test 6. Analysis—Cylindrical Perspective.....			
Test 7. Analysis—Parallel Perspective.....		Avg. ^o	
Test 8. Analysis—Angular Perspective.....			
Test 9. Recognition of Color.....			
	Total	7)	
	Average		Avg.

*Note: Average Tests 6, 7, 8 to find norm standing for analysis of perspective.

Recommendations:

TEST 1. RECOGNITION OF PROPORTION.

SCORE

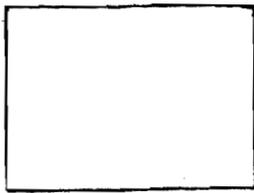
DIRECTIONS: (To be read aloud by examiner and silently by pupils).

This is a test to show how well you can judge designs and shapes. On the two pages are fifteen sets of pictures. Each set includes figures from bad to good in shape. You are to pick out the one you like best in each set and mark it with an (X). The first set is a sample. Rectangle Number 3 is the best one so it has been marked with an (X). Now do the other fourteen sets in the same way, beginning with the bowls.

(Time Limit: 10 minutes)

(Sample Set)

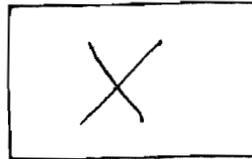
Rectangles



1



2



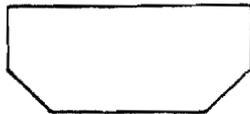
3



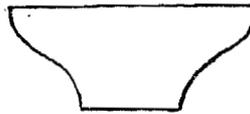
4

(Begin Here)

Bowls



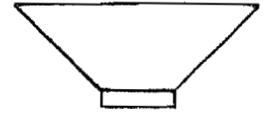
1



2



3



4

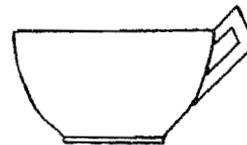
Cup Handles



1



2

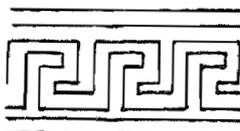


3

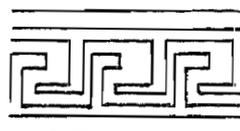


4

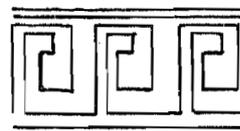
Friezes



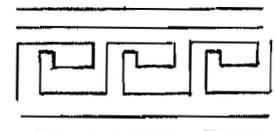
1



2



3

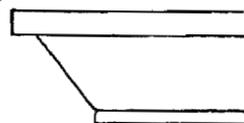


4

Cornices or Mouldings



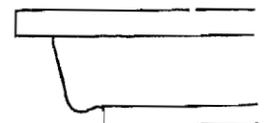
1



2



3



4

Curves



1



2

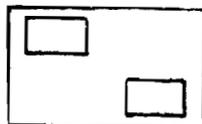


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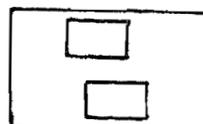


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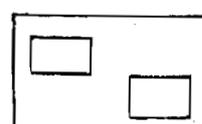
Balance of two equal masses



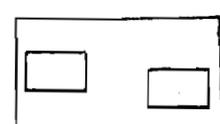
1



2



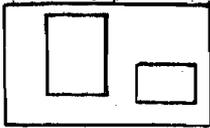
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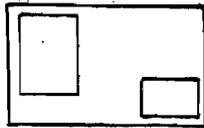
4

Go right on with the problems on the next page.

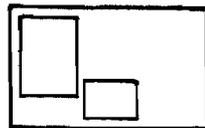
Balance of two unequal masses



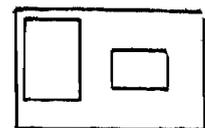
1



2

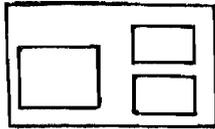


3

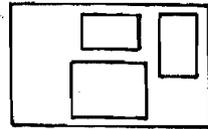


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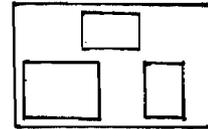
Balance of one mass with two equal masses



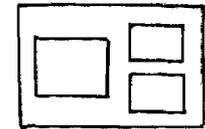
1



2

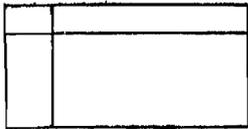


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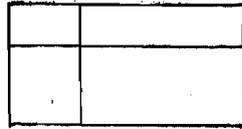


4

Space division with single lines



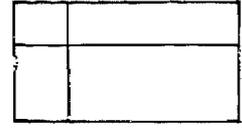
1



2

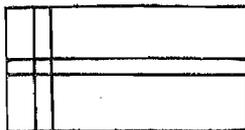


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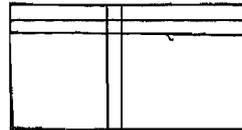


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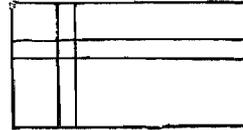
Space division with double lines



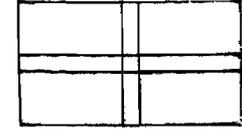
1



2

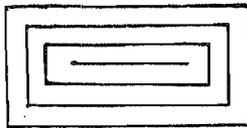


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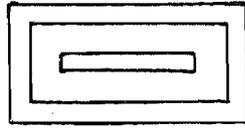


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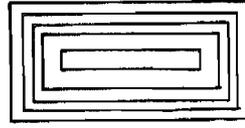
Space division with several lines



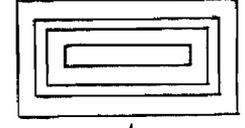
1



2

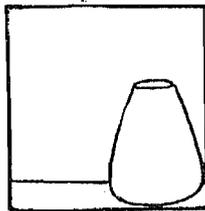


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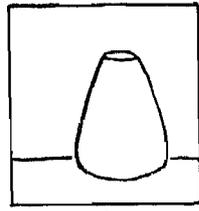


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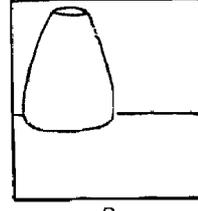
Composition with one object



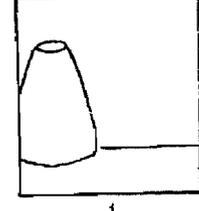
1



2

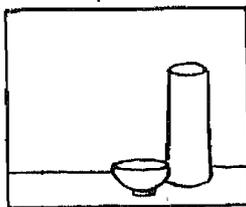


3

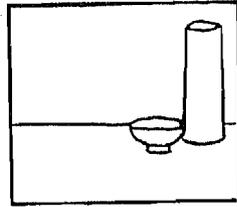


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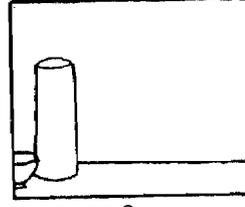
Composition with two objects



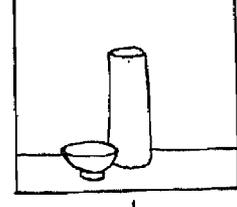
1



2

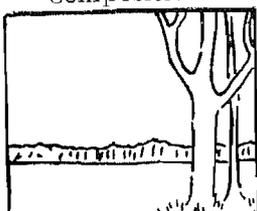


3

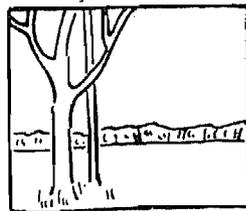


4

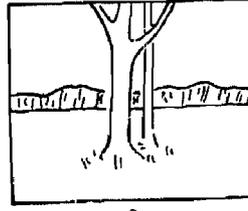
Composition with landscape



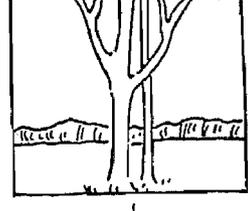
1



2



3



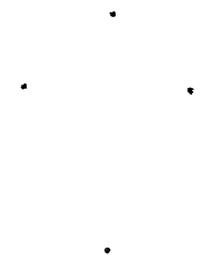
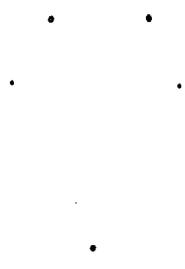
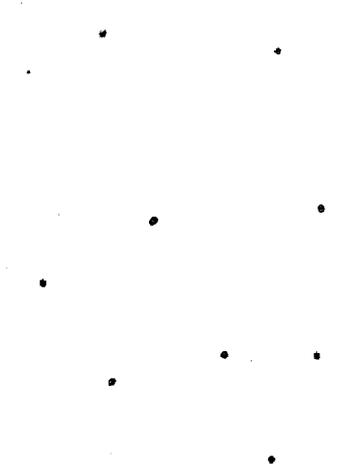
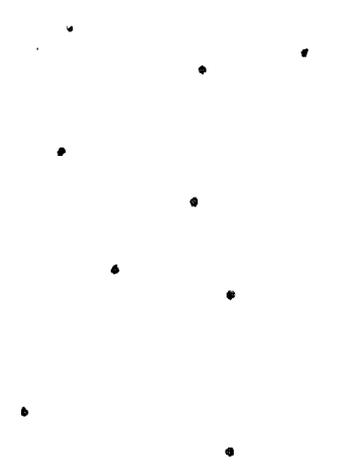
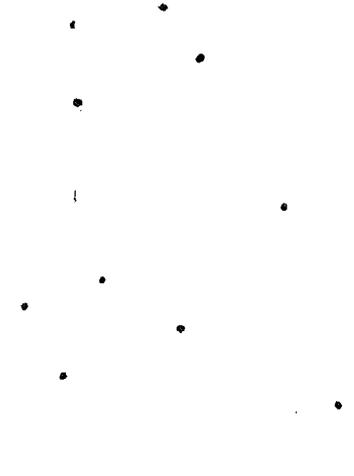
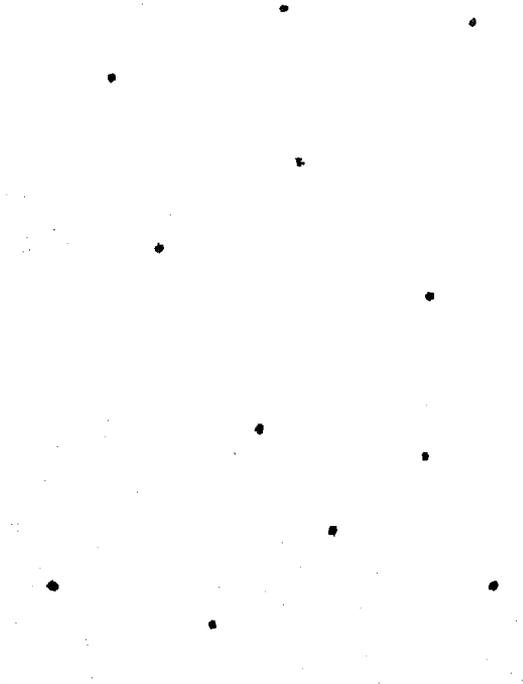
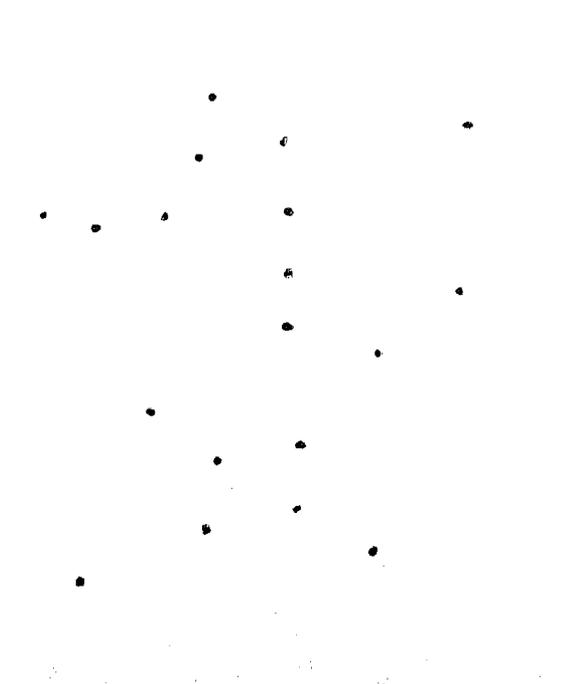
4

TEST 2. ORIGINALITY OF LINE DRAWING.

DIRECTIONS: (To be read aloud by examiner and silently by pupils).

What line drawings can you draw in the ten sets of dots below? Perhaps they will be

(Time Limit: 20 minutes)

1 	2 	3 	4 	5 
6 	7 	8 		
9 	10 			

TESTS IN FUNDAMENTAL ABILITIES OF VISUAL ART

For Grades 3-12

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PART II

TEST 3. OBSERVATION OF LIGHT AND SHADE, 5 Minutes

TEST 4. KNOWLEDGE OF SUBJECT MATTER VOCABULARY, 20 Minutes

TEST 5. VISUAL MEMORY OF PROPORTION, 5 Minutes

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving you name, age, birthday, etc. Write plainly.

Name..... Age last birthday..... years
First name, initial, and last name

Birthday..... Teacher..... Date..... 192.....
Month Day

Grade..... School..... Period.....

SUMMARY OF TESTS

TEST	RAW SCORE	ABILITY RATING
3	.....	.....
PART II	4	.....
	5	.....

TEST 3. OBSERVATION OF LIGHT AND SHADE.

SCORE

DIRECTIONS: (To be read aloud by examiner and silently by pupils).

This is a test to show how well you understand and interpret problems in light and shade. In the ten drawings below mark with an (X) each place or surface where you think there should be a shade or a shadow. The light is coming from the left. Only the objects in No. 6 and No. 7 are open.

(Time Limit: 5 minutes)

<p>1</p>	<p>6</p>
<p>2</p>	<p>7</p>
<p>3</p>	<p>8</p>
<p>4</p>	<p>9</p>
<p>5</p>	<p>10</p>

SCORE

TEST 4. KNOWLEDGE OF SUBJECT MATTER VOCABULARY.

DIRECTIONS: (*To be read aloud by examiner and silently by pupils.*)

This is a test to show how well you know the meanings of words and names commonly used in art work. Notice the sample set of words below. You are to find the word in the left hand list that belongs best with one certain word in the right hand list. The first five words of the list have the correct answers already given. Number 1, St. Patrick's Day, of course belongs with shamrock, so a figure 1 is placed in the parenthesis () beside shamrock. As Valentine's Day belongs best with hearts, a figure 2 is written beside the latter, likewise Thanksgiving and grains, Hallowe'en and witches, Christmas and star are the correct pairs. Now fill in the other five. (*Examiner pauses two or three minutes.*) You should have: (6) lilies; (7) log cabin; (8) cherries; (9) flowers; (10) baskets.

Sets A, B, C, and D are to be answered the same way. Wait until you are told to start. Ask questions now.

(*Time Limit: 20 minutes*)

Sample Set	Motifs	A	Materials
1. St. Patrick's Day	(2) hearts	1. cut paper	() pen
2. Valentine's Day	(3) grains	2. ink	() triangle
3. Thanksgiving	() baskets	3. crayon	() scissors
4. Hallowe'en	() cherries	4. clay	() eraser
5. Christmas	(1) shamrock	5. water color	() palette
6. Easter	() flowers	6. art gum	() brush
7. Lincoln's Birthday	() lilies	7. turpentine	() oil paint
8. Washington's "	(4) witches	8. T Square	() modeling tool
9. Memorial Day	() log cabin	9. spatula	() cast
10. May Day	(5) star	10. plaster	() dry color
B1 Processes (Craft)		B2 Processes (Graphic)	
1. thread	() applique	1. wood block	() fixative
2. reed	() stitchery	2. blue print	() knife
3. cloth	() metal	3. pastel	() nitric acid
4. wax	() jewelry	4. charcoal	() crayon
5. tooled	() baskets	5. etching	() incised metal
6. ceramic	() batik	6. engraving	() canvas
7. hammered	() lamp shades	7. lithograph	() stylus
8. hand loom	() pottery	8. monotype	() tracing
9. parchment	() fabric	9. oil	() stone
10. unit	() leather	10. dry point	() glass
C Drawing Terms		D Pictures	
1. horizon	() eye level	1. Dupre	() "Lion"
2. dark	() area	2. Reynolds	() "Escaped Cow"
3. background	() convergence	3. Landseer	() "The Syndic"
4. space	() plan	4. Bonheur	() "Miss Bowles"
5. surface pattern	() unity	5. Holbein	() "Mother"
6. scale	() ellipse	6. Homer	() "Ploughing"
7. chroma	() intensity	7. Monet	() "The Poplars"
8. cylinder	() all over design	8. Whistler	() "Erasmus"
9. balance	() light	9. Rembrandt	() "The Lake"
10. vanishing point	() division	10. Corot	() "Fog Warning"

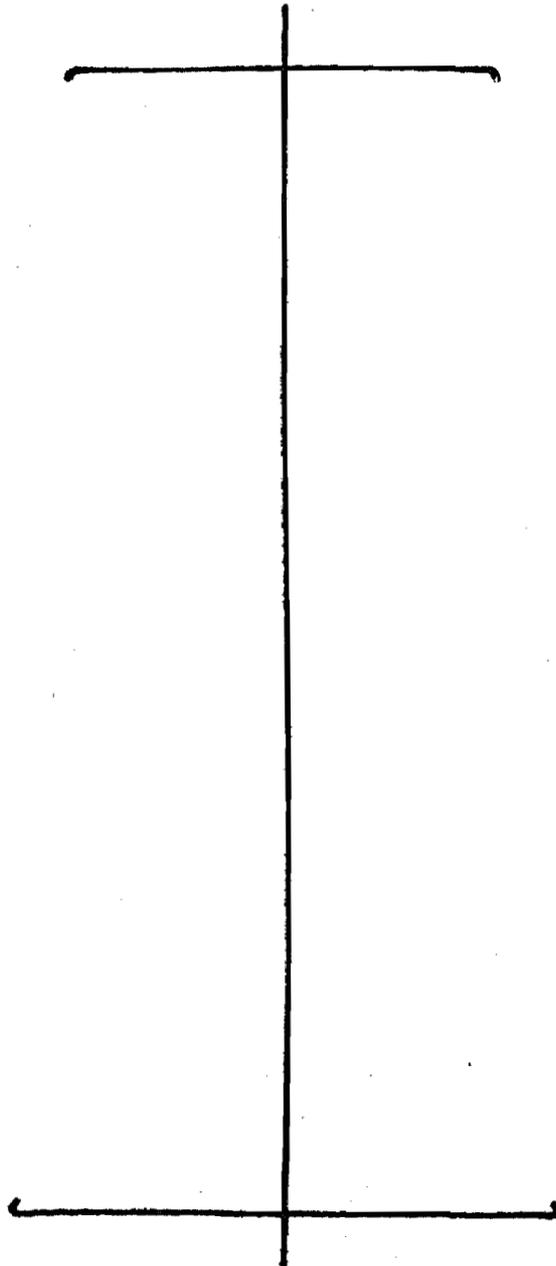
SCORE

TEST 5. VISUAL MEMORY OF PROPORTION.

DIRECTIONS: (To be read aloud by examiner and silently by pupils).

This is a test to show how well you can remember and draw the outline of a vase form. To help you, the lines that exactly represent the top and bottom of the vase are already given on this sheet. You are to draw the sides after you have looked carefully at the shape of the vase form. Do not draw anything until you are told to do so. Make your drawings clear by erasing all but your best try. Use pencil only in drawing.

(Vase form is shown for 2 minutes. Time Limit: 5 minutes after vase form is taken down.)



PART III

TEST 6. ANALYSIS OF PROBLEMS IN CYLINDRICAL PERSPECTIVE, 5 Minutes

TEST 7. ANALYSIS OF PROBLEMS IN PARALLEL PERSPECTIVE, 5 Minutes

TEST 8. ANALYSIS OF PROBLEMS IN ANGULAR PERSPECTIVE, 5 Minutes

TEST 9. RECOGNITION OF COLOR, 20 Minutes

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name.....Age last birthday.....years
First name, initial, and last name

Birthday.....Teacher.....Date.....192.....
Month Day

Grade.....School.....Period.....

SUMMARY OF TESTS

TEST	RAW SCORE	ABILITY RATING
6
7
8
9

PART III

TEST 6. ANALYSIS OF PROBLEMS IN CYLINDRICAL PERSPECTIVE

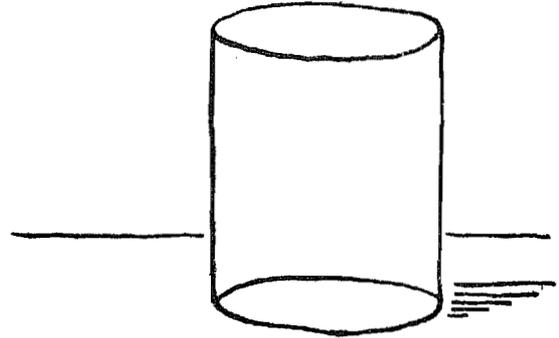
SCORE

DIRECTIONS: (To be read aloud by examiner and silently by pupils).

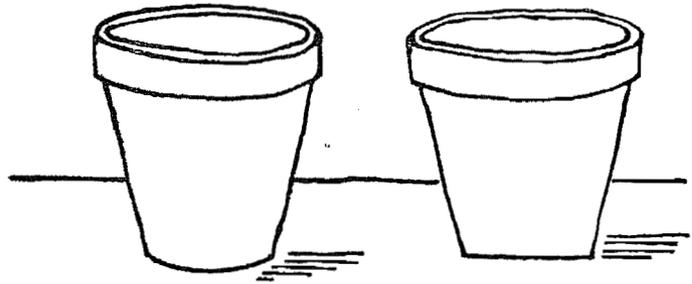
This is a test to show how well you know the principles of the perspective of round objects. Read carefully each problem and do what it tells you.

(Time Limit: 5 minutes)

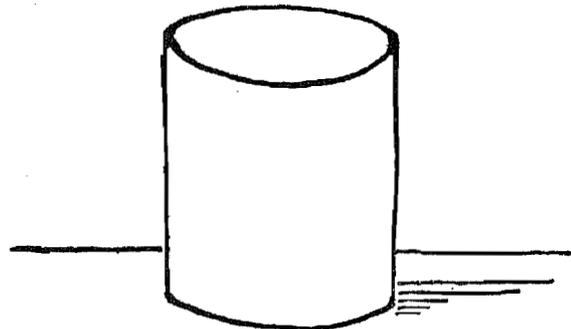
1. Mark with an (X) the line that is wrong in this drawing of a tin can.



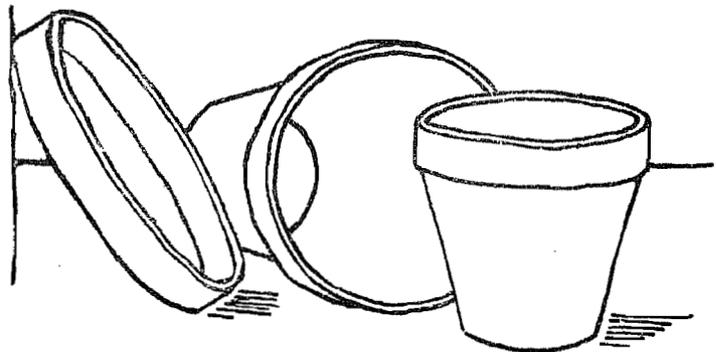
2. Mark with an (X) the edge of the flower pot that is incorrectly drawn.



3. Mark with an (X) the edge of the cylinder that is incorrectly drawn.

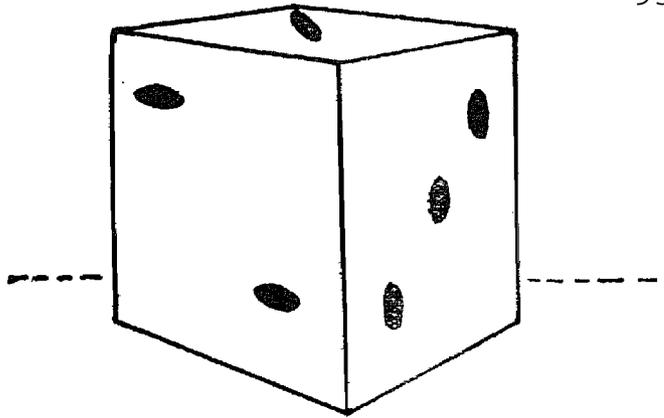


4. Mark with an (X) the object that is incorrectly drawn.

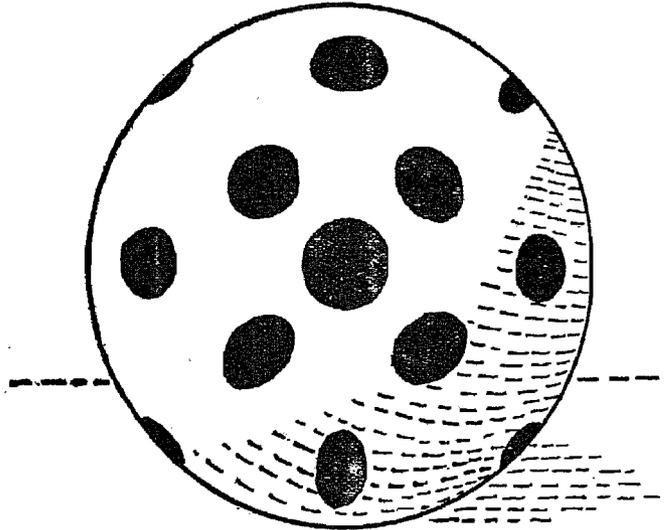


Go right on with the problems on the next page.

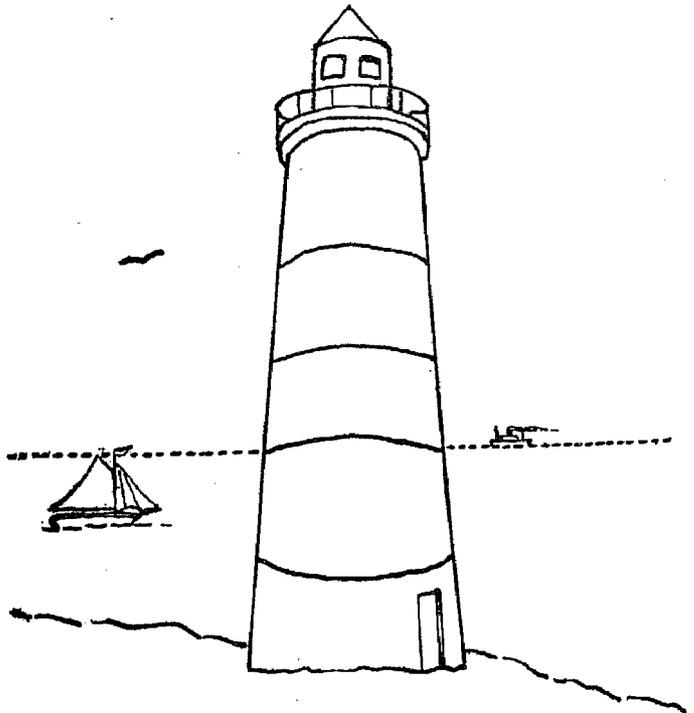
5. Mark with an (X) each of the three round spots on the cube that are incorrectly drawn.



6. Mark with an (X) each of the three round spots on the child's ball that are incorrectly drawn.



7. Mark with an (X) each of the two lines around the light house that are incorrectly drawn.



TEST 7. ANALYSIS OF PROBLEMS IN PARALLEL PERSPECTIVE.

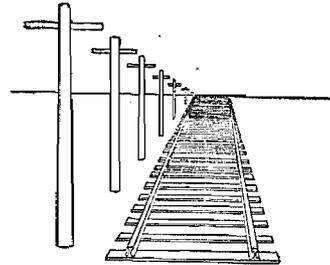
SCORE

DIRECTIONS: (*To be read aloud by examiner and silently by pupils.*)

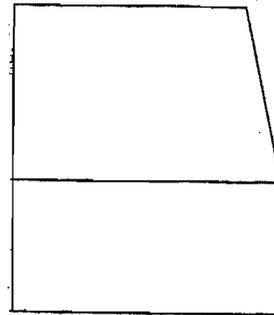
This is a test to show how well you know the principles of perspective with one vanishing point. In solving the problems you may use a ruler or other straight edge. Read carefully each problem and do what it tells you.

(*Time Limit: 5 minutes*)

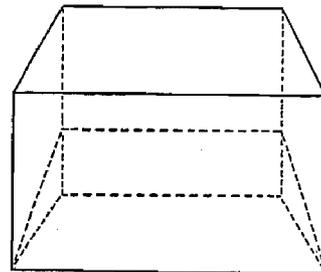
1. Mark with an (X) the rail of the railroad track that is wrongly drawn.



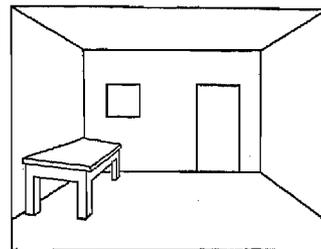
2. Mark with an (X) the edge of this box that is incorrectly drawn. The center of the box is straight in front of you.



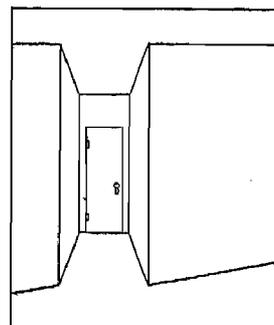
3. Mark with an (X) the horizontal line that is incorrectly drawn in this transparent box.



4. Mark with an (X) any two untrue or incorrect lines in this drawing.



5. Mark with an (X) each of the two untrue or incorrect lines in this hall with connecting passage.



TEST 8. ANALYSIS OF PROBLEMS IN ANGULAR PERSPECTIVE.

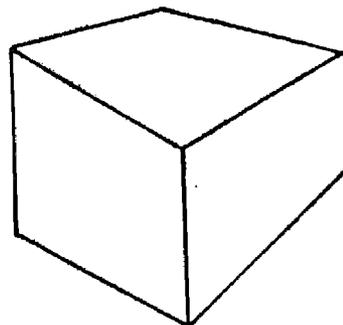
SCORE

DIRECTIONS: *(To be read aloud by examiner and silently by pupils).*

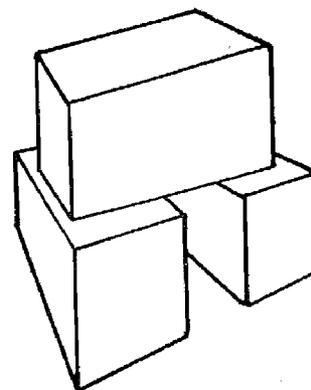
This is a test to show how well you know the principles of perspective with two vanishing points. In solving the problems you may use a ruler or other straight edge. Read carefully each problem and do what it tells you.

(Time Limit: 5 minutes)

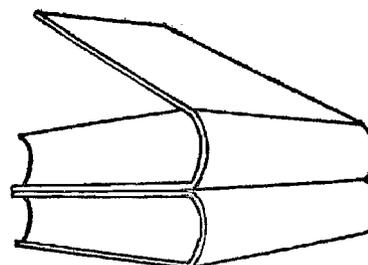
1. Mark with an (X) the edge of this box that is incorrectly drawn.



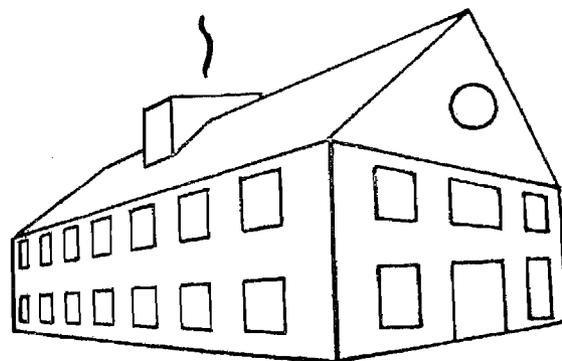
2. Mark with an (X) each of the three incorrectly drawn surfaces.



3. Mark with an (X) the edge of the book that is incorrectly drawn.



4. Mark with an (X) five incorrectly drawn parts of this building.



Test Advisory Committee

Ernest W. Tiegs, University of Southern California
 J. Murray Lee, Director of Research, Burbank City Schools
 Willis W. Clark, Los Angeles County Schools

MANUAL OF DIRECTIONS

TESTS IN FUNDAMENTAL ABILITIES OF VISUAL ART

CONTENTS

I. Introductory Statement - - - - -	1
Description of the Field - - - - -	1
Historical Aspects - - - - -	1
II. Giving and Scoring the Tests - - - - -	1
Preliminary Instructions - - - - -	1
The Individual Tests, Including Purpose, Type, Procedure and Scoring - - - - -	2
III. Interpretation of the Tests - - - - -	7
Standardization of the Tests - - - - -	7
Reliability - - - - -	7
Validity - - - - -	7
Interpretation of Individual Tests - - - - -	8
Interpretation of Combined Scores - - - - -	9
Procedure for Evaluating Tests Results - - - - -	9
Sample Case - - - - -	10
IV. Norms - - - - -	11

I. INTRODUCTORY STATEMENT

Description of the Field. A test for general ability in art can be made up of a number of tests covering such abilities as discrimination of color, visual memory of proportion, observation, analysis, originality and recognition of aesthetic proportion. The task is to construct a test series utilizing art subject matter that indirectly tests certain skills.

The Lewerenz Tests in Fundamental Art Abilities seek to measure seven items by means of nine separate tests. The tests are grouped into three parts. Each part can be given during a period of thirty-five minutes. The tests are as follows:

Part I

1. Recognition of Proportion.
2. Originality of Line Drawing.

Part II

3. Observation of Light and Shade.
4. Knowledge of Subject Matter Vocabulary.
5. Visual Memory of Proportion.

Part III

6. Analysis of Problems in Cylindrical Perspective.
7. Analysis of Problems in Parallel Perspective.
8. Analysis of Problems in Angular Perspective.
9. Recognition of Color.

Historical Aspects. The tests were constructed after a survey had been made of all available references on art tests and related studies.

The work of J. S. Clark, M. V. O'Shea and G. Kerschensteiner, who were pioneers in the field, was studied. Various scales for judging children's drawings were examined, such as those of Thorndike, 1912; Kline-Carey, 1922; Child Study Committee, 1924; Providence, 1926; and Crow, 1926.

An analysis of the content of the Los Angeles visual art course of study was next made with regard to required skills and abilities that might be tested. It was felt that the difficulty with previous tests was that they attempted to measure achievement rather than native ability. On an achievement test a child of superior art ability but no training will not do as well as the less gifted child who has had training. The tests described below are accordingly designed to measure abilities rather than the product of abilities.

II. GIVING AND SCORING THE TESTS

First the general instructions for administering the tests will be given and then the individual tests for abilities conditioning success in visual art will be described from four standpoints as follows:

1. Purpose of the test.
2. Type of test.
3. Procedure for giving the test.
4. Method of scoring the test.

Preliminary Instructions. It is highly desirable that both counselors and teachers of art administer the full battery of tests in classifying the pupils according to potential art ability.

If a counselor, however, wishes to make a rather quick survey of a group he may give only Part I, which contains the tests on recognition of proportion and originality.

Allow a full period for the giving of each of the three parts of the test.

In preparation for the tests desks should be cleared and each pupil supplied with a pencil and an eraser. It is well for the examiner to have extra pencils at hand.

Directions should be given quietly and slowly.

Pupils should understand that booklets are not to be opened until the signal is given.

Distribute booklets.

Fill necessary blanks on front cover page.

When the examiner is certain that the heading has been correctly filled in by all pupils, the direction to open the booklet to the first test page may be given.

THE INDIVIDUAL TESTS—Part I.

TEST 1. RECOGNITION OF PROPORTION

PURPOSE. It was desired to evaluate a child's aesthetic judgment of related lines with this test. An appreciation of what is "right" must be a guide to the one who would avoid the unlovely in art. There is much in composition that depends upon a natural or cultivated understanding. Some people feel that certain of those principles have been reduced to formula as in the theory of Dynamic Symmetry.

Whether or not a person derives his knowledge of what is harmonious from a cultivated understanding or rule of thumb methods, it is important to know how well his knowledge functions. Given two people of equal ability in color recognition, originality, enthusiasm and training, the one who consistently defies the principles of harmony and rhythm will not be as well recognized as the one who takes account of these laws.

While a sense of proportion seems to be in-born with certain persons and to appear markedly in certain racial groups, such as the Japanese, it, nevertheless, is something that can be taught. Before a teacher of art starts a course in art appreciation she should know where the class stands as a whole and as individuals in the matter of recognized form and beauty. As in the other branches of school work, art education consists in taking a child from where he is to where he should be. Those who are found unable to distinguish between those forms which have aesthetic merit and those that do not should be awakened to a keener sense of discrimination. On the other hand, those students who are highly sensitive to that which is superior should be given a chance to come in contact with advanced types of art expression. These superior pupils should not be limited by those who are not yet at their level.

The sooner a teacher can discover the composition of her class, the longer she will have to give intelligent individual instruction. To better enable a teacher to form her judgments, some sort of an objectively scored test in recognition of proportion is of value.

TYPE. The kind of test chosen for the recognition of proportion is one of multiple-choice with four response possibilities. There are fifteen sets of drawings with four pictures to a set. Each set is made up of four bowls, friezes, cornices, curves, still life compositions, etc., varying from bad to good in proportion and balance. The first set of pictures which are rectangles is a sample of how the child is to indicate his choice. Each pupil simply marks with an (X) the picture of the four in each set that he likes best and feels to be most pleasing.

There are two types of pictures. The first part of the test is made up of forms that are more or less standard. The subjects are of frequent occurrence and anyone who has been at all observant will not have trouble in judging the correct forms. The second part of the test is made up of problems based on abstract proportion and balance. These forms make a fairly good test because the person who lacks in aesthetic feeling will choose the obvious. With this second set the obvious is not the harmonious. Competent judges, however, are well agreed upon those indicated as correct in the answer sheet.

The problem that faces the teacher of art is the amount of spread between the response of the uninitiated and that of competent judges.

The work of the teacher of art is to reduce the amount of spread between the response of her class and that of competent judges.

PROCEDURE. The examiner reads to the class while they follow silently the following directions:

This is a test to show how well you can judge designs and shapes. On the two pages are fifteen sets of pictures. Each set includes figures from bad to good in shape. You are to pick out the one you like best in each set and mark it with an (X). The first set is a sample. Rectangle Number 3 is the best one so it has been marked with an (X). Now do the other fourteen sets in the same way, beginning with the bowls.

Questions regarding friezes, cornices, compositions, etc., should be answered briefly and not in such detail as to give clues as to which is the best type. In general answers should be limited to making clear the meaning of the words.

Allow ten minutes for the test.

SCORING. The simplest way to score this test is to take an unused copy of the test and mark on it the correct shapes in some conspicuous color as follows:

Bowls	3
Cup handles	4
Friezes	1
Cornices or Mouldings.....	1
Curves	4
Balance of two equal masses.....	3
Balance of two unequal masses.....	1
Balance of one mass with two equal masses..	4
Space division with single lines.....	2
Space division with double lines.....	3
Space division with several lines.....	4
Composition with one object.....	2
Composition with two objects.....	1
Composition with landscape.....	2

With a little practice in scoring the key can be put aside and the work done from memory.

The score is the number right.

TEST 2. ORIGINALITY OF LINE DRAWING

PURPOSE. The test is designed as a measure of originality in drawing. Freshness of imagination and the ability to surmount the commonplace are qualities highly prized in the art world. A means is needed whereby a child's capacity to produce spontaneously interesting and delightful sketches can be detected. Such a device should be available not only to the teacher of art, but also to other teachers. This test seeks to discover quickly with a minimum amount of time and effort on the part of pupils and examiner the degree, type and development of originality possessed by each member of the class.

There is a saying that "Genius will out," but there is sufficient evidence on hand to indicate that this is not at all true. Intelligence tests have shown that there are numerous pupils of superior mental capacity who have been rated low by their teachers on the basis of bad behavior, health, physical appearance or a dozen other external factors. It is probably true that for every student of known art ability in high school, who is taking elective courses in art, there is another who has not yet been discovered. This is the age of conservation not only of natural resources in the form of timber, oil and water power but also of human abilities. Our nation is now in the stage where our greater wealth and abundant leisure time call for greater aesthetic expression. The mental outlook of an entire city can be modified for the better by improving the surroundings. That every student growing to citizenship should be as highly trained in art as his capacities warrant goes without saying. The work of the school, then, is to discover these capacities and to govern their instruction accordingly.

As originality is the golden gift which brings freshness to the world it is highly important that there be some effective way of covering an entire school population in the search for it. In the past, schools have been satisfied with chance methods of finding talent, but the same methods that are now being used in the academic subjects, such as reading and arithmetic, may very well be applied in the sphere of art.

TYPE. One might say that this is an essay type of test with certain requirements which make possible a degree of objectivity. If you wish to test a child's originality in drawing and tell him to draw whatever he wishes, he is apt to reproduce for you several favorites from his store on which he has practiced again and again. Nearly every child will be able to draw some sort of comic face, ship, cannon, house or other object that he has been wont to sketch in idle moments. His reproductions, therefore, are not expressions of originality but rather of interests.

A way out of this stock cartoon difficulty was found by creating a problem for the child. A

sort of originality sieve was made by the use of dots. On the test page are arranged ten sets of dots ranging in number from three to eighteen. These dots the child must incorporate in his drawings. The first five sets are arranged after a somewhat geometrical fashion but with no definite shape in mind. This plan makes possible drawings of an abstract design quality. The five sets in the second series are composed of dots set down absolutely at random. This arrangement permits of any fanciful or naturalistic interpretations.

The purpose of the dots is not to suggest shapes or forms to pupils, but they are there to block any attempts to reproduce standardized representations. The nature of the test prevents the drawing of favorite figures and designs which a child of only moderate ability may be able to draw with a degree of perfection, but it does not hinder the person with the power of free expression. To those who are original, the test proves to be a stimulation for new concepts. Those who are not gifted find themselves unable to surmount the obviousness of the dots and produce dot to dot drawings. The genius, on the other hand, sweeps over the dots and while including them, is not confined by them. It is this ability to express beauty while at the same time solving a problem that distinguishes the really able student.

To sum up, the dots are used in the test: first, to eliminate stereotyped drawings; secondly, to permit drawings both of a naturalistic and design type; and thirdly, to provide a means for scoring on a semi-objective basis through the use of a rating scale.

PROCEDURE. The following directions are read aloud by the examiner and silently by the pupils:

What interesting things can you draw in the ten sets of dots below? Perhaps they will be joyful, serious, tragic, humorous, entertaining or decorative. Draw some pleasing well proportioned shape in each of the spaces. Let each drawing include all dots in that particular space. You may use straight or curved lines. If you wish you may add lines to improve your drawing. Draw any object your imagination may suggest. With one word tell what you have drawn.

The directions should be given in a manner which will encourage pupils to their best effort. The examiner may awaken the interest of the class in any legitimate way, but he must be careful not to suggest *subjects* for drawings. Care should be taken that the drawings are all made the right side up. The above directions may be paraphrased for younger children. The main consideration is to get the children into an attitude where they will gladly draw subjects of their own creation.

Allow twenty minutes for the test.

SCORING. In order to score tests a series of six rating sheets are used ranging in value from 0 to 5. These rating sheets are based on original drawings made by people who have taken the test. They represent the varying levels of originality as follows:

0 *Value.* Dot to dot drawings without the addition of any significant lines. A total inability to see possibilities or to even make adaptations is indicated. The dots are predominant.

1 *Value.* Dot to dot drawings are again predominant but by the addition of a few lines afterward the child can bring out the semblance of a person or object.

2 *Value.* For the first time creative imagination is shown rising above the obviousness of the dots. The student imagines his subject and then draws it in such manner that the dots are subordinate. The drawings in the main are faces, more or less grotesque.

3 *Value.* The quality of the drawings and the variety of subjects are about the same as in value 2. More motion in the figures drawn will be observed, however. There will be the first feeling of aesthetic quality and rhythm shown.

4 *Value.* A decided increase in rhythmic motion and design are manifested. The aesthetic quality of some of the pictures will be commendable. The grotesque and comical will give place to subtle humor.

5 *Value.* All drawings will be excellent of themselves though incorporating the problem dots. Rhythm, balance, and subject will show very superior talent. The design quality probably will be present to a greater extent than the naturalistic. In general, the work is such that it would receive the approval of competent judges.

To score a set of papers, the six scoring sheets are placed in a row on a table. The test papers are then compared carefully, one by one, with the samples to find in which classification each belongs. Judgment is based not on the perfection of drawing but on the quality of the ideas inspiring the drawing. The result is that pupils in a fifth grade can be as fairly judged as seniors in high school.

The score is the value of the rating sheet with which the test paper most nearly corresponds.

THE INDIVIDUAL TESTS—Part II.

TEST 3. OBSERVATION OF LIGHT AND SHADE

PURPOSE. The test is a measure of that part of general intelligence which is expressed in observation. By observation is meant the ability to recognize the details of a composition, and to comprehend the relationship of associated parts of the whole. The test seeks the ability to scrutinize closely compositions of varying complexity.

Observation is the quality needed to evaluate and interpret the subtle points found in any but the most simple and obvious composition. It is clearly an intellectual factor and one that contributes to successful art work.

TYPE. The test is a variation of the completion type adapted to the technique of drawing. Pupils are required to indicate omissions of shades and shadows in a series of drawings ranging from simple to complex. The idea has been employed in several intelligence tests in the same capacity, namely—as a measure of observation. In a series of ten drawings involving simple forms such as boxes, cylinders and spheres, certain essential shades and shadows have been omitted. The test is scaled in that with the advanced figures the shadows omitted are those which may fall upon two surfaces, thus complicating the problem and calling for a greater comprehension of the situation on the part of the pupil. The student is not asked to draw in the shades and shadows but to indicate where he thinks each should be with an (X).

PROCEDURE. Read aloud to the pupils as in the previous tests the directions:

This is a test to show how well you understand and interpret problems in light and shade. In the ten drawings below mark with an (X) each place or surface where you think there should be a shade or a shadow. The light is coming from the left. Only the objects in No. 6 and No. 7 are open.

Care should be taken that the pupils understand that the light is to be considered as coming from the left. Encouragement should be given for careful work to reduce the results of haste and guessing.

Allow five minutes for the test.

SCORING. Scoring is accomplished by means of a duplicate page on which all the possible correct responses are indicated with red (X's). It is possible, however, to score without a guide

The score is the number right.

TEST 4. KNOWLEDGE OF SUBJECT MATTER

PURPOSE. In industry one way of determining how much a person knows about a certain trade is to discover his knowledge of the trade terminology. The words chosen are peculiar to the trade and are not a part of the general vocabulary in common use. It has been demonstrated that a person is not likely to have an excellent trade vocabulary unless he has actually been employed in that trade. Thus it would be possible from out of ten unselected men to find the one who has been a mechanic and, if there were several such, the one who is probably most qualified through interest or experience.

This same method can be applied in art classes to secure a measure of the interests and experience of the pupils. Taken simply as a measure of vocabulary, the test has its value. Teachers are sometimes negligent in the terminology they employ in their instruction. Pupils may finish a course without an adequate conception of the materials or processes that they used.

An individual leaving school to start work in any art field should know the names of the implements and supplies that he will utilize. Art nomenclature is a phase of instruction that should receive greater emphasis.

TYPE. The vocabulary list that has been worked out has taken the form of a matching test. The form has six sections made up of ten pairs of words in each. The first set is a sample of how the pupils are to indicate their answers. The other five sets deal with materials, craft processes, graphic processes, drawing terms and pictures.

The word list was derived from the course of study manuals being used in the elementary and high schools of Los Angeles. The pictures are those recommended for special study in the elementary grades.

PROCEDURE. The examiner reads to the pupils the following directions:

This is a test to show how well you know the meanings of words and names commonly used in art work. Notice the sample set of words below. You are to find the word in the left hand list that belongs best with one certain word in the right hand list. The first five words of the list have the correct answers already given. Number 1, St. Patrick's Day, of course belongs with shamrock, so a figure 1 is placed in the parentheses () beside shamrock. As Valentine's Day belongs best with hearts, a figure 2 is written beside the latter, likewise Thanksgiving and grains, Hallowe'en and witches, Christmas and star are the correct pairs. Now fill in the other five. (Examiner pauses) You should have: (6) lilies; (7) log cabin; (8) cherries; (9) flowers; (10) baskets.

Sets A, B, C and D are to be answered the same way. Wait until the teacher tells you to start.

While the pupils are matching the sample set of words the examiner should observe the work of each child to make sure that he understands the method.

Allow twenty minutes for the test.

SCORING. The scoring key may be cut out and pasted to a piece of cardboard if much scoring is to be done.

As the correct answers are given along the edges, pupils' answers can be quickly checked by laying the answer card on the test sheet so that the appropriate parts coincide.

The score is the number right.

TEST 5. VISUAL MEMORY OF PROPORTION

PURPOSE. In drawing it is frequently necessary to reproduce accurately a form without, at the moment, looking directly at it. The test attempts to find out how well the student can reproduce a form with a line drawing based upon a mental image. It is the ability called into play with the short memory sketches used by many teachers of art. A vase or some such object is placed before the class for several minutes, then removed from sight. The class is then asked to draw from memory the proportions of the object. Accuracy of memory permits greater freedom and more facile work.

Native ability as well as training can bring a high score. Inasmuch as attention, visual memory, some analysis and tool skill are required, the test is comparable to the third test in year X of the Binet Scale. It will be recalled that this is a test in which a child is asked to draw from memory two designs that he has seen for ten seconds.

TYPE. In our test, the pupil has an opportunity to observe for two minutes a black vase form mounted on a white background. Several of the forms are placed about the room so that all pupils have opportunity for close inspection. When the two minutes are up, the examiner, with the aid of the teacher, quickly removes the forms and the pupils are then told to draw from memory. As an aid to the pupil in drawing and to the examiner in scoring, the test sheet has printed on it the top and bottom of the vase with a vertical line through the center. The pupil draws but two lines, i. e., the sides of the vase.

PROCEDURE. The examiner reads to the class the following directions:

This is a test to show how well you can remember and draw the outline of a vase form. To help you, the lines that represent the top and bottom of the vase are already given on this sheet. You are to draw the sides after you have looked carefully at the shape of the vase form. Make your drawings clear by erasing all but your best try. Use pencils only in drawing.

Care should be taken that the pupils do not draw on their papers *before the* removal of the vase form. Pupils usually draw their best the first time and should be encouraged to draw quickly and correctly.

Before exposing the cards, the examiner should mention that:

1. Students' eyes are like cameras and they are taking memory photographs by means of which drawings will be made when the subjects are taken away.
2. Vase forms should be drawn right side up.
3. Only two lines are to be drawn.
4. It is not necessary to blacken the vase.

After explaining the test sheet thoroughly, the vase forms should be distributed quickly about the room. The examiner might well have several persons assisting in the putting up and taking down of the cards to insure correct exposure time.

The vase forms should be located about the room in such positions that all pupils have the opportunity for close observation. Four cards are usually sufficient for the ordinary class room.

The cards are exposed for two minutes observation. The pupils are not permitted at this time to sketch outlines on their test sheets. If any pupil does start drawing too soon he should be given a new booklet. The cards are quickly collected at the expiration of two minutes. When all are removed the pupils are told to draw the vase from memory.

Allow five minutes for drawing.

SCORING. The test is scored by means of a transparent paper key. An outline of the vase is printed on the sheet. The outline is made up of alternate rectangles of black and white. There are eighteen white spaces to a side or thirty-six in all. By means of guiding lines the key is placed over the test sheet. The examiner counts the number of white spaces under which the pupil's drawing passes. Only when the outline passes from the top to the bottom of a space is it counted.

It will be found occasionally that a drawing of excellent shape will not register because of its being too large or small. In such cases it should be remembered that this is a test of accuracy of visual memory. The ability to draw pleasing forms is measured elsewhere.

The score is the number of white spaces under which the pupil's outline passes.

THE INDIVIDUAL TESTS—Part III.

TESTS 6, 7 AND 8. ANALYSIS OF PROBLEMS IN PERSPECTIVE

PURPOSE. The ability to analyze critically a composition is of considerable value to the person engaged in art work. This faculty should be, in part, auto-criticism. A person should be able to examine his own drawings from time to time to determine whether or not he is sketching accurately, if that be his aim. Students are accustomed to try more and more ambitious work. This expansion is greatly to be desired, but the critical and analytical faculty also ought to expand at the same pace, even though the technical ability lags behind.

Harm results when the critical faculty lags and technique forges ahead. It is then that simple errors will be found in what otherwise would be excellent work. Students depict subjects of a complex nature in a haphazard manner unless they are able gradually to correct

their errors through the ability to compare logically their work with real life or with a correct ideal that they may have in mind.

The ability to analyze undoubtedly is a gift with some people, but yet it is a quality subject to instruction. How well a class has learned to analyze and criticize compositions can be determined by a properly designed standardized test.

TYPE. Three tests have been devised for analysis based on problems in perspective. The pictures of each test contain one or more incorrectly drawn elements. The pupil indicates with an (X) that part which he believes incorrect. The mode of attack is after the fashion of a judgment test.

Since the student is not asked to make any corrections he does not need to know the methods of constructing perspective problems.

Test Six partially covers the field of cylindrical perspective. The pictures deal with cylinders, flower pots, and the ellipses on a die, a ball, and a lighthouse.

Test Seven contains five pictures involving parallel or one point perspective. The subjects are the familiar railroad track, a solid box, a transparent box, a room, and a hallway. In each certain lines have been drawn out of perspective. To one with a "true" eye, these errors will stand forth. To one who has no logical sense of visual criticism the errors look natural and will be passed over.

Test Eight is made up of four pictures illustrating the principles of two point or angular perspective. The problems involve a single box, three boxes together, two books, and a house.

PROCEDURE. The examiner reads the directions for the test, in each case being substantially as follows:

This is a test to show how well you know the principles of (cylindrical, parallel, or angular) perspective. In solving the problems you may use a ruler or other straight edge. Read carefully each problem and do what it tells you.

It is well to explain the meaning of perspective even though a number of the class have studied it. Perspective has been defined as that thing in nature which makes distant objects appear smaller than those close at hand even though they be actually of the same size. Illustrations of perspective may be pointed out in the room and out of doors. Care must be taken not to use any illustrations which will aid in the solution of the test problems.

Allow five minutes for each test.

SCORING. A scoring sheet is used for each test. The sheet is a duplicate of the test with the correct responses indicated with (X's). (See scoring key.)

The score is the number of correct responses.

TEST 9. RECOGNITION OF COLOR

PURPOSE. The test is designed to discover how well the eye functions as a sense organ and measures only the physical capacity to distinguish colors. Success in the test is not dependent to any great extent on training in color but more on the natural efficiency of the eye. The test determines ability in discerning color distinctions and the response is dependent upon acuteness of color discrimination ranging from color blindness to high sensitiveness.

TYPE. The test for color recognition might be described as being of the multiple-choice six response type with forty-eight questions, two of which are answered in the directions. A color chart is used in giving the examination. At the top are six known colors or standards, Red, Orange, Yellow, Green, Blue, and Violet. Below are given variations of these six standards with their intermediates together with their tints and shades, forty-six unknowns in all divided into four sections. The child is asked to indicate on the form provided what he believes to be the predominant known color in each of the unknowns. The first letter of the standard color is used to indicate the pupil's choice. Just one letter is used as the test asks that only the standard color most like the unknown be indicated.

PROCEDURE. The examiner reads the following directions to the class:

This is a test to show how well you can tell colors apart. At the top of the color chart are the six standard colors to be used in this test. The names of the colors are RED, ORANGE, YELLOW, GREEN, BLUE, and VIOLET. The letter below each color strip stands for the full name of that color. Below on this page you will see spaces arranged very much like the colors in parts 1, 2, 3, and 4 on the chart. Each space has a number just as each color has a number. You are to put in each space below the first letter of the color which it resembles most. For example, in the top row of test colors the first is RED and the second is ORANGE YELLOW. Therefore on the test paper "R" and "Y" are put down in the spaces, as the colors are most like RED and YELLOW. Wait until you are told to start. Ask questions now.

All necessary explanations should be made. It should be emphasized that in *no* case is more than one letter to be used in making an answer. The letter to be used is always that of the predominant color.

The chart should be hung where the lighting will be most effective. If two charts are available it is well to use them. Children who have difficulty in seeing should be permitted to sit near the chart. Every attempt should be made to make the conditions for viewing the colors fair to all pupils. If necessary, test but half

a class at a time, or use two charts.

Allow twenty minutes for taking the test.

SCORING. Along three edges of the scoring key are given the correct answers for the four corresponding sections. When laid on the test paper the answers of the child coincide with those of the key and it is a simple matter to check his work.

The score is the number right.

III. INTERPRETATION OF THE TESTS

Standardization of the tests. An estimate of pupil ability was secured by administering the test battery to approximately 1,100 pupils. The group was unselected. The students had no more or less art training than found in any sampling of a school's population. Included in the standardization survey were all grades from the third grade through the twelfth.

Approximately one month after the first tests, a second set of tests was given to about 100 pupils. These pupils were scattered through all grades from the third to the ninth. The month interval was believed long enough to reduce practice effect to a minimum without learning experience at the same time becoming an important factor. The purpose of the retest was to see how consistent the tests were in their measuring effect, in other words, to determine their reliability.

Reliability. Using the Product-Moment method for the computation of the correlation coefficient, r was found to be .872 (P. E. .018). A correlation on a retest of .87 indicates a satisfactory degree of reliability. Examining the work of individual pupils on the two tests, a remarkable similarity of scores was found.

Validity. Total scores were correlated against semester grades in art with $r = .40$ (P. E. .027). No exact knowledge is available as to how art teachers' grades correlate against themselves but such a correlation would not be high, perhaps about .50. A correction for attenuation would obviously yield a high correlation.

From the data supplied by forty-two high school students taking the Lewerenz Tests in Fundamental Art Abilities and who five months later received a grade for work done in an elective art course, the following conclusions are drawn:

1. Pupils who did A work received a very superior rating on the tests; B students, superior; and C students, average.

2. Reversing the comparison, pupils rated on the tests as very superior, received an average grade of B; superior B—; average C+; and inferior, C.

3. A correlation based on test ranking and teacher estimate gave r as .63 ($\pm .063$) which shows a high degree of relationship between predicted ability and later performance.

An analysis of marked differences between test score and teacher's rating revealed that in many cases the pupil actually had ability, but because of temperamental difficulties had not done his best work.

Judging also from experience it seems possible with the tests to rate students at the beginning of the term with nearly as great accuracy as will a teacher with a term's acquaintance behind her.

The test ratings are apt to be more accurate from several standpoints. The validity of a teacher's grade are subject to such factors as the pupil's behavior, his attendance, and the effect of the pupil's personality on the teacher. It is difficult in making a grade on artistic ability for the instructor to eliminate personality and to judge only on artistic merit. The art tests measure elemental abilities alone and do so on an objective basis. They should then be a help to a teacher who wishes to grade fairly.

To interpret the test results, norms were created from the distributions. A five point system was used with the normal curve as a basis. The curve was broken at 2.5 sigma giving the following distribution of measures:

1. Very superior	7%
2. Superior	24%
3. Average	38%
4. Inferior	24%
5. Very inferior	7%
Total.....	100%

Interpretation of Individual Tests. Reference to the following data may be of assistance in utilizing the norms given on the last pages of the manual.

THE INDIVIDUAL TESTS—Part I.

TEST 1. RECOGNITION OF PROPORTION

Aesthetic appreciation is a subject which teachers of art hope that their students will acquire both directly and indirectly. It is commonly agreed that pupils can be awakened to an understanding of the beautiful. It is true, however, that all children do not have the same capacity for appreciation. Available data seem to indicate that experience and education count more than intelligence in affecting understanding of aesthetic form.¹ The medians show a fairly constant increase through year seventeen indicating that there is no close correspondence with actual age. The figures point to the practicability of teaching an appreciation of the beautiful in our schools.

TEST 2. ORIGINALITY OF LINE DRAWING

Ability to make original drawings appears to increase but little through the years. Originality may be thought of as a kind of intelligence which remains a constant. Originality is

¹ Lewerenz, Alfred S., "I. Q. and Ability in Art." *School and Society*, April 21, 1928, Vol. XXVII, No. 695, Pages 489-492.

without mental age. It will become better and better expressed through wider experiences and the growth of the apperceptive mass. The small increase in score through the years is caused by the greater command of subject matter possessed by the pupil. The type of originality measured by this test is probably not reached by a group intelligence test. Variations in intelligence scores are not matched by sympathetic variations in originality scores, as indicated by negligible correlations.²

THE INDIVIDUAL TESTS—Part II.

TEST 3. OBSERVATION OF LIGHT AND SHADE

Observation as measured by the test appears to correlate closely with chronological age. The results show a generally constant increase up to year sixteen, but there is little correlation with intelligence.

TEST 4. KNOWLEDGE OF SUBJECT MATTER

The grade medians show that this is a test dependent in the main on instruction. The test is one purely of content knowledge, though slightly more subject to the factor of intelligence than are the other tests.

TEST 5. VISUAL MEMORY OF PROPORTION

This is in a sense a test both of memory and motor-coordination uniting in the ability to draw from memory. Due to these two factors the results are not easy to evaluate. In the later years success seems to be largely dependent on intelligence. Given two groups of pupils of equal age, the group with the higher mental level will manifest greater visual memory.

In the earlier years success seems to be dependent on motor skill. Through the age of twelve success is influenced by physical maturity more than intelligence. A degree of motor skill having been gained success thereafter is conditioned by intelligence.

THE INDIVIDUAL TESTS—Part III.

TEST 6. ANALYSIS OF PROBLEMS IN CYLINDRICAL PERSPECTIVE

This is the easiest of the three tests on perspective because the problems are of a type in which experience and association play a large part. There is a big jump to a higher plateau in the eighth grade due, no doubt, to the instruction received at about that time.

TEST 7. ANALYSIS OF PROBLEMS IN PARALLEL PERSPECTIVE

Analysis is dependent upon a certain mental set. It may be likened to a scientific attitude toward pictorial representation. Results are strongly influenced by specific training. In the ninth and tenth grades there is a very notice-

² See the same article for detailed statistical data.

able bulge due to the training received in general art given in the junior high school.

TEST 8. ANALYSIS OF PROBLEMS IN ANGULAR PERSPECTIVE

Here again the effect of training is found, this time in grades ten and eleven. Intelligence is always in the background having an influence in test results, but classroom instruction is the predominant factor.

On the whole it would seem that instruction in perspective is not retained much longer than the period of instruction. There is a slight total gain but this is no larger than might be expected even if no specific instruction were given. The figures would seem to indicate that to spend much time on this subject matter in the junior high school is unjustified. The pupils are not mature enough to profit by a detailed course in perspective.

TEST 9. RECOGNITION OF COLOR

The data would seem to indicate that recognition of color is largely a physical ability.³ After the fifth grade there is no marked difference in the average number of colors recognized. The younger children may fall a little lower, not because of under-developed color perception but because they lack the attention and drive to complete a test which takes twenty minutes of close observation. The ability to distinguish colors would seem to be as effective with an eight year old child as one who is ten years older. This in turn would mean that color vision is not part of the learning process.

Interpretation of Combined Scores. The front page of Part I of the test series provides for recording scores on all tests and making recommendations. The items on the record form are as follows:

- Names of the tests.
- Raw Score on each test.
- Norm Standing on each test.
- Ability Rating on each test.
- Profile on each test.
- Total Norm Standing.
- Average Norm Standing.
- Average Ability Rating.
- Recommendations.

The Procedure of Evaluating the Test Results. The process of converting raw scores into terms that are subject to critical analysis will be considered with reference to the above items.

NAMES OF THE TESTS. The tests are listed in order according to their appearance in the three parts.

RAW SCORE ON EACH TEST. The scores re-

³ Lewerenz, Alfred S. "The Effect of Training on the Ability to Recognize Color." *Los Angeles Educational Research Bulletin*, Vol. VIII, No. 9, May-June, 1929, Pages 5-6.

ceived by a pupil on the individual tests are recorded here, being taken from the box provided in the upper right hand corner of each test page.

NORM STANDING ON EACH TEST. The norms given at the end of this manual should be employed to record the Norm Standing. The norms are divided into four parts: Elementary (grades 3, 4, 5, and 6), Junior High School (grades 7, 8, and 9), Senior High School (grades 10, 11, and 12), and First Year College Art Student. A pupil's standing should be found for his grade group.⁴ His standing on tests 6, 7 and 8 on Perspective in Part III should be averaged. The column is arranged so that the analysis results are first written in to the left and the average placed in the main section to the right.⁵

ABILITY RATING ON EACH TEST. A pupil will receive a rating on each test of Very Superior, Superior, Average, Inferior, or Very Inferior, according to his standing on the norms.

PROFILE ON EACH TEST. In order to present test results graphically a profile may be drawn. Norm Standings are charted on the profile form and the points connected. The profile shows at a glance whether or not a pupil is above average or below and indicates noteworthy abilities.

TOTAL NORM STANDING. This amount is the total of the seven items in the column.

AVERAGE NORM STANDING. Divide the Total Norm Standing by seven to find the Average Norm Standing.

AVERAGE ABILITY RATING. The table of Norms for combined scores represents a slightly smoothed distribution of Average Norm Standings for 200 pupils ranging from the third grade to the senior year in high school. A student's Average Ability Rating on Table V is determined by means of his Average Norm Standing.

Table V may be used for grades 3 through 12, while Table VI is used with college freshmen majoring in art.

RECOMMENDATIONS. Performance on the individual tests should be carefully compared and analyzed. Interests shown on the Originality Test should be noted. On the basis of test results and classroom experience each child should have his needs outlined and a course of training proposed that will care for them. The recommendations should be specific and constructive, clearly defining the requirements of each student.

⁴ In case a pupil is accelerated or retarded he should be considered in comparison to the usual grade for his age.

⁵ Table VII gives averages for tests 6, 7, and 8.

TESTS IN FUNDAMENTAL ABILITIES OF VISUAL ART

Devised by Alfred S. Lewerenz, Division of Psychology and Educational Research, Los Angeles City Schools.

Name..... Age.....
 School..... Grade.....
 Date.....

PART I

TEST 1. RECOGNITION OF PROPORTION, 10 Minutes

TEST 2. ORIGINALITY OF LINE DRAWING, 20 Minutes

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name Irvine Andrews Age 16 Years
First name, initial, and last name Last birthday
 Birthday July 7 Grade B-10
Month Day
 School Phineas Banning High School
 Teacher Miss Gilroy
 Date April 10, 1927 Period 4

PUPILS WILL NOT WRITE BELOW THIS LINE

	Raw Score	Norm Standing	Ability Rating	
Part I				Profile
Test 1. Recognition of Proportion.....	5	4	INFERIOR	
Test 2. Originality of Line Drawing.....	4	1	VERY SUPER	
Part II				
Test 3. Observation of Light and Shade.....	17	3	AVERAGE	
Test 4. Knowledge of Subject Matter.....	16	3	AVERAGE	
Test 5. Visual Memory of Proportion.....	6	4	INFERIOR	
Part III				
Test 6. Analysis—Cylindrical Perspective.....	10	2)	SUPERIOR	
Test 7. Analysis—Parallel Perspective.....	6	2)	SUPERIOR	
Test 8. Analysis—Angular Perspective.....	2	4)	INFERIOR	
Test 9. Recognition of Color.....	29	4	INFERIOR	
	Total	7) 21.7		
	Average	3.1	Avg. Average	

*Note: Average Tests 6, 7, 8 to find norm standing for analysis of perspective.

Recommendations: The originality test indicates that Irvine has very superior creative ability with an interest in cartooning. Carefully chosen illustrative material should be used to stress the importance of characteristic and interesting proportion. A low score on the test for visual memory of proportion together with the above facts suggest the need of special study in figure drawing and interpretation. Inferior physical ability to recognize color seems to show that emphasis should be placed upon dark and light composition rather than upon color arrangement.

TABLE I. ELEMENTARY SCHOOL NORMS
(Grades 3, 5, 5, and 6)

Norm Standing	Ability Rating	Raw Scores on Tests								
		1	2	3	4	5	6	7	8	9
1	Very Superior	6-14	4-5	18-24	16-50	15-36	10-12	4-7	4-10	37-46
2	Superior	5	3	14-17	13-15	9-14	8-9	3	3	35-36
3	Average	4	2	7-13	9-12	5-8	6-7	2	2	30-34
4	Inferior	2-3	1	2-6	5-8	2-4	3-5	1	1	21-29
5	Very Inferior	0-1	0	0-1	0-4	0-1	0-2	0	0	0-20

TABLE II. JUNIOR HIGH SCHOOL NORMS
(Grades 7, 8, and 9)

Norm Standing	Ability Rating	Raw Scores on Tests								
		1	2	3	4	5	6	7	8	9
1	Very Super'r	10-14	4-5	20-24	20-50	19-36	11-12	6-7	6-10	37-46
2	Superior	8-9	3	17-19	15-19	13-18	9-10	4-5	4-5	35-36
3	Average	5-7	2	12-16	11-14	8-12	7-8	2-3	2-3	30-34
4	Inferior	4	1	6-11	5-10	4-7	5-6	1	1	21-29
5	Very Inferior	0-3	0	0-5	0-4	0-3	0-4	0	0	0-20

TABLE III. SENIOR HIGH SCHOOL NORMS
(Grades 10, 11, and 12)

Norm Standing	Ability Rating	Raw Scores on Tests								
		1	2	3	4	5	6	7	8	9
1	Very Super'r	11-14	4-5	21-24	23-50	21-36	11-12	7	7-10	37-46
2	Superior	9-10	3	18-20	17-22	14-20	10	5-6	5-6	35-36
3	Average	7-8	2	14-17	13-16	8-13	8-9	3-4	3-4	30-34
4	Inferior	5-6	1	9-13	6-12	4-7	6-7	1-2	1-2	21-29
5	Very Inferior	0-4	0	0-8	0-5	0-3	0-5	0	0	0-20

TABLE IV. TENTATIVE NORMS FOR
FIRST YEAR UNIVERSITY ART STUDENTS

Norm Standing	Ability Rating	Raw Scores on Tests								
		1	2	3	4	5	6	7	8	9
1	Very Superior	14	5	21-24	34-50	23-36	12	7	9-10	41-46
2	Superior	11-13	4	19-20	29-33	15-22	10-11	5-6	6-8	38-40
3	Average	9-10	2-3	14-18	26-28	10-14	9	3-4	4-5	35-37
4	Inferior	7-8	1	9-13	17-25	3-9	6-8	2	1-3	31-34
5	Very Inferior	0-6	0	0-8	0-16	0-2	0-5	0-1	0	0-30

TABLE V. NORMS FOR COMBINED SCORES
(Grades 3-12)

Ability Rating	Norm Standing
Average	Average
Very Superior	1.0-2.4
Superior	2.5-2.9
Average	3.0-3.4
Inferior	3.5-3.9
Very Inferior	4.0-5.0

TABLE VI. TENTATIVE NORMS FOR
COMBINED SCORES
First Year University Art Students

Ability Rating	Norm Standing
Average	Average
Very Superior	1.0-2.3
Superior	2.4-2.8
Average	2.9-3.2
Inferior	3.3-3.6
Very Inferior	3.7-5.0

TABLE VII. AVERAGES FOR TESTS 6, 7, AND 8

15 ÷ 3 = 5.0	8 ÷ 3 = 2.7
14 ÷ 3 = 4.7	7 ÷ 3 = 2.3
13 ÷ 3 = 4.3	6 ÷ 3 = 2.0
12 ÷ 3 = 4.0	5 ÷ 3 = 1.7
11 ÷ 3 = 3.7	4 ÷ 3 = 1.3
10 ÷ 3 = 3.3	3 ÷ 3 = 1.0
9 ÷ 3 = 3.0	2 ÷ 3 = 0.7

6	10	5	7	4	8	2	9	1	3	D
8	7	2	10	9	6	3	5	1	4	B-2
3	10	4	7	5	9	6	1	8	2	A
4	2	5	7	8	9	6	1	3	1	C
5	8	6	9	4	2	10	7	1	3	B-1

PART 3. THE INTERMEDIATE TINTS

TESTS IN FUNDAMENTAL ABILITIES OF VISUAL ART

DIRECTIONS FOR SCORING AND ANSWERS

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1. In all tests the score is the total number right.
2. Score should be recorded in box provided in upper right hand corner of each test.
3. Norms making possible interpretation of test scores are given in the manual and directions booklet.

Test 4. Knowledge of Subject Matter Vocabulary. A key for scoring is provided along the left hand edge of this sheet. The smaller lower portion is for the left hand column of test answers. The key should be placed opposite the appropriate portion and correct answers noted on the test blank.

DIRECTIONS FOR SCORING INDIVIDUAL TESTS—PART I

Test 5. Visual Memory of Proportion. The test is scored by means of a transparent key. The scoring key is placed so that intersecting cross lines exactly coincide with those on the test paper. The score is determined by the number of openings under which the outline drawn by the student falls. Scoring keys with directions for use are included in the test packages.

Test 1. Recognition of Proportion. The numbers of the correct responses are as follows:

- Bowls 3
- Cup Handles 4
- Friezes 1
- Cornices 1
- Curves 4
- Balance of two equal masses 3
- Balance of two unequal masses.. 1
- Balance of one mass with two equal masses 4
- Space division with single lines 2
- Space division with double lines 3
- Space division with several lines 4
- Composition with one object 2
- Composition with two objects 1
- Composition with landscape 2

PART III

Tests 6, 7, and 8. Analysis of Perspective. Use figures 2, 3, 4, and 5 on the back of this page as a guide for scoring. As with tests 1 and 3, it is convenient to mark correct responses on an unused booklet if much scoring is to be done. When a pupil gives more than two or three answers above the correct number and has obviously guessed give no credit or give an individual retest. It should be noted that an alternate answer is allowed in problem 4 of Test 8.

The simplest way to score the test is to take an unused copy of the test and mark on it the correct shapes in some conspicuous color.

Test 2. Originality of Line Drawing. Six rating samples are used to judge the merit of pupils' drawings. The rating samples and directions for using them are included in the packages of tests.

PART II

Test 3. Observation of Light and Shade. Use Figure 1 on the back of this card as a guide for scoring. As with Test 1, it is a simple matter to mark correct responses on an unused test booklet. When a pupil gives more than two or three answers above the correct number and has obviously guessed, give no credit or give an individual retest.

Test 9. Recognition of Color. A key for the test is given along three edges of this card as follows:

- Part 1—Lower right side.
- Part 2—Upper right side.
- Part 3—Top edge.
- Part 4—Bottom edge.

The answer key should be placed above the corresponding portion of the test and correct answers indicated below the pupil's response. If a score is lower than 20, a retest should be given under the most favorable lighting conditions. If the score is again below 20 the student is probably color blind.

PART 4. THE INTERMEDIATE SHADES

1	2	3	4	5	6	7	8	9	10	11	12
Y	R	O	B	R	G	V	O	V	G	Y	B

TEST 4. KNOWLEDGE OF SUBJECT MATTER VOCABULARY
 Answers for Right Hand Column

TEST 4. KNOWLEDGE OF SUBJECT MATTER VOCABULARY
 Answers for Left Hand Column

PART 2. THE INTERMEDIATE COLORS
 PART 1. THE SIX STANDARD COLORS AND THEIR VARIATIONS

12
11
10
9
8
7
6
5
4
3
2
1

12
11
10
9
8
7
6
5
4

SCORING KEYS FOR TESTS 3, 6, 7, and 8.

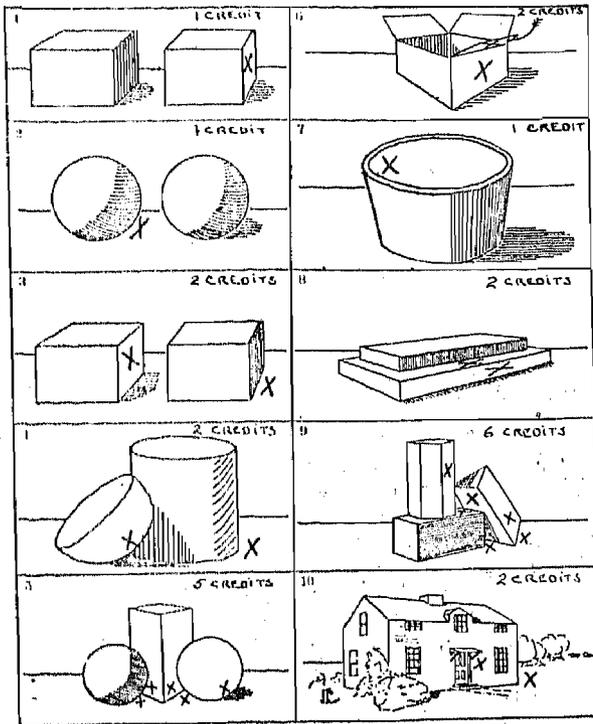


FIG. 1

TOTAL 24

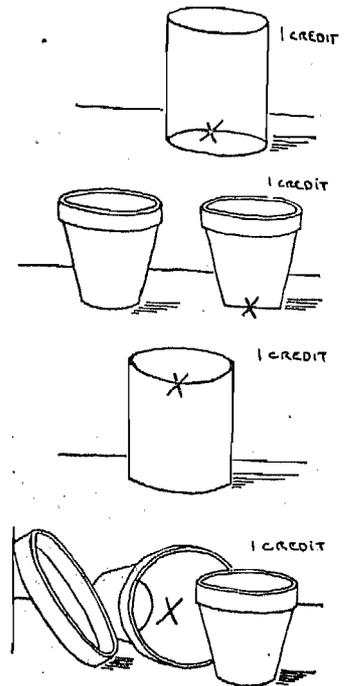


FIG. 2

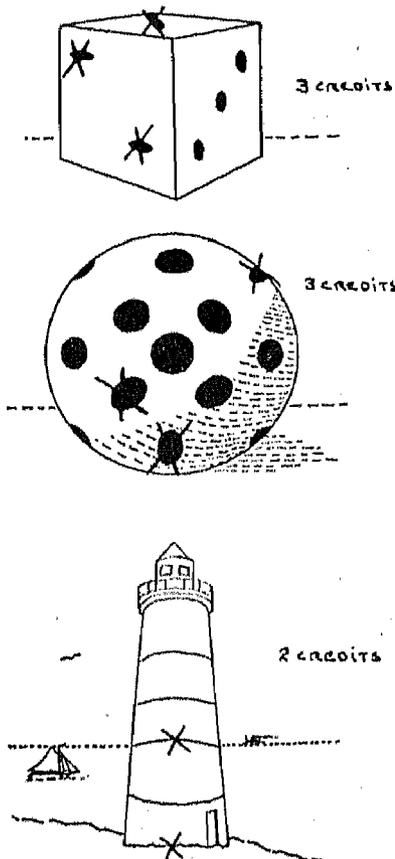


FIG. 3

TOTAL 12
(FIG. 2+3)

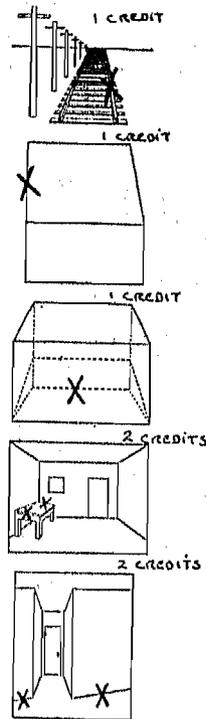


FIG. 4

TOTAL 7

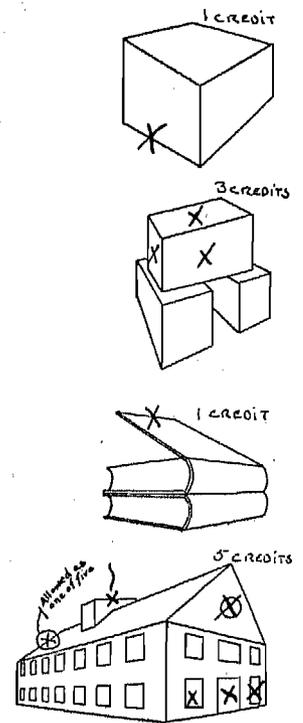
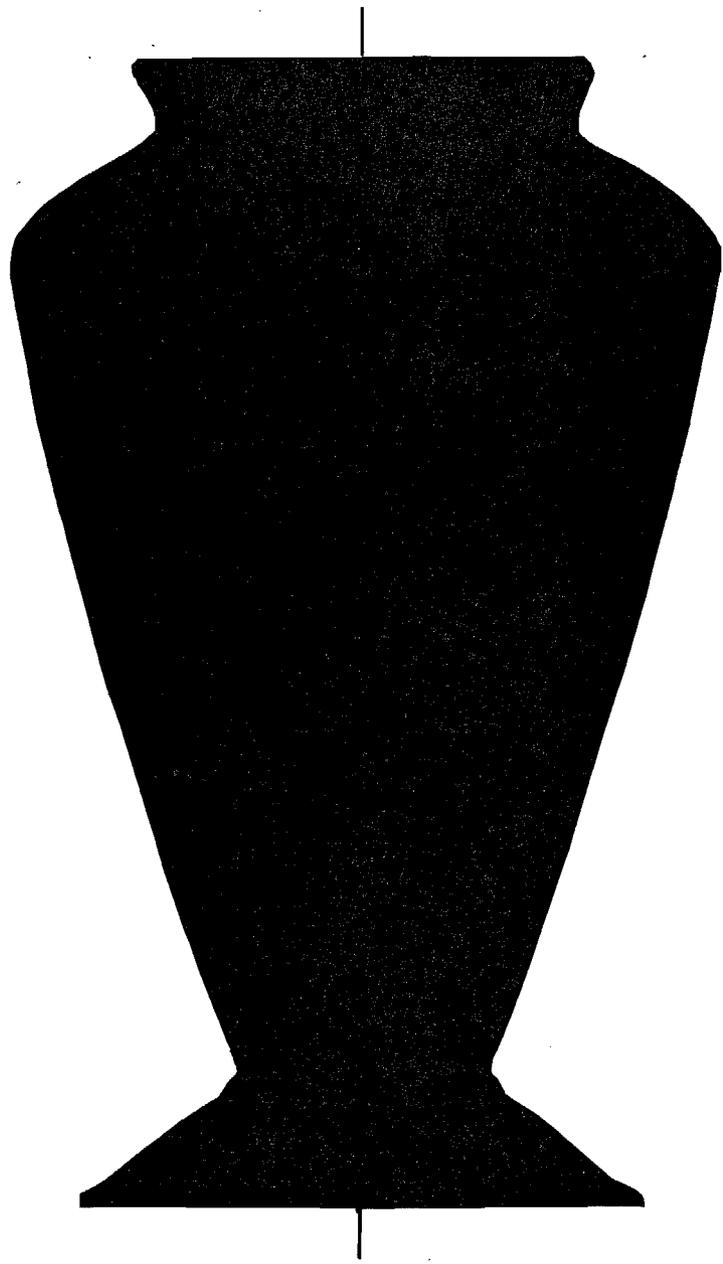


FIG. 5

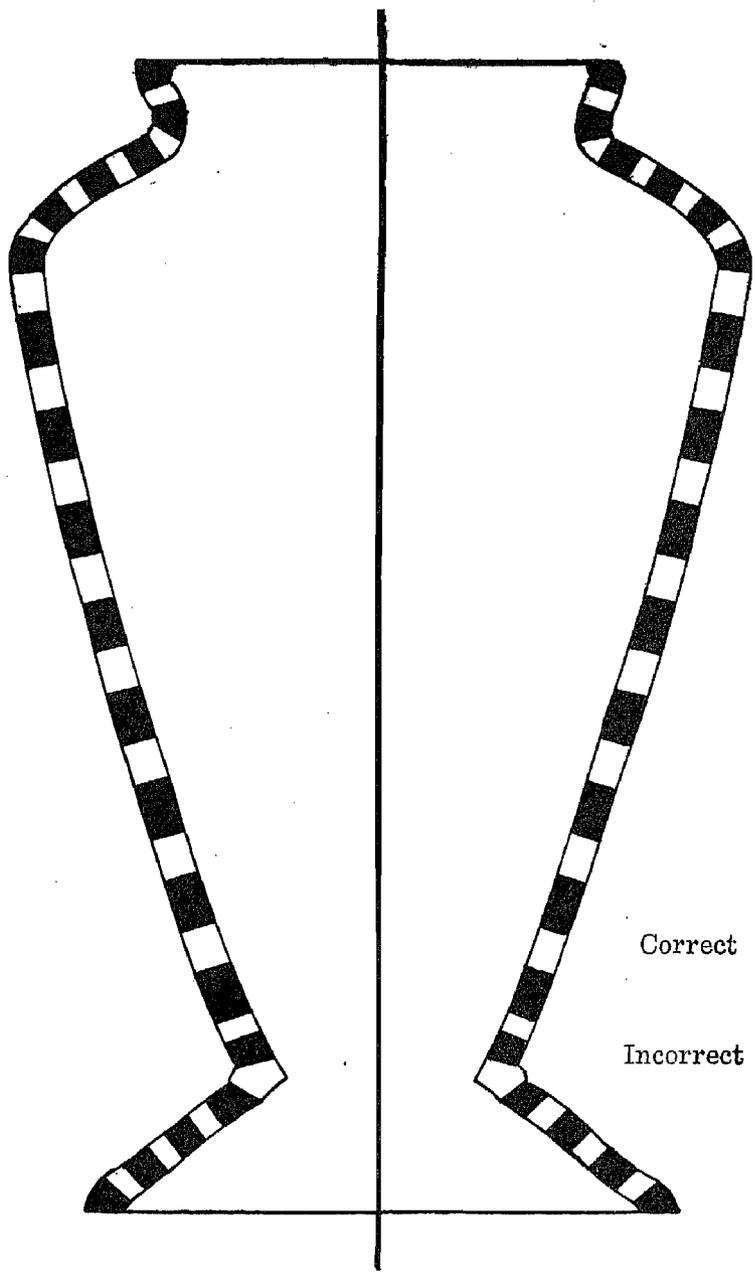
TOTAL 10

Tests in Fundamental Abilities of Visual Art
Test 5. VISUAL MEMORY OF PROPORTION
Grades 3—12
SUBJECT FOR OUTLINE DRAWING

Note to Examiner: Permit students to observe this form for two minutes prior to their making the outline drawing from memory.



Tests in Fundamental Abilities of Visual Art
Test 5. VISUAL MEMORY OF PROPORTION
Grades 3-12
SCORING KEY



Score as correct only lines beginning at the top and ending at the bottom of an opening and visible for entire length, as:

Correct

Incorrect

Directions for Scoring: Place the scoring key over the paper to be scored so that the intersecting cross lines exactly coincide with those on the paper. The score is determined by the number of openings under which the outline drawn by the student falls.

Tests in Fundamental Abilities of Visual Art

TEST 2. ORIGINALITY OF LINE DRAWING

INSTRUCTIONS FOR SCORING

Purpose of the Test. This test is designed primarily to assist the teacher of art who, being confronted with a new class of pupils, desires to become acquainted with the range of originality and invention which the various pupils may express. Secondarily its use will help determine those children who will or will not be benefited by further training in creative art. An analysis of the test results will also partially indicate the interests and previous training of students.

Scoring the Test. In order to score tests a series of six rating sheets are used ranging in value from 0 to 5. These rating sheets are based on original drawings made by people who have taken the test. They represent the varying levels of originality as follows:

0 value. Dot to dot drawings without the addition of any significant lines. A total inability to see possibilities or to even make adaptations is indicated. The dots are predominant.

1 Value. Dot to dot drawings are again predominant but by the addition of a few lines afterward the child can bring out the semblance of a person or object.

2 Value. For the first time creative imagination is shown rising above the obviousness of the dots. The student imagines his subject and then draws it in such a manner that the dots are subordinate. The drawings in the main are often faces, more or less grotesque.

3 Value. The quality of the drawings and the variety of subjects are about the same as in Value 2. More motion in the figures drawn will be observed, however. There will be the first feeling of aesthetic quality and rhythm shown.

4 Value. A decided increase in rhythmic motion and design manifested. The aesthetic quality of some of the pictures will be commendable. The grotesque and comical will give place to subtle humor.

5 Value. All drawings will be excellent of themselves though incorporating the problem dots. Rhythm, balance, and subject will show very superior talent. The design quality probably will be present to a greater extent than the naturalistic. In general, the work is such that it would receive the approval of competent judges.

-2-

To score a set of papers, the six scoring sheets are placed in a row on a table. The test papers are then compared carefully, one by one, with the samples to find in which classification each belongs. Judgment is based not on the perfection of drawing but on the quality of the ideas inspiring the drawing. The result is that pupils in a fifth grade can be as fairly judged as seniors in high school.

The score is the value of the rating sheet with which the test paper most nearly corresponds.

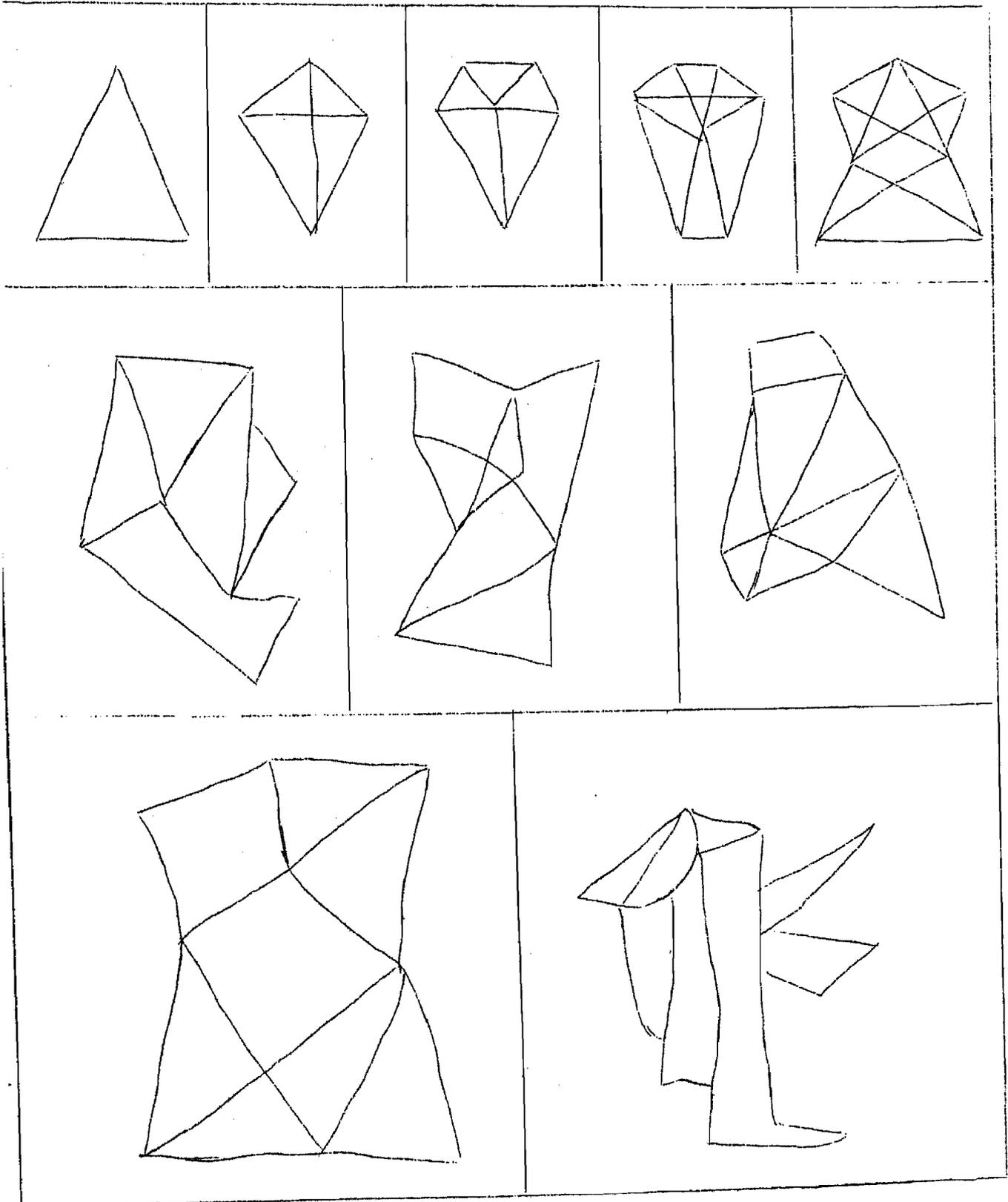
Interpreting Results. Pupils whose work falls into the lowest pile (O Value) should be given further practical tests in art, and those whose responses continue to be low probably should be transferred to another class. Those who score high in originality should be given special opportunities to develop their creative ability. The other students should probably be given general art instruction.

A further analysis of the test results will assist in determining the interests and training of pupils.

A variety of interests will be manifested in the drawings. Pupil responses can be classified as having shown a predominating interest in people, houses, trees, abstract design, costumes, plants, flowers, architecture, miscellaneous objects, etc. A secondary classification of such interests can therefore be made and the results noted to serve later as a guide when assigning problems in decoration and design.

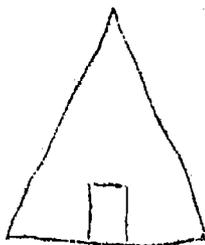
The teacher also may be able to gain a third point of information about her pupils by observing the skill with which the drawings are made. The type and amount of training the child has previously been given in most cases will be indicated.

TEST 2. ORIGINALITY OF LINE DRAWING
SAMPLE OF 0 VALUE

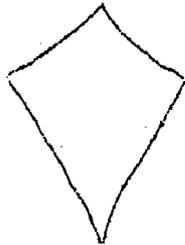


TEST 2. ORIGINALITY OF LINE DRAWING
 SAMPLE OF 1 VALUE

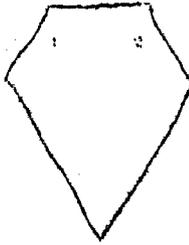
1.



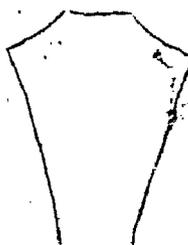
2.



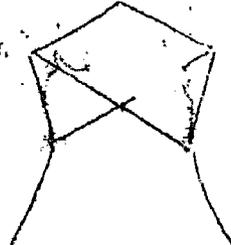
3.



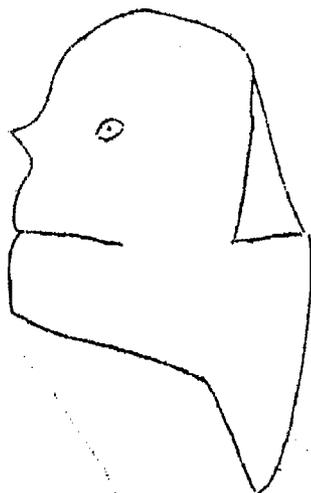
4.



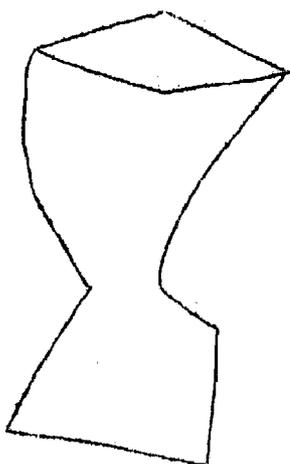
5.



6.



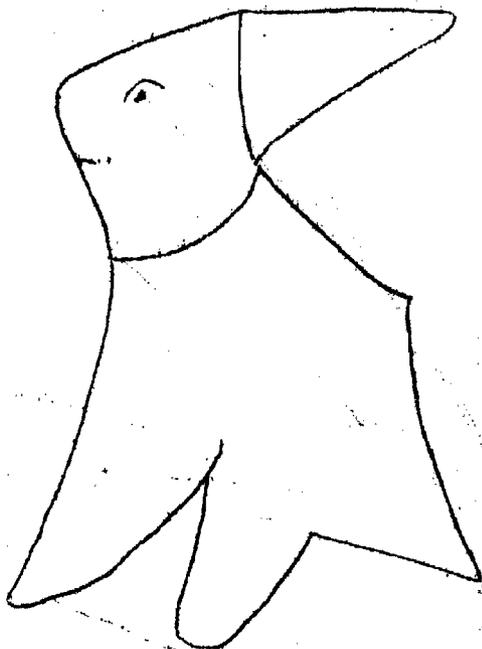
7.



8.



9.



10.

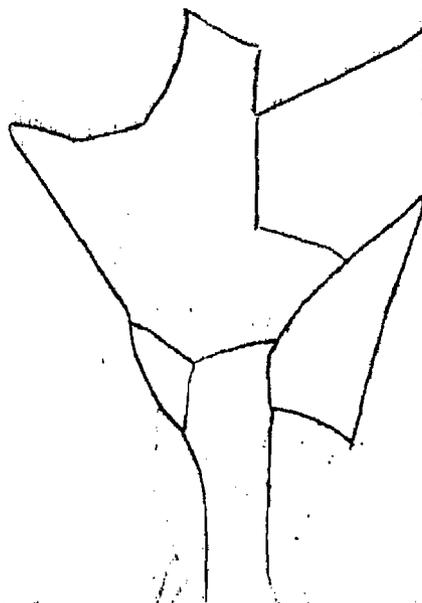
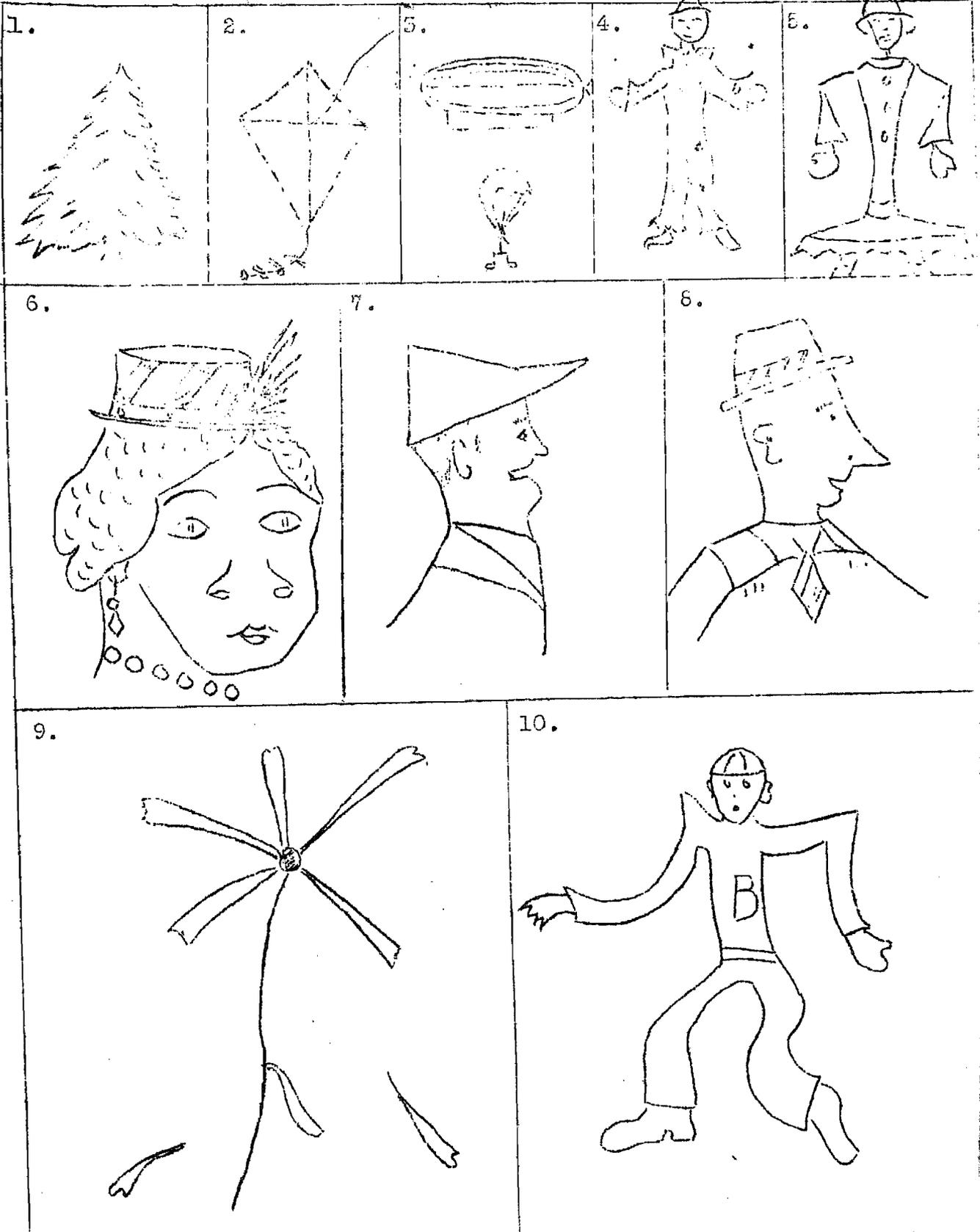


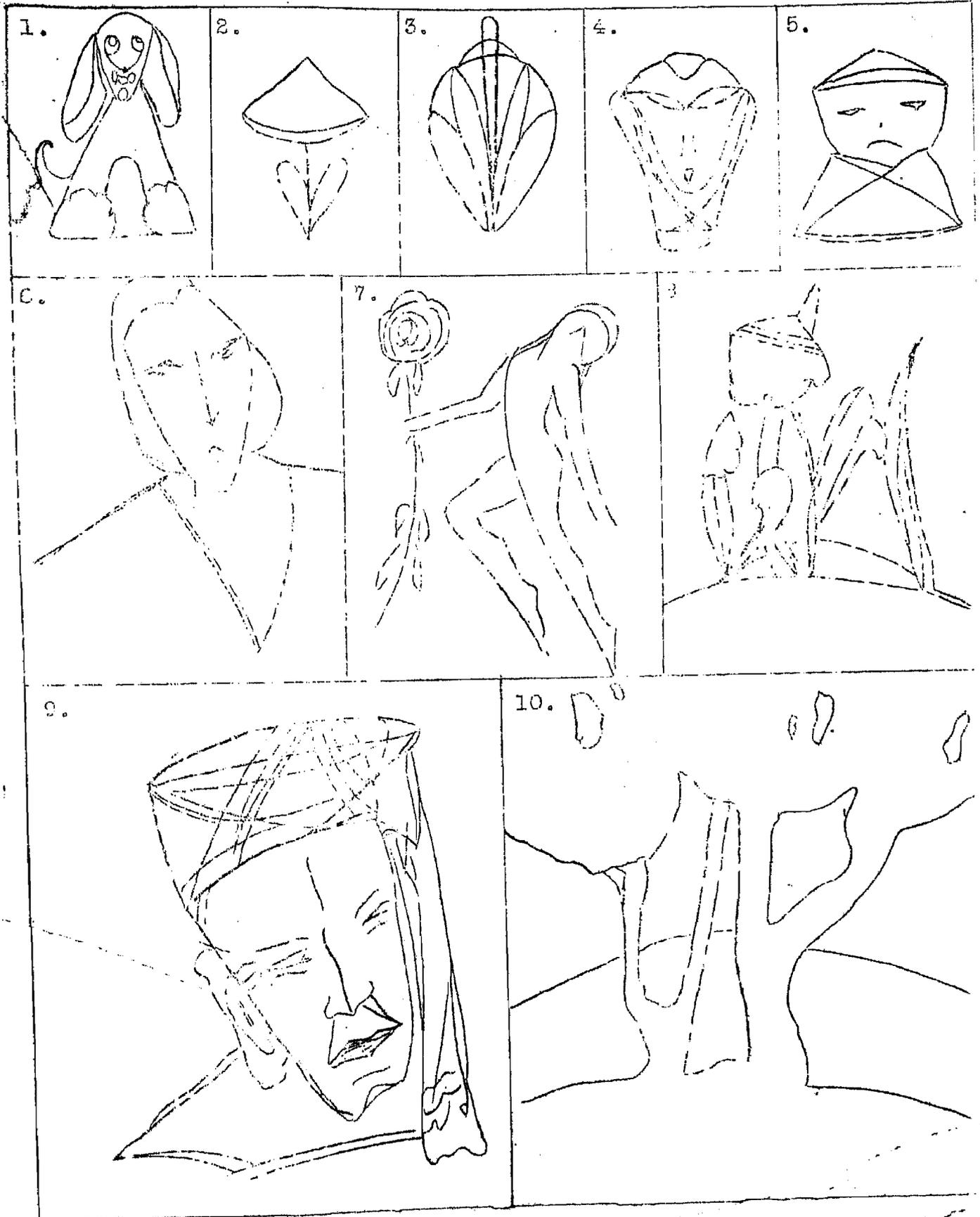
FIGURE 2. ORIGINALITY OF LINE DRAWING
SAMPLE OF 2 VALUE



TEST 2. ORIGINALITY OF LINE DRAWING
SAMPLE OF 3 VALUE

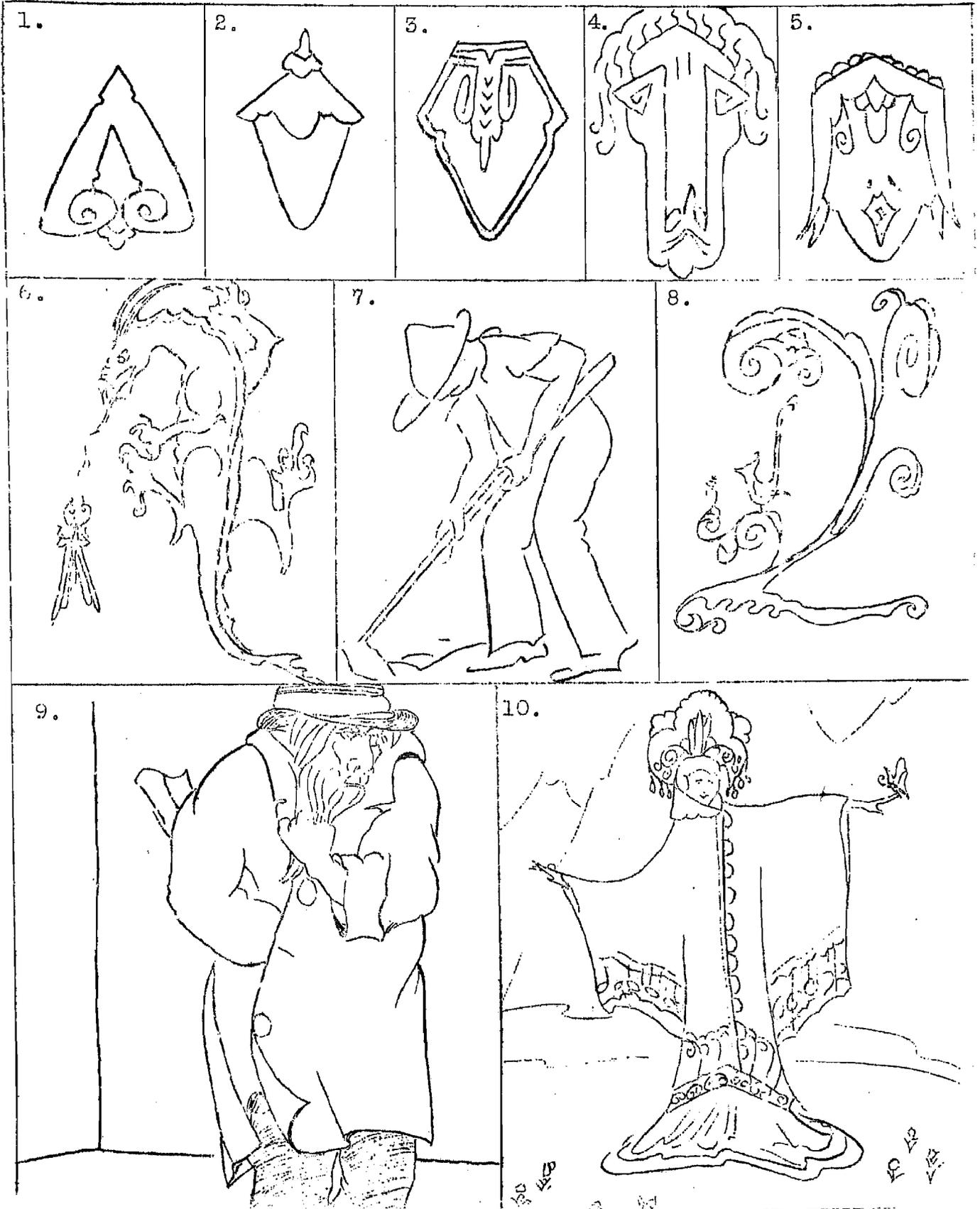


TEST 2. ORIGINALITY OF LINE DRAWING
SAMPLE OF 4 VALUE



TEST 2. ORIGINALITY OF LINE DRAWING

SAMPLE OF 5 VALUE



C O P Y

T E S T A D V I S O R Y C O M M I T T E E

of the

SOUTHERN CALIFORNIA SCHOOL BOOK DEPOSITORY
3636 Beverly Boulevard, Los Angeles, California

April 5, 1937

Mrs. Grady Walker
Box 667
San Marcos, Texas

My dear Mrs. Walker:

Your letter of April 1st has been referred to me for consideration.

You are hereby granted permission to incorporate the Lewerenz Tests in Fundamental Abilities of Visual Art in your Master's Thesis.

Inclosed herewith you will find four copies of the Test Construction Report on this test. There is no charge for these.

Yours very sincerely,

Daniel L. Risley
Test Consultant

R:L

APPENDIX D

Case sheets kept on each child in each of the four sections contained a description of the work of each unit and information listed under the following heads:

No. of the Pupil (1, 2, 3, etc.)

I. Q.

Interest

Cooperation

Work-habits

Originality

Technique

Fundamentals (marked by the A, B, C, D, F method)

All of the above, except Fundamentals, are marked E--Excellent; G--Good; and I--Inferior.

The key is as follows:

A--90-100--Excellent

B--80-90 --Good

C--75-80 --Good

D--70-75 --Inferior

The following tables, Appendix E, contain the tabulated data.

6-1 GRADED CHILD-CENTERED

Case Sheet for Entire Group

Pupil No.	1*	2	3	4	5	6**	7**	8*	9	10	11	12*	13*	14	15*	16	17	18**	19***	20**	21	
UNIT I																						
I. Q.		109	91	93	110	97	102				87	122	112	90		120		100		96		
Interest	E	I	G	E	G	I	G	E	E	G	G	G	G	I	E	G	G	I	E	G	I	
Cooperation	G	I	G	G	G	I	I	I	E	G	G	G	G	G	G	G	G	I	G	G	G	
Work-habits	E	I	I	G	G	I	G	I	G	G	G	G	G	G	G	G	G	G	G	G	G	
Originality	G	G	G	I	I	G	G	G	E	G	I	G	I	G	G	G	G	I	E	E	E	Science unit.
Technique	G	G	G	G	G	I	G	G	E	G	G	G	G	G	I	G	G	G	G	G	G	Frieza on prehistoric animals.
Fundamentals	B	C	B	B	C	D	C	C	B	B	C	C	C	C	B	C	C	C	A	A	C	
UNIT II																						
Interest	G	I	G	E	G	I	G	I	E	G	G	G	G	I	G	G	I	I	G	E	G	
Cooperation	E	G	G	G	G	G	G	I	G	G	G	G	G	G	G	G	G	G	G	G	G	Perspective (one-point) Scenes about San Marcos for Red Cross booklet.
Work-habits	G	G	G	G	G	I	I	I	G	G	G	G	G	I	G	G	G	G	I	G	I	
Originality	G	G	G	I	I	G	G	G	G	G	I	I	I	I	G	G	G	G	G	G	G	
Technique	G	I	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Fundamentals	B	C	C	B	C	D	C	C	B	B	B	B	C	C	B	C	C	C	B	A	C	
UNIT III																						
Interest	E	E	E	G	G	G	G	I	G	G	G	G	I	I	I	G	G	I	G	E	I	
Cooperation	G	G	G	E	G	G	G	I	E	G	G	G	G	I	I	G	G	I	E	E	G	
Work-habits	G	G	G	G	G	I	G	G	G	G	G	G	I	G	G	G	G	I	E	E	I	Figure drawing. Puppets.
Originality	G	G	G	G	G	G	E	G	E	G	I	G	I	G	G	E	E	G	E	E	I	
Technique	G	G	G	I	I	I	G	G	E	G	G	G	G	I	G	G	G	G	E	G	G	
Fundamentals	B	C	B	C	C	C	B	C	A	B	B	B	C	C	C	B	B	D	A	B	D	
UNIT IV																						
Interest	E	E	G	G	G	G	G	G	G	G	E	E	G	I	G	G	E	I	E	G	G	Large friezes on Farm life
Cooperation	E	G	G	G	G	I	G	G	G	G	I	G	G	I	E	G	G	I	E	E	G	Southern life
Work-habits	G	G	G	G	G	I	G	G	G	G	G	G	I	G	G	G	G	I	E	E	I	Texas history
Originality	G	G	G	G	G	G	E	G	E	G	I	G	I	G	G	E	E	G	E	E	I	Animal life
Technique	G	G	G	G	G	I	I	G	G	G	I	G	G	I	G	G	G	I	E	G	G	San Marcos scene
Fundamentals	A	B	B	B	B	C	B	B	B	B	C	B	B	F	B	B	B	D	A	A	C	Industrial scene.

*Eliminated for marking part of the experiment.
 **Eliminated for method part of the experiment.

--Good.
 --Excellent.
 --Inferior.
 A--90-100--Excellent.
 B--80- 90--Good.
 C--75- 80--Good.
 D--70- 75--Inferior.

6-2 GRADED CHILD-CENTERED

Case Sheet for Entire Group

Pupil No.	1*	2	3**	4	5	6	7	8**	9***	10	11	12***	13	14***	15*	16	17	18**	19***	20*	21
UNIT I																					
I. Q.	110	107	86	106		100	93		105			104		99	95	107	108	92	111	87	99
Interest	G	G	G	G	E	E	G	G	G	G	G	G	G	I	G	G	G	I	G	E	E
Cooperation	G	I	G	G	E	E	G	E	G	I	G	G	G	G	G	G	G	G	G	G	G
Work-habits	G	I	G	G	G	G	G	G	G	G	G	G	G	G	G	I	G	I	I	G	E
Originality	G	E	I	G	E	E	G	E	G	G	G	G	G	G	G	I	G	I	I	G	G
Technique	G	E	G	G	G	G	G	G	G	G	G	G	I	G	G	G	G	I	G	G	G
Fundamentals	B	C	C	B	A	A	B	A	B	B	B	B	B	C	B	C	B	D	C	B	B
UNIT II																					
Interest	G	G	I	G	G	E	G	E	G	G	G	E	G	I	E	G	G	G	E	G	E
Cooperation	E	G	G	G	G	E	G	E	G	I	G	G	G	G	G	G	G	I	I	G	G
Work-habits	G	G	I	G	I	G	G	G	G	I	G	I	G	G	G	G	G	I	I	G	G
Originality	G	G	G	G	G	G	G	G	G	G	G	G	G	I	G	G	I	I	I	G	G
Technique	E	G	G	G	G	E	G	E	G	G	G	G	I	G	E	G	G	I	I	G	G
Fundamentals	A	B	C	B	B	A	B	A	B	C	B	B	B	C	B	B	B	D	C	B	B
UNIT III																					
Interest	E	E	G	E	G	G	G	G	G	G	G	G	G	E	I	G	I	G	G	G	G
Cooperation	E	G	G	G	G	E	G	E	G	I	G	I	G	G	G	G	I	I	I	I	I
Work-habits	G	G	I	I	G	G	I	G	I	I	I	G	G	G	I	G	I	I	E	E	E
Originality	E	G	G	G	G	E	G	G	G	G	G	G	I	G	I	G	I	G	I	G	G
Technique	G	I	G	G	G	G	G	G	I	G	G	G	G	G	I	G	I	G	I	G	C
Fundamentals	A	C	C	C	B	A	C	B	C	C	C	B	C	B	D	D	D	C	C	C	C
UNIT IV																					
Interest	E	G	I	I	E	E	G	E	E	G	G	G	G	G	G	I	G	G	I	E	G
Cooperation	G	G	I	G	E	E	G	E	E	G	G	G	I	G	G	G	G	I	G	G	G
Work-habits	G	G	G	I	I	E	G	G	G	I	G	G	I	G	G	I	G	G	I	G	G
Originality	G	G	I	G	G	E	G	G	G	G	E	I	G	G	G	I	G	G	I	I	E
Technique	E	E	G	I	I	I	E	G	E	G	G	E	G	I	G	G	I	G	I	I	E
Fundamentals	B	B	D	C	B	A	B	A	B	C	B	B	C	B	B	D	B	C	D	B	B

Science unit.
Sand table with
clay models of pre-
historic animals
and plants.

Drawings of build-
ings (one point
perspective).

Animal drawings.
Block printing.

Kites, log cabins,
and model aeroplanes.

*Eliminated for marking part of the experiment.
**Eliminated for method part of the experiment.

G--Good.
E--Excellent.
I--Inferior.

A--90-100--Excellent.
B--80- 90--Good.
C--75- 80--Good.
D--70- 75--Inferior.

7-1 UNGRADED FORMAL

Case Sheet for Entire Group

Pupil No.	1**	2**	3*	4***	5**	6	7	8	9**	10**	11	12***	13	14	15**	16**	17*	18	19	20**	21**	22*	23**	24	25	
UNIT I																										
I. Q.	97	122	117		96	113	102	120	103	100	99	123	70	119	97	111	102	91	100	109	91	119	120	109	113	
Interest	I	E	I	G	I	G	G	G	G	G	G	E	G	G	G	G	G	I	I	E	G	G	G	G	E	
Cooperation	G	I	I	G	G	G	G	E	G	G	G	E	G	G	G	G	G	G	G	E	E	G	G	G	E	Perspective
Work-habits	G	G	I	G	I	G	G	G	G	G	G	E	E	E	E	G	G	G	G	G	G	G	G	I	G	still life
Originality	G	E	G	G	G	I	G	G	G	G	I	G	G	G	G	I	G	I	I	E	G	G	G	G	G	colored chalk
Technique	G	G	G	G	I	G	G	G	I	I	I	E	G	I	G	I	G	I	G	E	G	G	G	I	I	drawings
Fundamentals	B	B	C	B	C	C	B	B	B	B	C	A	B	B	B	C	B	C	C	A	B	B	B	C	B	block prints.
UNIT II																										
Interest	G	G	I	G	G	G	G	G	G	G	G	G	E	E	G	I	G	I	G	E	G	I	G	G	G	
Cooperation	G	G	I	E	G	G	G	G	I	G	I	G	G	G	G	I	I	G	G	E	G	G	G	G	G	Drawings related
Work-habits	G	E	G	G	G	G	G	G	G	I	G	I	G	G	G	G	G	G	G	E	G	G	G	G	G	to social studies
Originality	G	E	I	G	I	I	G	G	G	G	G	E	I	E	G	G	G	I	G	G	G	G	E	E	E	unit.
Technique	G	G	I	G	G	G	G	G	I	G	G	G	G	G	G	G	G	G	G	E	G	G	G	G	G	
Fundamentals	B	A	C	B	B	B	B	B	C	B	B	B	B	A	B	C	B	C	B	A	B	B	B	B	B	
UNIT III																										
Interest	G	G	I	G	I	G	G	G	G	G	G	G	G	G	G	G	E	G	G	E	G	G	I	I	G	
Cooperation	G	E	G	G	I	I	G	G	G	G	G	G	G	E	G	G	G	G	G	G	G	E	G	G	G	Weaving
Work-habits	I	G	I	G	G	G	G	I	I	G	G	G	G	G	G	G	G	I	G	E	G	G	G	G	G	textile structure
Originality	G	I	I	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	I	E	G	G	G	I	G	loom mechanism.
Technique	I	G	G	G	I	I	I	I	I	G	G	E	G	G	G	G	G	G	I	E	G	G	I	G	G	
Fundamentals	C	B	C	B	C	C	C	C	C	B	B	B	B	B	B	B	B	B	C	A	B	B	C	C	B	
UNIT IV																										
Interest	G	G	I	G	I	G	G	G	G	G	G	E	G	E	E	G	G	G	I	E	G	G	G	G	I	
Cooperation	G	E	G	G	G	G	G	G	G	G	G	E	E	G	G	E	G	G	G	E	G	G	G	G	G	All-over patterns
Work-habits	G	G	I	G	I	G	G	G	G	I	G	G	G	G	G	G	E	G	G	G	G	I	G	G	G	applied on
Originality	G	E	I	G	I	G	G	G	G	G	G	E	G	E	G	G	E	G	G	E	G	G	G	E	E	textiles.
Technique	G	G	G	G	G	G	G	G	G	I	G	G	G	G	G	G	G	G	G	G	G	G	I	G	G	
Fundamentals	B	B	C	B	C	B	B	B	B	C	B	A	B	B	B	B	B	B	B	A	B	B	C	B	C	

*Eliminated for marking part of the experiment.
 **Eliminated for method part of the experiment.

G--Good.
 I--Inferior.
 E--Excellent.

A--90-100--Excellent.
 B--80-90 --Good.
 C--75-80 --Good.
 D--70-75 --Inferior.

7-2 GRADED FORMAI

Case Sheet for Entire

Pupil No.	1	2	3**	4	5**	6**	7	8	9	10**	11	12*	13**	14**	15	16**	17	18	19	20	21	
UNIT I																						
I. Q.	108	122	101	125	75	98	93	118	103		98	106	82	123	110	98	89	90	114	107	119	
Interest	I	I	G	E	I	E	G	G	G	G	E	G	I	E	E	E	G	G	I	G	G	
Cooperation	G	I	G	G	E	G	G	G	G	I	G	G	G	G	E	G	I	G	I	G	G	Perspective
Work-habits	I	I	I	G	G	G	I	G	G	I	G	I	I	G	G	G	G	I	G	G	G	Still life
Originality	I	G	I	I	I	G	I	I	I	G	E	I	I	I	E	G	G	I	G	G	G	Landscape
Technique	I	G	G	G	I	G	I	I	I	I	E	I	I	G	E	G	G	G	G	G	G	Block printing
Fundamentals	C	C	C	B	C	A	C	C	B	C	A	C	C	B	A	B	B	C	C	B	C	Colored chalk.
UNIT II																						
Interest	G	G	G	G	I	G	G	G	G	G	G	G	I	G	G	G	I	G	G	G	G	
Cooperation	G	G	G	G	G	G	G	G	G	I	G	G	G	G	E	G	I	E	E	G	E	
Work-habits	I	I	G	G	G	G	I	I	G	G	G	I	I	G	G	G	G	G	G	I	G	Industrial scenes as
Originality	G	G	G	I	I	G	I	G	G	G	G	I	I	I	G	G	G	G	G	G	G	an outgrowth of a
Technique	I	I	G	G	G	I	I	G	G	G	I	I	I	G	G	G	G	G	G	G	G	social studies unit.
Fundamentals	C	C	B	B	C	B	C	C	B	B	B	C	C	B	B	B	C	B	B	B	B	
UNIT III																						
Interest	E	E	G	I	I	E	G	E	I	G	I	G	G	E	E	G	I	G	G	G	E	
Cooperation	E	G	G	G	G	G	G	G	G	G	I	G	G	G	G	G	G	E	G	G	E	
Work-habits	E	G	G	G	I	E	G	I	G	G	G	I	I	I	G	G	I	I	G	G	I	Weaving
Originality	I	G	I	G	G	E	G	I	I	G	G	I	I	G	G	I	G	G	G	G	E	techniques
Technique	G	I	G	G	G	E	G	G	I	I	G	I	I	G	G	I	G	G	I	G	G	structure
Fundamentals	B	B	B	B	C	A	B	B	C	B	C	C	C	B	B	C	C	B	B	B	B	production.
UNIT IV																						
Interest	G	I	G	G	G	G	G	G	G	G	G	G	I	G	E	E	I	G	G	G	E	
Cooperation	G	I	G	G	G	G	I	G	G	G	G	I	I	I	G	G	G	G	G	I	G	
Work-habits	G	I	I	G	I	I	I	G	I	G	G	G	G	G	G	G	I	I	G	I	G	Textile design
Originality	I	G	I	G	I	G	I	I	G	G	G	I	G	G	I	G	G	G	G	G	G	repeating a unit
Technique	G	G	G	G	G	G	I	G	G	G	G	G	G	G	G	G	G	G	I	G	G	stenciling tech-
Fundamentals	B	C	B	B	C	B	C	B	C	B	B	C	C	B	B	B	C	B	B	C	B	nique
																						color harmony.

*Eliminated for marking part of the experiment.
 **Eliminated for method part of the experiment.

G--Good.
 E--Excellent.
 I--Inferior.

A--90-100--Excellent.
 B--80- 90--Good.
 C--75- 80--Good.
 D--70- 75--Inferior.

6-1 UNMARKED CHILD-CENTERED
First and Second Set of Tests

(Part III of this table is continued on next page.)

Pupil No.	Part I						Part II								
	R	N	A	R	N	A	R	N	A	R	N	A			
1*	7	1	VS	1	4	I	11	3	A	14	2	S	3	4	I
	5	2	S	2	3	A	10	3	A	13	2	S	12	2	S
2	8	1	VS	2	3	A	9	3	A	4	5	VI	4	4	I
	9	1	VS	4	1	VS	12	3	A	7	4	I	16	1	VS
3	5	2	S	0	5	VI	8	3	A	7	4	I	3	4	I
	6	1	VS	1	4	I	13	3	A	7	4	I	2	4	I
4	6	1	VS	1	4	I	5	4	I	11	3	A	11	2	S
	8	1	VS	3	2	S	14	2	S	13	2	S	8	3	A
5	6	2	VS	2	3	A	6	4	I	19	1	VS	6	3	A
	6	1	VS	3	2	S	9	3	A	18	1	VS	16	2	S
6**	5	1	VS	2	3	A	11	3	A	11	3	A	7	3	A
	7	1	VS	2	3	A	17	2	S	16	1	VS	8	3	A
7**	7	1	VS	1	4	I	16	2	5	12	3	A	4	4	I
	8	3	VS	3	2	S	22	1	VS	11	3	A	10	2	S
8*	6	1	VS	2	3	A	8	3	A	10	3	A	10	2	S
	8	1	VS	3	2	S	13	3	A	15	3	A	15	2	S
9	4	3	A	2	3	A	15	2	S	11	3	A	8	3	A
	6	1	VS	4	1	VS	22	1	VS	14	2	S	10	2	S
10	5	2	S	1	4	I	4	4	I	8	4	I	8	3	A
	8	1	VS	2	3	A	6	4	I	15	2	S	11	2	S
11	7	1	VS	1	4	I	13	3	A	10	3	A	13	2	S
	8	1	VS	2	3	A	15	2	S	12	3	A	11	2	S
12*	5	2	S	2	3	A	15	2	S	19	3	A	12	1	VS
	8	1	VS	3	2	S	16	2	S	10	3	A	11	2	S
13**	8	1	VS	2	3	A	10	3	A	10	3	A	16	1	VS
	9	1	VS	3	2	S	20	1	VS	16	1	VS	23	1	VS
14	5	2	S	0	5	VI	10	3	A	3	5	VI	2	4	I
	12	1	VS	1	4	I	17	2	S	10	3	A	5	3	A
15**	11	1	VS	3	2	S	16	2	S	15	2	S	11	2	S
	9	1	VS	4	1	VS	24	1	VS	24	1	VS	25	1	VS
16	7	1	VS	2	3	A	11	3	A	15	2	S	14	4	I
	8	1	VS	2	3	A	17	2	S	14	2	S	10	2	S
17	7	1	VS	2	3	A	10	3	A	14	2	S	7	3	A
	8	1	VS	3	2	S	18	1	VS	17	1	VS	12	2	S
18**	5	2	S	3	2	S	7	3	A	8	4	I	14	2	S
	8	1	VS	3	2	S	10	3	A	10	3	A	13	2	S
19**	9	1	VS	3	2	S	16	2	S	14	2	S	10	2	S
	11	1	VS	4	1	VS	22	1	VS	12	3	A	21	1	VS
20**	5	2	S	2	3	A	11	3	A	15	2	S	10	3	S
	7	1	VS	4	1	VS	20	1	VS	13	2	S	17	1	S
21	7	1	VS	2	4	I	5	4	I	5	4	I	8	3	A
	8	1	VS	3	2	S	19	1	VS	9	3	A	5	3	A

6-1 UNMARKED CHILD-CENTERED (Continued)

Pupil No.	Part III												Norm Average		
	R	N	A	R	N	A	R	N	A	R	N	A	Ability	Standing	
1*	7	3	A	5	1	VS	5	1	VS	33	3	A	2.5	A	Test 1
	9	2	S	5	1	VS	3	2	S	36	2	S	2.0	S	Test 2
2	1	5	VI	1	4	I	3	2	S	27	4	I	3.3	A	Test 1
	6	3	A	1	4	I	2	3	A	30	3	A	2.3	S	Test 2
3	8	2	S	4	1	VS	3	2	S	26	4	I	3.2	A	Test 1
	7	3	A	3	2	S	3	2	S	36	2	S	2.9	A	Test 2
4	9	2	S	0	5	VI	2	3	A	29	4	I	3.3	A	Test 1
	9	2	S	3	2	S	0	5	VI	34	3	A	2.2	S	Test 2
5	6	3	A	1	4	I	2	3	A	15	5	VI	2.9	A	Test 1
	2	5	VI	3	2	S	12	3	A	30	5	VI	2.4	S	Test 2
6**	5	4	I	3	2	S	1	4	I	32	3	A	2.7	A	Test 1
	8	2	S	2	3	A	3	2	S	43	1	VS	1.9	S	Test 2
7**	8	2	S	0	5	VI	0	2	S	35	2	S	2.7	A	Test 1
	8	2	S	3	2	S	4	1	VS	41	1	VS	1.4	VS	Test 2
8*	5	4	I	3	2	S	3	2	S	33	3	A	2.5	A	Test 1
	8	2	S	2	3	A	4	1	VS	31	3	A	2.2	S	Test 2
9	8	2	S	2	3	A	0	5	VI	23	4	I	3.3	A	Test 1
	10	1	VS	4	1	VS	3	2	S	32	3	A	1.6	S	Test 2
10	6	3	A	0	5	VI	2	3	A	34	3	A	3.2	A	Test 1
	7	3	A	0	5	VI	2	3	A	35	2	S	2.5	A	Test 2
11	6	3	A	0	5	VI	3	2	S	29	4	I	2.9	A	Test 1
	5	4	I	3	2	S	3	2	S	33	3	A	2.3	S	Test 2
12*	8	2	S	2	3	A	5	1	VS	38	1	VS	2.0	S	Test 1
	10	1	VS	3	2	S	0	5	VI	36	2	S	2.1	S	Test 2
13**	10	1	VS	2	3	A	10	1	VS	32	3	A	2.2	S	Test 1
	8	2	S	5	1	VS	4	1	VS	33	3	A	1.4	VS	Test 2
14	6	3	A	2	3	A	2	3	A	33	3	A	3.5	I	Test 1
	8	2	S	2	3	A	2	3	A	31	3	A	2.8	A	Test 2
15**	8	2	S	3	3	A	2	2	S	36	2	S	1.8	S	Test 1
	9	2	S	4	1	VS	4	1	VS	35	2	S	1.0	VS	Test 2
16	8	2	S	4	1	VS	3	2	S	36	2	S	2.3	S	Test 1
	8	2	S	3	2	S	4	1	VS	34	3	A	2.1	S	Test 2
17	9	2	S	5	1	VS	3	3	A	35	3	A	2.4	S	Test 1
	9	2	S	3	2	S	3	2	S	37	1	VS	1.4	VS	Test 2
18**	6	3	A	3	2	S	3	2	S	31	3	A	2.6	A	Test 1
	4	4	I	3	2	S	4	1	VS	34	3	A	2.3	S	Test 2
19**	6	3	A	3	2	S	2	3	A	35	2	S	1.8	S	Test 1
	10	1	VS	4	1	VS	3	2	S	38	1	VS	1.3	VS	Test 2
20**	6	3	A	1	4	I	2	3	A	31	3	A	2.6	A	Test 1
	10	1	VS	2	3	A	4	1	VS	31	3	A	1.5	S	Test 2
21	8	2	S	0	5	VI	1	4	I	33	3	A	3.2	A	Test 1
	10	1	VS	1	4	I	3	2	S	25	4	I	2.3	S	Test 2

6-2 MARKED CHILD-CENTERED
First and Second Set of Tests

(Part III of this table is continued on next page.)

Pupil No.	Part I						Part II								
	R	N	A	R	N	A	R	N	A	R	N	A			
1*	8	1	VS	1	4	I	13	3	A	11	3	A	1	5	VI
	9	2	S	2	3	A	15	3	A	9	4	I	12	3	A
2	9	1	VS	2	3	A	11	3	A	15	2	S	11	2	S
	8	1	VS	4	1	VS	15	2	S	14	2	S	13	2	S
3**	8	1	VS	1	5	VI	1	5	VI	9	3	A	9	2	S
	7	1	VS	1	5	VI	8	3	A	14	2	S	9	2	S
4	5	2	VS	0	5	VI	7	3	A	9	3	A	8	3	A
	7	3	VS	3	2	S	8	3	A	13	3	A	13	2	S
5	5	2	S	0	5	VI	7	3	A	9	3	A	5	3	A
	7	1	VS	1	4	I	18	1	VS	6	4	I	16	1	VS
6	5	2	S	1	5	VI	16	2	S	10	3	A	8	3	A
	6	1	VS	2	3	A	21	1	VS	15	2	S	12	2	S
7	4	3	A	0	5	VI	10	3	A	10	3	A	4	4	I
	4	3	A	1	4	I	9	3	A	9	3	A	4	4	I
8**	7	1	VS	1	4	I	11	3	A	10	3	A	11	2	S
	7	1	VS	2	3	A	18	1	VS	17	1	VS	11	2	S
9**	8	1	VS	0	5	VI	4	4	I	14	3	A	10	2	S
	7	1	VS	1	4	I	16	2	S	17	1	VS	14	2	S
10	7	1	VS	2	3	A	8	3	A	12	3	A	6	3	A
	8	1	VS	4	1	VS	11	3	A	17	1	VS	0	5	VI
11	8	1	VS	3	2	S	9	3	A	8	4	I	5	3	A
	7	1	VS	1	5	VI	6	4	I	5	4	I	4	4	I
12**	5	1	VS	1	5	VI	5	4	I	12	3	A	8	3	A
	6	1	VS	1	1	VS	8	3	A	20	1	VS	8	3	A
13**	6	1	VS	0	5	VI	10	3	A	9	3	A	8	3	A
	3	1	VS	2	3	A	16	2	S	14	2	S	17	1	VS
14**	5	2	S	0	5	VI	11	3	A	6	4	I	4	4	I
	5	2	S	1	4	I	16	2	S	10	3	A	11	2	S
15*	7	1	VS	1	4	I	3	4	I	9	3	A	0	5	VI
	3	1	VS	1	4	I	1	5	VI	13	2	S	0	5	VI
16	5	1	VS	0	5	VI	2	4	I	12	3	A	6	3	A
	8	1	VS	2	3	A	9	3	A	11	3	A	6	3	A
17	9	1	VS	1	4	I	12	3	A	14	2	S	5	3	A
	6	1	VS	2	3	A	19	1	VS	12	2	S	16	1	VS
18**	7	1	VS	0	5	VI	9	3	A	14	2	S	5	3	A
	10	1	VS	1	4	I	18	1	VS	9	3	A	14	2	S
19*	6	1	VS	0	5	VI	2	4	I	10	3	A	7	3	A
**	7	1	VS	2	3	A	14	2	S	13	2	S	12	2	S
20**	8	1	VS	1	4	I	8	3	A	4	5	VI	2	4	I
	5	2	S	1	4	I	12	3	A	11	3	A	9	2	S
21	7	1	VS	0	5	VI	7	3	A	10	3	A	12	2	S
	5	2	S	1	4	I	8	3	A	9	3	A	11	2	S

6-2 MARKED CHILD-CENTERED (Continued)

Pupil No.	Part III									Norm Average					
	R	N	A	R	N	A	R	N	A	R	N	A	Ability	Standing	
1*	9	2	S	1	4	I	0	5	VI	30	3	A	3.2	A	Test 1
	7	3	A	1	4	I	4	1	VS	33	3	A	2.9	A	Test 2
2	9	2	S	1	4	I	0	5	VI	36	2	S	2.3	A	Test 1
	9	2	S	5	1	VS	6	1	VS	35	2	S	1.6	S	Test 2
3**	1	5	VI	0	5	VI	0	5	VI	34	2	S	3.2	A	Test 1
	5	4	I	0	5	VI	2	3	A	35	2	S	2.6	A	Test 2
4	6	3	A	0	5	VI	0	5	VI	36	2	S	3.0	A	Test 1
	8	2	S	2	3	A	1	4	I	34	3	A	2.5	A	Test 2
5	8	2	S	3	2	S	1	4	I	19	5	VI	3.2	A	Test 1
	8	2	S	3	2	S	3	2	S	38	1	VS	2.0	S	Test 2
6	8	2	S	4	1	VS	7	1	VS	35	2	S	2.6	A	Test 1
	9	2	S	5	1	VS	8	1	VS	36	2	S	1.7	S	Test 2
7	8	2	S	1	4	I	1	4	I	34	3	A	3.4	A	Test 1
	7	3	A	1	4	I	1	4	I	29	4	I	3.5	I	Test 2
8**	6	3	A	2	3	A	3	2	S	34	3	A	2.7	A	Test 1
	7	3	A	3	2	S	5	1	VS	34	3	A	1.8	S	Test 2
9**	6	3	A	2	3	A	0	5	VI	34	3	A	3.1	A	Test 1
	7	3	A	3	2	S	3	2	S	32	3	A	2.4	S	Test 2
10	5	4	I	1	4	I	1	4	I	29	4	I	3.0	A	Test 1
	7	1	VS	1	4	I	2	3	A	28	4	I	2.5	A	Test 2
11	8	2	S	2	3	A	0	5	VI	37	1	VS	2.4	S	Test 1
	5	4	I	1	4	I	1	4	I	34	3	A	3.5	A	Test 2
12**	6	3	A	3	2	S	2	3	A	32	3	A	3.1	A	Test 1
	8	2	S	3	2	S	2	3	A	32	3	A	2.0	S	Test 2
13**	5	4	I	2	3	A	0	5	VI	33	3	A	3.1	A	Test 1
	8	2	S	4	1	VS	2	3	A	34	3	A	2.0	S	Test 2
14**	8	2	S	4	1	VS	3	2	S	35	2	S	3.1	A	Test 1
	5	4	I	2	3	A	2	3	A	34	3	A	2.7	A	Test 2
15*	7	3	A	0	5	VI	3	2	S	32	3	A	3.3	A	Test 1
	6	3	A	1	4	I	3	2	S	35	3	A	3.2	A	Test 2
16	1	5	VI	1	4	I	1	4	I	32	3	A	3.3	A	Test 1
	4	4	I	2	3	A	2	3	A	33	3	A	2.7	A	Test 2
17	6	3	A	3	2	S	2	3	A	30	3	A	2.6	A	Test 1
	7	3	A	2	3	A	2	3	A	32	3	A	2.1	S	Test 2
18**	4	4	I	0	5	VI	2	3	A	39	1	VS	2.8	A	Test 1
	4	5	VI	1	4	I	1	4	I	30	3	A	2.6	A	Test 2
19**	9	2	S	3	2	S	0	5	VI	33	3	A	3.1	A	Test 1
	4	4	I	1	4	I	3	2	S	37	1	VS	2.0	S	Test 2
20**	7	3	A	3	2	S	1	4	I	37	1	VS	3.0	A	Test 1
	7	3	A	0	5	VI	3	2	S	33	3	A	2.8	A	Test 2
21	6	3	A	4	1	VS	3	2	S	37	1	VS	2.4	S	Test 1
	7	3	A	2	3	A	4	1	VS	34	3	A	2.7	A	Test 2

7-1 UNMARKED FORMAL
First and Second Set of Tests

(Part III of this table is continued on next page.)

Pupil No.	Part I						Part II								
	R	N	A	R	N	A	R	N	A	R	N	A			
1**	5	3	A	1	4	I	6	4	I	9	4	I	6	4	I
	6	3	A	2	3	A	8	4	I	10	4	I	5	4	I
2**	6	3	A	2	3	A	13	3	A	15	2	S	8	3	A
	6	3	A	2	3	A	18	2	S	16	2	S	3	5	VI
3*	6	3	A	2	3	A	18	2	S	13	3	A	14	2	S
	6	3	A	2	3	A	22	1	VS	13	3	A	6	4	I
4**	8	1	VS	2	3	A	9	4	I	15	2	S	7	4	I
	6	3	A	2	3	A	13	3	A	17	2	S	14	2	S
5**	7	3	A	2	3	A	5	5	VI	6	4	I	11	3	A
	6	3	A	3	2	S	16	3	A	9	4	I	9	3	A
6	7	3	A	2	3	A	5	5	VI	14	3	A	13	2	S
	6	3	A	3	2	S	14	3	A	11	3	A	18	2	S
7	7	3	A	1	4	I	19	2	S	14	3	A	11	3	A
	7	3	A	3	2	S	19	2	S	16	2	S	7	4	I
8	4	4	I	0	5	VI	12	3	A	15	2	S	6	4	I
	7	3	A	2	3	A	12	3	A	21	1	VS	13	2	S
9**	6	3	A	2	3	A	10	4	I	17	2	S	10	3	A
	8	2	S	2	3	A	13	3	A	16	2	S	10	3	A
10**	7	3	A	1	4	I	15	3	A	14	3	A	7	4	I
	8	2	S	2	3	A	14	3	A	14	3	A	8	3	A
11**	11	1	VS	5	1	VS	17	2	S	21	1	VS	22	1	VS
	12	1	VS	5	1	VS	21	1	VS	20	1	VS	13	2	S
12	5	3	A	0	5	VI	5	5	VI	13	3	A	6	4	I
	5	3	A	0	5	VI	9	4	I	12	3	A	1	5	VI
13	8	2	S	2	3	A	10	4	I	10	4	I	9	1	VS
	7	3	A	1	4	I	12	3	A	14	3	A	12	3	A
14	4	4	I	0	5	VI	7	4	I	11	3	A	7	4	I
	4	4	I	0	5	VI	6	4	I	16	2	S	8	3	A
15**	6	3	A	2	3	A	13	3	A	13	3	A	12	3	A
	5	3	A	2	3	A	17	2	S	16	2	S	6	4	I
16**	9	2	S	4	1	VS	16	3	A	17	2	S	10	3	A
	9	2	S	3	2	S	14	3	A	12	3	A	17	2	S
17*	7	3	A	2	3	A	10	4	I	9	4	I	11	3	A
	6	3	A	1	4	I	9	4	I	11	3	A	7	4	I
18	4	4	I	3	2	S	11	4	I	12	3	A	2	5	VI
	3	5	VI	2	3	A	12	3	A	11	3	A	11	3	A
19	5	3	A	2	3	A	16	3	A	16	2	S	18	2	S
	8	2	S	3	2	S	19	2	S	14	3	A	13	2	S
20**	6	3	A	1	4	I	14	3	A	12	3	A	6	4	I
	8	2	S	1	4	I	18	2	S	10	4	I	5	4	I
21**	6	3	A	4	1	VS	16	3	A	18	2	S	24	1	VS
	7	3	A	3	2	S	21	1	VS	14	3	A	21	1	VS
22*	6	3	A	1	4	I	18	2	S	13	3	A	5	4	I
	7	3	A	1	4	I	22	1	VS	14	3	A	4	5	VI
23**	7	3	A	3	1	S	17	2	S	16	2	S	13	2	S
	7	3	A	3	2	S	9	4	I	14	3	A	8	3	A
24	5	3	A	2	3	A	18	2	S	12	3	A	4	4	I
	10	1	VS	4	1	VS	18	2	S	12	3	A	22	1	VS

7-1 UNMARKED FORMAL (Continued)

Pupil No.	Part III												Norm Average		
	R	N	A	R	N	A	R	N	A	R	N	A	Ability	Standing	
1**	7	3	A	1	4	I	2	3	A	28	4	I	3.7	I	Test 1
	6	4	I	3	3	A	2	3	A	34	3	A	3.4	A	Test 2
2**	8	3	A	2	3	A	3	3	A	33	3	A	2.8	A	Test 1
	9	2	S	5	2	S	2	3	A	40	1	VS	2.6	A	Test 2
3*	10	2	S	3	3	A	2	3	A	37	1	VS	2.3	S	Test 1
	10	2	S	4	2	S	2	3	A	35	2	S	2.6	A	Test 2
4**	8	3	A	1	4	I	3	3	A	34	3	A	2.9	A	Test 1
	5	4	I	2	3	A	2	3	A	25	5	VI	3.0	A	Test 2
5**	10	2	S	1	4	I	4	2	S	7	5	VI	3.6	I	Test 1
	9	2	S	4	2	S	2	3	A	33	3	A	2.9	A	Test 2
6	6	4	I	1	4	I	2	3	A	34	3	A	3.2	A	Test 1
	9	2	S	2	3	A	1	4	I	40	1	VS	2.4	S	Test 2
7	8	3	A	2	3	A	2	3	A	33	3	A	3.0	A	Test 1
	7	3	A	3	3	A	4	2	S	34	3	A	2.5	A	Test 2
8	3	5	VI	2	3	A	3	3	A	37	1	VS	3.2	A	Test 1
	6	4	I	2	3	A	4	2	S	40	1	VS	2.2	S	Test 2
9**	11	1	VS	3	3	A	3	3	A	30	3	A	2.9	A	Test 1
	9	2	S	2	3	A	4	2	S	30	3	A	2.6	A	Test 2
10**	11	1	VS	3	3	A	3	3	A	28	4	I	3.3	A	Test 1
	9	2	S	1	4	I	4	2	S	29	4	I	2.8	A	Test 2
11**	10	2	S	4	2	S	4	2	S	37	1	VS	1.2	VS	Test 1
	7	3	A	5	2	S	6	1	VS	32	3	A	1.5	S	Test 2
12	9	2	S	3	3	A	1	4	I	35	2	S	3.5	I	Test 1
	7	3	A	3	3	A	1	4	I	38	1	VS	3.4	A	Test 2
13	6	4	I	1	4	I	2	3	A	35	2	S	2.9	A	Test 1
	6	4	I	1	4	I	2	3	A	36	2	S	3.1	A	Test 2
14	5	5	VI	5	2	S	1	4	I	35	2	S	3.6	I	Test 1
	8	3	A	4	2	S	1	4	I	35	2	S	3.2	A	Test 2
15**	7	3	A	1	4	I	2	3	A	34	3	A	3.0	A	Test 1
	6	4	I	2	3	A	1	4	I	35	2	S	2.6	A	Test 2
16**	10	2	S	3	3	A	4	2	S	31	3	A	2.3	S	Test 1
	5	4	I	5	2	S	2	3	A	34	3	A	2.5	A	Test 2
17*	7	3	A	3	3	A	1	4	I	25	4	I	3.3	A	Test 1
	9	2	S	4	2	S	2	3	A	27	4	I	3.4	A	Test 2
18	9	2	S	1	4	I	1	4	I	33	3	A	3.3	A	Test 1
	5	4	I	3	3	A	1	4	I	30	3	A	3.3	A	Test 2
19	7	3	A	2	3	A	1	4	I	32	3	A	2.7	A	Test 1
	8	3	A	2	3	A	1	4	I	31	3	A	2.4	S	Test 2
20**	8	3	A	2	3	A	3	3	A	33	3	A	3.2	A	Test 1
	10	2	S	2	3	A	2	3	A	34	3	A	3.1	A	Test 2
21**	10	2	S	5	2	S	5	2	S	36	2	S	2.1	S	Test 1
	11	1	VS	5	2	S	4	2	S	32	3	A	2.1	S	Test 2
22*	8	3	A	1	4	I	2	3	A	32	3	A	3.1	A	Test 1
	8	3	A	2	3	A	3	3	A	31	3	A	3.1	A	Test 2
23**	8	3	A	0	5	VI	1	4	I	32	3	A	2.4	S	Test 1
	9	2	S	1	4	I	2	3	A	36	2	S	2.8	A	Test 2
24	7	3	A	3	3	A	1	4	I	33	3	A	3.0	A	Test 1
	10	2	S	2	3	A	3	3	A	32	3	A	1.9	S	Test 2

7-2 MARKED FORMAL
First and Second Set of Tests

(Part III of this table is continued on next page.)

Pupil No.	Part I						Part II								
	R	N	A	R	N	A	R	N	A	R	N	A			
1	7	3	A	2	3	A	14	3	A	14	3	A	3	5	VI
	8	2	S	1	4	I	19	2	S	12	4	I	10	3	A
2	8	2	S	2	3	A	14	3	A	16	2	S	11	3	A
	6	3	A	2	3	A	19	2	S	18	2	S	16	2	S
3**	5	3	A	2	3	A	13	3	A	12	3	A	10	3	A
	7	3	A	2	3	A	8	4	I	14	3	A	11	3	A
4	7	3	A	2	3	A	19	2	S	16	2	S	13	2	S
	8	2	S	2	3	A	20	1	VS	17	2	S	8	3	A
5**	5	3	A	3	2	S	18	2	S	11	3	A	16	2	S
	9	2	S	1	4	I	18	2	S	9	4	I	14	2	S
6**	7	3	A	1	4	I	4	5	VI	9	4	I	15	2	S
	7	3	A	0	5	VI	7	4	I	11	3	A	15	2	S
7	5	3	A	1	4	I	11	4	I	6	4	I	11	3	A
	9	2	S	2	3	A	17	2	S	10	4	I	11	3	A
8	4	4	I	3	2	S	6	5	VI	20	1	VS	14	2	S
	7	3	A	1	4	I	12	3	A	13	3	A	10	3	A
9	7	3	A	2	3	A	18	2	S	14	3	A	5	4	I
	8	2	S	1	4	I	19	2	S	13	3	A	10	3	A
10**	6	3	A	1	4	I	6	4	I	16	2	S	5	4	I
	6	3	A	1	4	I	7	4	I	3	5	VI	4	4	I
11	7	3	A	4	1	VS	12	3	A	11	3	A	10	3	A
	8	2	S	2	3	A	19	2	S	10	4	I	6	4	I
12**	4	4	I	1	4	I	16	3	A	10	4	I	3	5	VI
**	5	3	A	0	5	VI	11	4	I	15	2	S	8	3	A
13**	8	2	S	2	3	A	10	4	I	10	4	I	4	4	I
	4	4	I	1	4	I	12	3	A	9	4	I	3	5	VI
14**	6	3	A	2	3	A	13	3	A	12	3	A	0	5	VI
	6	3	A	2	3	A	12	3	A	13	3	A	10	3	A
15	6	3	A	2	3	A	8	4	I	22	1	VS	9	3	A
	6	3	A	3	2	S	12	3	A	19	2	S	14	2	S
16**	9	2	S	2	3	A	6	4	I	15	2	S	5	4	I
	6	3	A	1	4	I	14	3	A	19	2	S	4	4	I
17	6	3	A	1	4	I	3	5	VI	15	2	S	18	3	A
	7	3	A	1	4	I	2	5	VI	12	3	A	13	2	S
18	5	3	A	3	2	S	6	4	I	12	3	A	3	5	VI
	5	3	A	2	3	A	9	4	I	7	4	I	7	4	I
19	7	3	A	2	3	A	15	3	A	13	3	A	4	4	I
	9	2	S	3	2	S	22	1	VS	19	2	S	10	3	A
20	5	3	A	1	4	I	11	4	I	15	2	S	6	4	I
	7	3	A	1	4	I	15	3	A	13	3	A	8	3	A
21	8	2	S	0	5	VI	13	3	A	14	3	A	1	5	VI
	7	3	A	1	4	I	0	5	VI	19	2	S	0	5	VI

7-2 MARKED FORMAL (Continued)

Pupil No.	Part III												Norm Average		
	R	N	A	R	N	A	R	N	A	R	N	A	Ability	Standing	
1	8	3	A	3	3	A	4	2	S	30	3	A	3.2	A	Test 1
	10	2	S	3	3	A	1	4	I	31	3	A	3.0	A	Test 2
2	9	2	S	4	2	S	3	3	A	31	3	A	2.6	A	Test 1
	8	3	A	5	2	S	6	1	VS	31	3	A	2.4	S	Test 2
3**	8	3	A	4	2	S	1	4	I	33	3	A	3.0	A	Test 1
	9	2	S	3	3	A	2	3	A	36	2	S	2.8	A	Test 2
4	9	2	S	4	2	S	3	3	A	29	4	I	2.6	A	Test 1
	9	2	S	3	3	A	3	1	VS	35	2	S	2.1	S	Test 2
5**	8	3	A	3	3	A	4	2	S	22	4	I	2.6	A	Test 1
	9	2	S	2	3	A	3	3	A	33	3	A	2.8	A	Test 2
6**	5	4	I	2	3	A	2	3	A	26	4	I	3.7	I	Test 1
	6	4	I	3	3	A	2	3	A	20	5	VI	3.6	I	Test 2
7	5	4	I	1	4	I	2	3	A	33	3	A	3.5	I	Test 1
	7	3	A	2	3	A	2	3	A	36	2	S	2.9	A	Test 2
8	8	3	A	2	3	A	3	3	A	28	4	I	3.0	A	Test 1
	8	3	A	4	2	S	4	2	S	25	4	I	3.1	A	Test 2
9	8	3	A	4	2	S	1	4	I	34	3	A	3.0	A	Test 1
	7	3	A	0	5	VI	1	4	I	35	2	S	2.8	A	Test 2
10**	6	4	I	3	3	A	2	3	A	15	5	VI	3.6	I	Test 1
	5	4	I	2	3	A	0	5	VI	25	4	I	4.0	I	Test 2
11	7	3	A	5	2	S	1	4	I	35	2	S	2.5	A	Test 1
	10	2	S	2	3	A	2	3	A	34	3	A	2.9	A	Test 2
12**	6	4	I	1	4	I	3	3	A	34	3	A	3.8	I	Test 1
	6	4	I	0	5	VI	1	4	I	35	2	S	3.3	A	Test 2
13**	4	5	VI	1	4	I	1	4	I	24	4	I	3.6	I	Test 1
	5	4	I	3	3	A	2	3	A	37	1	VS	3.4	A	Test 2
14**	7	3	A	1	4	I	4	2	S	31	3	A	3.2	A	Test 1
	7	3	A	3	3	A	2	3	A	37	1	VS	2.7	A	Test 2
15	6	4	I	0	5	VI	3	3	A	31	3	A	3.0	A	Test 1
	8	3	A	0	5	VI	1	4	I	32	3	A	2.7	A	Test 2
16**	7	3	A	4	2	S	3	3	A	32	3	A	2.9	A	Test 1
	7	3	A	3	3	A	3	3	A	33	3	A	3.1	A	Test 2
17	6	4	I	1	4	I	3	3	A	34	3	A	3.3	A	Test 1
	4	5	VI	5	2	S	3	3	A	33	3	A	3.3	A	Test 2
18	4	5	VI	0	5	VI	2	3	A	31	3	A	3.4	A	Test 1
	7	3	A	0	5	VI	2	3	A	30	4	I	3.6	I	Test 2
19	7	3	A	2	3	A	5	2	S	33	3	A	3.1	A	Test 1
	6	4	I	1	4	I	3	3	A	37	1	VS	2.6	A	Test 2
20	5	4	I	2	3	A	2	3	A	33	3	A	3.3	A	Test 1
	7	3	A	3	3	A	2	3	A	39	1	VS	2.8	A	Test 2
21	9	2	S	2	3	A	2	3	A	32	3	A	3.3	A	Test 1
	10	2	S	2	3	A	1	4	I	29	4	I	3.7	I	Test 2

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