

1934

# Art ability: its analysis and measurement for purposes of prognosis.

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BOSTON UNIVERSITY

SCHOOL OF EDUCATION

THESIS

ART ABILITY, - ITS ANALYSIS AND  
MEASUREMENT FOR PURPOSES OF  
PROGNOSIS

Submitted by

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(B.S. in Ed., Massachusetts School of Art, 1929)

In partial fulfillment of requirements for the  
degree of Master of Education

1934

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ai Yield of available land to agriculture A . III

. Yield of available land for agriculture A . VI

15 High school

16 Percentage of land to agriculture . V

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2P Estimated yield to

2P Yield . VIII

FP Estimated yield . XI

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To answer the first two questions requires an investigation into the literature of the field including direct examination of the tests and measures set up by workers in art education for measuring art ability.

To answer the third question, I shall try to justify my criticism of the present art tests by setting up one of my own. I suspect that before I have completed this task

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I shall be a great deal more charitable and respectful  
Introduction

As a glance at the title will reveal, this thesis is attempting to deal with the seemingly illusive and much misunderstood topic - art ability - in such a way as to bring it into bounds, that it may be analyzed into its apparent constituent parts and perhaps measured. It is well to state here, that by art ability is meant, general fundamental ability as differentiated from such special abilities as color, design, mechanical, plastic and architectural talents, and judgment, appreciation and technic. These latter elements seem to have been more generally and successfully recognized and measured, but simple, fundamental, non-specialized ability still challenges the best efforts of the worker of a more or less scientific trend of mind in the field of art.

The problem of this thesis, stated very simply, is to answer these three questions: (1) can art ability be analyzed? (2) can it be measured? (3) how?

To answer the first two questions requires an investigation into the literature of the field including direct examination of the tests and measures set up by workers in art education for measuring art ability.

To answer the third question, I shall try to justify my criticism of the present art tests by setting up one of my own. I suspect that before I have completed this task



I shall be a great deal more charitable and respectful of those tests already in existence which I am about to attack.

Ability in art

There is one more pertinent question which might rightfully be asked and which it is earnestly hoped the findings of this thesis may answer, namely: can success in art be predicted by means of an ability test? If the first three questions are answered successfully, it is probable that this last may also be answered with some degree of assurance.

Studies of the particularly deficient, why this is so we do not know, exactly, except that the presence of art ability is more evident and noticeable than lack of such ability while lack of ability in spelling, arithmetic and reading is more evident in the classroom than is its presence.

In looking over the field, little seems to have been done on the psychology of art ability, though work along this line is slowly getting under way. More definite work has been accomplished in the field of music psychology by Shashore.

What are the native powers of the artist which differentiate him from other individuals? To answer this question it was decided best to list as many of the characteristics as one could discern, from personal observation and contact with art students and teachers, then armed with

to choose parts of the  
old book to make a new one  
and to add to it some  
of my own.

Right now I am  
writing a new book  
and I am trying  
to make it  
as good as  
the old one.  
I am  
writing  
it  
in  
my  
own  
way  
and  
I  
hope  
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be  
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good  
as  
the  
old  
one.

such a list, to investigate the studies of authors and  
writers in the field of art education.

I

### Analysis of Characteristics Related to

#### Ability in Art

in the analysis of general art ability duplicated one another.

In examining the writings and investigations of those eminent in the field of art and education, it is interesting to note that the approach to the analysis of art ability has been largely through a study of the gifted, as contrasted with such subjects as spelling, reading and arithmetic where the approach has been through studies of the particularly deficient. Why this is so we do not know, exactly, except that the presence of art ability is more evident and noticeable than lack of such ability while lack of ability in spelling, arithmetic and reading is more evident in the classroom than is its presence.

In looking over the field, little seems to have been done on the psychology of art ability, though work along this line is slowly getting under way. More definite work has been accomplished in the field of music psychology by Seashore.

What are the native powers of the artist which differentiate him from other individuals? To answer this question it was decided best to list as many of the characteristics as one could discern, from personal observation and contact with art students and teachers, then armed with



such a list, to investigate the studies of authors and workers in the field of art education.

It was found that much of the material and findings in the analysis of general art ability duplicated one another rather than supplementing or contradicting one another. Thus, the following tables we've selected and accepted as an analysis of art ability as they seemed to include practically all the elements suggested by other investigators, including that of the writer.

The first table, by Manuel, shows the results of a study of persons especially talented. Manuel contends that the stated characteristics, each an independent or partially independent variable, seem closely related to ability in drawing.<sup>1</sup>

- (1) "The ability mentally to note visual form, and<sup>2</sup> by certain lines and areas, to reproduce it or significant features of it.
- (2) Ability to observe.
- (3) Ability to select from a complex visual situation the most representative and the most beautiful aspects.
- (4) Memory for visual form.
- (5) Ability mentally to manipulate visual forms.
- (6) Ability to control hand movements in accordance with visual percept or image.

Manuel's analysis is used in Chapter II for examination of tests and in Chapter III for construction of an art test.

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1. L. S. Hollingsworth, Special Talents and Defects, p. 143  
2. ibid p. 145

1. L. S. Hollingsworth, Special Talents and Defects, pp. 144-145



(7) Ability to invent, to bring together into new artistic combinations the elements of different visual experiences.

(8) Ability to judge the beautiful in line, form, color, and composition.

(9) Ability to discriminate differences in color.

(10) Ability to discriminate in visual magnitude.

(11) Acuity of vision.

(12) Interest in the act and products of drawing.

(13) General intelligence."

of spatial relations, perspective, design and colors.

The following table by Meumann shows the result of a study of persons lacking in art ability:<sup>1</sup>

(1) "The will to analyze and to notice forms and colors has not been stimulated.

(2) The intention to analyze may be aroused, and yet the individual may find the analysis too difficult. This is a matter of innate talent.

(3) The memory of that to be represented may be deficient. It may be incomplete or vague in form or in color. The memory of spatial relations may be inadequate. This, too is a matter of innate talent.

(4) There may be lack of ability to hold the image during the act of drawing. This capacity is innate.

(5) The memory image and the perceptual image may not be coordinated with the movements in drawing. This capacity is innate.

(6) The sight of the drawing in its imperfection as compared with the memory may disturb the image.

(7) The drawer may lack schemata on which to found his drawing.

(8) There may be failure to comprehend how one may project space in three dimensions upon a plane.

(9) Manual skill may fail.

(10) There may be no artistic sense.

(11) Inability to draw may arise from a combination of various of these deficiencies."

Manuel's analysis is used in Chapter II for examination of tests and in Chapter III for construction of an art test.

---

1. L. S. Hollingsworth, Special Talents and Defects, pp. 144-145



Art ability is partially, at least, involved in certain types of motor adjustment, such as visual reactions, rapidity of movement, precision of movement, and responses to visual stimuli.<sup>1</sup> It seems to be bound up rather closely with visual imagery and memory and involves fine judgments of spatial relations, perspective, design and color.

Now that we have a fair analysis of the characteristics related to art ability, I shall attempt to point out to what extent such abilities are being measured by contemporary tests.

ability achievement. These two factors are so intimately related that tests attempting to distinguish ability from achievement test both, for achievement is the common factor in test construction and is the only visible means of determining degrees of ability.

Art appreciation and judgment, however, seem to be less related to ability and achievement and can be isolated and tested comparatively successfully.

However, the successful measurement of each of these classes of art depends greatly on the type of test used, its validity, reliability, subjectivity and objectivity, and upon the person administering the test and the favorable or unfavorable environmental conditions attending its administration.

---

Now let us look at the outstanding tests for art

1. E. E. Jones, "Correlation of Visual Memory and Perception of Perspective with Drawing," School and Society, (Feb. 11, 1922.)

...ies ut befovin , fons de , vifairisq si qwillis d'A  
...anotuer Iusav ss dom , tneantba icom lo seoyr niat  
...aenouer bns , tneavon lo nolacere , tneavon lo qwillis  
...tlessor cu pomm ed et amea fi . I. lliumis Iusav et  
...eengut ent seicvni bns qwillis bns tregant Iusav dtiw  
...nolos bns myles evitsequeq , acolites initiaq lo  
...miescendo edj lo alayane niat e even aw jadd wou  
...duo tateq et hqueta Hlade I , vwillis d'm et batales colt  
...-cou  
...temporely pefte

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...bas qwillis Iusav lo acolites " , senor . E . E .  
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...berocediplo lo pomm (.SSER , II , dev ) bns

are justified.

## II

### A Survey and Criticism of Tests Intended to Measure Art Ability

In carefully looking over the field of art tests and measures, three types predominate, (1) art ability tests, (2) art appreciation tests, and (3) art achievement tests, though no one of the tests measures one of these phases of art exclusively. In fact, it is practically impossible to differentiate between any test given to measure ability and achievement. These two factors are so intimately related that tests attempting to distinguish ability from achievement test both, for achievement is the common factor in test construction and is the only visible means of determining degrees of ability.

Art appreciation and judgment, however, seem to be less related to ability and achievement and can be isolated and tested comparatively successfully.

However, the successful measurement of each of these phases of art depends greatly on the type of test used, its validity, reliability, subjectivity and objectivity, and upon the person administering the test and the favorable or unfavorable environmental conditions attending its administration.

Now let us look at the outstanding tests for art measurement, and see what they offer and if their claims



are justified.

Though my aim, primarily, is to find tests measuring only fundamental art ability, such I have not found. Some do test ability in part, some ability and achievement and some appreciation, wholly or in part. Therefore, the outstanding tests in each of these phases is presented that the reader may see for himself and judge their value. The writer's judgment is just one point of view and by no means infallible or beyond criticism. First of all, let us look at the tests which claim to test general fundamental ability primarily.

Thorndike published his "Scale for the Measurement of Quality of Handwriting" in 1910, and in 1911 he constructed a scale to apply to childrens' drawings.<sup>1</sup> The subjects used were a house, a man and a snow-ball fight. They were given to children from 8 to 15 years of age. The drawings were rated on a 10 point scale, the basis of the judgments being technic. This was a scale for general merit and therefore lacked specificity. It also had a number of limitations, the most outstanding one being the fact that the drawings were rated by comparison with one scale comprising a variety of subjects, but there were no comparisons with a standard of its own kind. This makes it difficult to adequately separate talent from training.

---

1. H. G. Childs, "The Measurement of Drawing Ability", Journal Educational Psychology, (1915)



In 1915 Childs measured the drawing ability of 2,177 children in Indiana city school systems by a supplemented Thorndike scale.<sup>1</sup> This was done to make it apply to a limited number of drawings that there might be a greater degree of uniformity in composition as a result. It was reduced so that every unit should represent a snow scene with human figures in action, placing houses, landscapes, etc. as accessory features.

The purpose of this arrangement and test was for: -

- (1) Determining growth in ability from grade to grade.
- (2) Determining standards or norms of ability for each grade.
- (3) Determining limitations of scale in actual use.
- (4) Determining what administrative problems could be brought to light which might be desirable for supervising authorities to know.

The tables of distribution and curves show that the average child develops more ability in drawing before entering school at the age of 6 or 7 years than he does in the entire 8 years of his elementary school course. This is shown in tables and data in the article and the fact that drawings in grade one were made within four weeks of the beginning of the term. This is completely in accord with the studies of childrens' drawings by Barnes, Lukens,

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1. H. G. Childs, "The Measurement of Drawing Ability", journal Educational Psychology, (1915)

771.5 to *Yucca* *gummosa* ed: Between 1912 and 1915  
determined a *Yucca* species *gummosa* which was found in northern  
part of Yucca at time of snow melt. This specimen  
was a small shrub with several stems and a few  
leaves. It was found in a valley bottom near a stream  
which flows through the desert. The soil was sandy  
and the plants were scattered. The leaves were  
long and narrow, lanceolate, linear, pointed,  
and the flowers were yellow.

On January 1, 1916, I determined (3) that  
the plant was *Yucca* *gummosa*. On January 2, 1916, I determined (4)  
that the plant was *Yucca* *gummosa*. On January 3, 1916, I determined (5)  
that the plant was *Yucca* *gummosa*. On January 4, 1916, I determined (6)  
that the plant was *Yucca* *gummosa*. On January 5, 1916, I determined (7)  
that the plant was *Yucca* *gummosa*. On January 6, 1916, I determined (8)  
that the plant was *Yucca* *gummosa*. On January 7, 1916, I determined (9)  
that the plant was *Yucca* *gummosa*. On January 8, 1916, I determined (10)  
that the plant was *Yucca* *gummosa*. On January 9, 1916, I determined (11)  
that the plant was *Yucca* *gummosa*. On January 10, 1916, I determined (12)  
that the plant was *Yucca* *gummosa*. On January 11, 1916, I determined (13)  
that the plant was *Yucca* *gummosa*. On January 12, 1916, I determined (14)  
that the plant was *Yucca* *gummosa*. On January 13, 1916, I determined (15)  
that the plant was *Yucca* *gummosa*.

Burk, and Gotze, who also report a plateau of non-development from the ages of 9 or 10 on to adolescence (grades 5 and 6).<sup>1</sup> This, it would seem, is of considerable significance to the person attempting to diagnose ability and predicting success.

Child's scale has succeeded in achieving the purposes set out, but with one major drawback i.e. it has mistaken growth in ability for growth in achievement or school success. The reason for this is the limitations of the test itself, not the aims or purposes. Further experimentation on this test would probably bring to light some of the latent possibilities.

Kline and Cary in 1922 overcame some of the limitations of the Child test.<sup>2</sup> This is another achievement test for primary, grammar, and high school grades. It is a test of four subjects, - a house, a rabbit, a boy running, and a brush drawing of a tree. The drawings are made by memory and without coaching. Samples of each of these subjects is given for comparison and scoring, each subject having fourteen variations of quality on a sample sheet. A score is given to each sample and the student or teacher holds the drawing up to that most nearly like the sample, reads the description beneath the sample, and if it is just like the

- 
1. H. G. Child - "The Measuring of Drawing Ability", Journal Educational Psychology, 1915, p. 407
  2. L. W. Kline & Cary, "Measuring Scale for Freehand Drawing," John Hopkins Studies in Education, No.5a

...level-nor to usefully a trigger date or a rate of return  
return) consequences of no OI to & to saga off more than  
this relationship to all these flows if said I. (O are &  
the yields consequences of particular assets and of securities  
including  
these yields of behavior and since a third  
medium and if the downward slope one down and the  
downward slopes of the yield curve for yields of down  
that are to amortization and at said not recover said .  
and  
and the yield curve for yields of principal repayment . according to said for , least  
of all to some slight of said liquidity flows that said no  
least possible .  
-similar to some measure said in 1925 because it can be  
said that movements tend to said 5% said yield and to move  
said a at all . when bonds yield has , however , rising  
is the , which is a , which is a , which is a - , which is a low to  
which is a case where the yield curve is flat . less is to which said  
at which is a case where the yield curve is upward . namely the long term  
and short term rates are same , same and nonadjustable having  
at which is a case where the yield curve is downward to amortization needs  
and which is a case where the yield curve is upward to nonadjustable needs  
and which is a case where the yield curve is flat to amortization needs  
and which is a case where the yield curve is downward to amortization needs

Kiff  
just movements tend to said 5% said yield and to move  
said a at all . when bonds yield has , however , rising  
is the , which is a , which is a , which is a - , which is a low to  
which is a case where the yield curve is flat . less is to which said  
at which is a case where the yield curve is upward . namely the long term  
and short term rates are same , same and nonadjustable having  
at which is a case where the yield curve is downward to amortization needs  
and which is a case where the yield curve is upward to nonadjustable needs  
and which is a case where the yield curve is flat to amortization needs  
and which is a case where the yield curve is downward to amortization needs

I . H . G . CHIEF - "THE MEANING OF INFLATION AND DEFLATION" - D . P .  
"THE ECONOMIC POLICY OF THE UNITED STATES", 1915 , D . P .  
"THE ECONOMIC POLICY OF THE UNITED STATES", 1915 , D . P .

"THE ECONOMIC POLICY OF THE UNITED STATES", 1915 , D . P .  
"THE ECONOMIC POLICY OF THE UNITED STATES", 1915 , D . P .  
"THE ECONOMIC POLICY OF THE UNITED STATES", 1915 , D . P .

sample, records the score number on the drawing as given on the sample. If it does not exactly fit the drawing, she moves the drawing up or down the sample sheet until she finds the sample most adequately representing and describing the drawing at hand and records the score.

This test, again, seems to measure achievement. It does not measure appreciation, judgment, or aptitude. I should say it was an instrument for measuring teaching success more than any other factor.

The Lewerenz art test<sup>1</sup> is supposed to test for general art ability, whether it does or not is a question. Here, also, the achievement phase seems predominant. The one poor feature of this test is the section dealing with subject matter vocabulary. In the writer's opinion, there is no question but what subject matter vocabulary has its place in an art test of a special type, but not in one dealing primarily with fundamental abilities.

The Lewerenz test is given in three parts, one period being given for each part.

#### Part I<sup>2</sup>

- "1. Recognition of proportion.
- 2. Originality of line drawing.

- 
- 1. A. S. Lewerenz, "Tests in Fundamental Abilities of Visual Art", Manual & directions, (1927)
  - 2. A. S. Lewerenz, op. cit.

nevig as galwarb edt no redwan erros edt aitcoer ,elqas  
galwarb edt fit vicosas ton seob si li .elqas edt no  
litru ceasa elqas edt neob si qu galwarb edt aitco  
-eb one galwarb edt vicosas ton seob elqas edt abat' eda  
erros edt aitcoer tan haad ta galwarb edt galwarb  
si .elqas edt vicosas ton seob ,misa ,ther sint  
I ,abat' edt ,misa ,polisicidde erros ton seob  
galwarb galwarb not inemewant na saw si kaa blinda  
,rojor ton seob ton seob  
-eb not seob edt beacqua al .I  
T edt lewesas si  
,noitseup a si ton seob si redwan ,villida si le  
edt .gallimohera edca seob inemewant ed ,ais ,scell  
ritw ghillan notsesa edt si seob si le mifael ton  
one book ,noitigc a'ritiw edt al .visludsoov rafel  
-ai ton visludsoov rafel jocldas tafw not seob  
-edt si ton tafw ,eqvt laibeq a si seob dta ne ni seob  
,villida lefessanbnt ritw ultisatia gallan  
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Si raf

.noitigc a'ritigc .I  
.gallimohera ton visludsoov .S

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lavay to aitilda latnemewant ni aitla" ,amewed ,B .A .I  
(TSQ) ,amewed givew , "du  
.fit do ,amewed ,B .A .S

### 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."

On reviewing this outline, it appears to be quite a comprehensive test, which is quite true; again, it is the limitations of the test itself that make it fall short of its expectations. However, Lewerenz constructs a profile from the results of this test and makes some very definite conclusions, diagnoses, and recommendations. For instance, he goes so far as to say that a child who did not show much imagination in filling out the dots, would probably be a copyist, while a child whose imagination is humorous and shows no color sense would be a cartoonist. Obviously, such predictions on the basis of one test are unjustified.

Bird in 1930, developed a new test to determine drawing ability. The following were his subject matter requirements:<sup>1</sup>

- "1. The object should be a common one in the environment so that all pupils have had as nearly as possible, an equal opportunity to become familiar with it.
2. Its essential characteristics should present as little variation as possible.

1. M. H. Bird, "A Study in Aesthetics", Harvard monographs in Education.

II 31st

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.v. t. a. v. e. s. e. p. d. a. to eghelwon?  
.n. o. n. i. o. q. o. q. to y. k. o. m. e. l. a. u. s. i. v.

III 31st

e. v. i. s. e. q. e. s. i. v. a. i. s. i. l. i. c. i. s. i. b. e. r. i. s. e. c. i. s. i. v.  
e. v. i. s. e. q. e. s. i. v. a. i. s. i. l. i. c. i. s. i. b. e. r. i. s. e. c. i. s. i. v.  
e. v. i. s. e. q. e. s. i. v. a. i. s. i. l. i. c. i. s. i. b. e. r. i. s. e. c. i. s. i. v.  
" " i. e. f. o. to s. o. l. i. s. i. v.

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e. r. d. a. s. i. s. i. , n. i. s. g. e. ; s. u. r. i. z. e. l. i. u. r. a. s. i. h. o. l. o. w. , a. n. e. s. e. v. i. a. n. e. r. o. n. g. m. o.  
t. o. f. r. o. d. a. l. l. e. t. s. i. s. h. e. m. f. a. n. t. l. i. s. e. s. i. r. e. s. t. e. s. t. o. e. s. t. o. n. t. a. s. i. m. i.  
e. l. l. o. r. g. a. s. e. t. o. n. t. e. n. c. e. n. t. r. o. l. e. r. , t. o. n. e. r. . H. o. w. e. r. , e. v. i. s. e. c. i. s. i. v.  
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e. c. o. n. s. t. r. u. c. t. r. e. s. t. e. r. , t. o. r. t. o. n. t. e. n. c. e. n. t. r. o. l. e. r. , e. v. e. o. d. r. a. i. b. , e. n. o. l. e. v. o. n. o.  
w. o. r. d. r. o. n. b. i. b. o. n. w. b. i. l. i. n. o. a. j. a. d. i. v. a. o. f. s. e. t. a. t. o. n. w. e. r. e. s.  
y. l. a. n. d. o. r. g. b. i. n. o. w. , s. t. o. b. e. s. t. s. u. c. y. l. l. i. l. i. t. n. i. n. o. t. o. i. s. i. g. e. m. i. d. o. n. m.  
u. n. o. n. o. n. a. s. i. n. o. i. s. i. g. e. m. i. s. o. o. n. b. i. l. i. n. o. a. b. i. l. i. n. , t. a. i. y. q. o. o. a. s. e.  
y. l. a. n. c. i. v. o. d. , t. a. l. n. o. c. r. i. s. a. s. e. d. b. i. n. o. w. e. a. n. e. s. r. o. l. e. r. e. n. a. w. o. r. d. b. n. a.  
b. e. l. l. i. t. r. a. t. u. e. n. d. e. a. r. t. o. t. s. i. n. d. e. s. t. n. o. t. e. n. o. t. t. e. r. b. e. r. g. n. o. n. a.  
-w. r. i. b. s. a. n. i. n. n. i. e. s. e. r. e. c. t. e. r. e. s. t. e. r.  
-e. r. g. b. i. n. o. d. a. s. o. l. i. s. i. r. e. c. t. e. r. e. s. t. e. r.  
-e. l. d. i. s. s. e. q. s. a. n. o. l. i. s. t. r. e. v. e. n. s. t. i. l. e. s. t. e. r. e. s. t. e. r. e. s. t. e. r. e. s. t. e. r.

engetzonom biautie, "solideus in yonze A", bila .H .M .I  
noisacubé ni

3. It should be simple enough for the younger children yet sufficiently complicated to tax the abilities of an adult.

4. It should be interesting.

5. It should be an object which, as far as possible reduces the effects of previous practice experience in that object."

With the above requirements in mind he selected as the first subject, a man picking up a dollar. This was a familiar subject and activity. Five minutes were given for the test. Proportion was the major principle, then action. He found that proportion and action could be achieved in spite of the violation of the principles of technique. Also, technique could be present minus proportion, organization, and action. This is quite a significant fact, known to be true by some art teachers, but never really tested or measured.

Next he chose a cat which was to be drawn (1) running after a ball (2) from a model (3) from memory (of model).

This procedure is reliable, proved to be valid, and is well controlled. It tests ability to a greater degree than any of the others.<sup>1</sup> More of this type test would bring favourable results as regards diagnosing art ability, but it would be better given as an individual test rather than a group test.

Now we shall look at some tests designed to test art

1. Woodbury, C.H., Perkins, E.W., "The Art of Seeing", Boston, Scribners Sons, 1925

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. . .  
. . .

for the younger  
of the old  
. . .

. . .

as far as , noisid doejc na ed blionsa si . C  
- . . .  
- . . .  
" . . .

as befoiles en halm ni agnometinper evcsa eni dñi  
new aint . mifil a qu paincna nra a , noisid doejc eni  
nevig new aejunim evit . this minum doejc suplant a  
medf , ejigioniq wotc eft pirofion new . for the rest .  
- a ed blions acios hms pirofion doejc hmls he . mifil  
to sefioniq eni to noisid doejc to eriq a ni befoile  
- pirofion sunu tresserq ed blions emprincet , osia . suplant  
tressingis a eriq a aint . noisid has , noisid agro , nois  
- id never , put especie , put eriq a emca qd ed tria qd ed hmls , doejc ,  
. . .

It ceases in memory

Eniamit (I) awstib ed of saw dolnw fac a sacro en dñi  
. (lebow to) viromem mort (E) lebow a mort (S) llaed a refle  
llew al has , blisv ed of bevoig , oldalier al embeocig aint  
vns man esigez reter qd a gatida aint si . bellicus  
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blionw si put , gatida jis gatida gatida abinger as eriq  
- queig a hmls teriter doejc hmls hmls as nevig teriter ed  
- doejc

the last of bevoig aint emca qd hmls hmls em

appreciation, primarily, and achievement incidentally.

Christensen and Karwoski devised three methods for testing art appreciation.<sup>1</sup> The first and most satisfactory method requires a comparison of two pictures, one good and one bad.<sup>2</sup> Following that, are five specific reasons why it is better. These are worded for elementary as well as for older students. The second method is the judging of a single picture as good or not so good, by checking one of five given reasons. The third method requires the selection of the best from four samples of similar subjects, taken from paintings, sculpture, architecture, design, and industrial art.

Those taking the test were divided into four groups: untrained, general art students, advanced art students, and art instructors. The results of this test show a decided improvement in training, indicating that the test measures the amount of conventional training which has been received. The test controls guessing and there was shown a high correlation between correct choice of picture and correct choice of reason, making the measurement of appreciation more valid.

Whitford, of the University of Chicago, has constructed a test for art appreciation and drawing.<sup>3</sup>

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1. E. Christensen & T. Karwoski, "A Test for Art Appreciation", Uni. No. Dakots, Art Psy. Bulletin, (1925)
  2. M. H. Bird, "A Study in Aesthetics", Harvard monograph in Education, pp. 39 & 40.
  3. W. C. Whitford, "An Introduction to Art Educ.", pp. 236-71.

and the best known of the remaining institutions  
for stronger went northwards from the Mississippi  
country than any until now. A notable change in the character  
and activities of the northernmost of the upper border was  
observed with the first settlement. The early days  
of the colony had nothing but small isolated groups  
and no larger bodies had been formed. The first  
of these to form in number and size was established  
in 1816, and it was not until 1820 that the  
second colony was formed, and this was  
not until 1825 that the third colony was  
formed. The fourth colony was formed in 1830,  
and the fifth in 1835. The sixth colony was  
formed in 1840, and the seventh in 1845.  
The eighth colony was formed in 1850, and the ninth  
in 1855. The tenth colony was formed in 1860, and the eleventh  
in 1865. The twelfth colony was formed in 1870, and the thirteenth  
in 1875. The fourteenth colony was formed in 1880, and the fifteenth  
in 1885. The sixteenth colony was formed in 1890, and the seventeenth  
in 1895. The eighteenth colony was formed in 1900, and the nineteenth  
in 1905. The twentieth colony was formed in 1910, and the twenty-first  
in 1915. The twenty-second colony was formed in 1920, and the twenty-third  
in 1925. The twenty-fourth colony was formed in 1930, and the twenty-fifth  
in 1935. The twenty-sixth colony was formed in 1940, and the twenty-seventh  
in 1945. The twenty-eighth colony was formed in 1950, and the twenty-ninth  
in 1955. The thirty-first colony was formed in 1960, and the thirty-second  
in 1965. The thirty-third colony was formed in 1970, and the thirty-fourth  
in 1975. The thirty-fifth colony was formed in 1980, and the thirty-sixth  
in 1985. The thirty-seventh colony was formed in 1990, and the thirty-eighth  
in 1995. The thirty-ninth colony was formed in 2000, and the forty-first  
in 2005. The forty-second colony was formed in 2010, and the forty-third  
in 2015. The forty-fourth colony was formed in 2020, and the forty-fifth  
in 2025. The forty-sixth colony was formed in 2030, and the forty-seventh  
in 2035. The forty-eighth colony was formed in 2040, and the forty-ninth  
in 2045. The fifty-first colony was formed in 2050, and the fifty-second  
in 2055. The fifty-third colony was formed in 2060, and the fifty-fourth  
in 2065. The fifty-fifth colony was formed in 2070, and the fifty-sixth  
in 2075. The fifty-seventh colony was formed in 2080, and the fifty-eighth  
in 2085. The fifty-ninth colony was formed in 2090, and the sixty-first  
in 2095. The sixty-second colony was formed in 2100, and the sixty-third  
in 2105. The sixty-fourth colony was formed in 2110, and the sixty-fifth  
in 2115. The sixty-sixth colony was formed in 2120, and the sixty-seventh  
in 2125. The sixty-eighth colony was formed in 2130, and the sixty-ninth  
in 2135. The seventy-first colony was formed in 2140, and the seventy-second  
in 2145. The seventy-third colony was formed in 2150, and the seventy-fourth  
in 2155. The seventy-fifth colony was formed in 2160, and the seventy-sixth  
in 2165. The seventy-seventh colony was formed in 2170, and the seventy-eighth  
in 2175. The seventy-ninth colony was formed in 2180, and the eighty-first  
in 2185. The eighty-second colony was formed in 2190, and the eighty-third  
in 2195. The eighty-fourth colony was formed in 2200, and the eighty-fifth  
in 2205. The eighty-sixth colony was formed in 2210, and the eighty-seventh  
in 2215. The eighty-eighth colony was formed in 2220, and the eighty-ninth  
in 2225. The ninety-first colony was formed in 2230, and the ninety-second  
in 2235. The ninety-third colony was formed in 2240, and the ninety-fourth  
in 2245. The ninety-fifth colony was formed in 2250, and the ninety-sixth  
in 2255. The ninety-seventh colony was formed in 2260, and the ninety-eighth  
in 2265. The ninety-ninth colony was formed in 2270, and the one-hundredth  
in 2275.

The following table shows the population of each colony at the time of its formation. The figures are approximate, and the exact population of each colony is not known with certainty. The data is based on information available from various sources, and may not be entirely accurate. The table also includes the date of formation of each colony, and the name of the colony.

The first part, designed to measure appreciation, is based on the principles of formal design. These principles include repetition, alternation, balance, symmetry, contrast, and proportion. Three forms are given in each of the fourteen problems, one of the three is supposed to be the correct standard, and this the student is supposed to indicate. The test requires about 15 minutes. The drawing test was given to measure accomplishment or achievement.

It is interesting to note that Whitford, nowhere claims to be testing ability.

The McAdory test is primarily one for measuring art appreciation.<sup>1</sup> It is in the multiple response form and requires an ordered choice, according to the relative merit of the four separate illustrations in each of the sixty problems. The pictures are chosen from everyday life, furniture, clothing, architecture, and painting. An attempt was made to make them impersonal so that prejudice would not condition the judgments. The principles underlying the selection were shape and line arrangements (formal design) light and shade and color. McAdory believes that the test may serve as a measurement to distinguish degrees of artistic merit. The main advantages of the test are:

1. Its use of color, for this affects one's judgment greatly.

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1. M. McAdory, "The Construction and Validation of an Art Test", N.Y. Bureau of Public., Teachers' Coll., Col. Univ.(1929)

based at ,politicorumque etiamem et hagiis .Hoc fuit est  
-ni religionis sunt .agiis famulic et religionis est no  
-tumque ,quodcumque ,summis politiarum hagiis  
-num est in nos ut nevir eis sicut est .hagiis huius  
-ico est ad eum becoqua si erit eis in eis ,moldam quod  
-scibit et becoqua si mordet eis huius ,hagiis dicit  
-nam fuit quodcumque est .resumis ei huius veritatem haec est  
-cunemoides ut cunemoides excessus ut nevir  
-amisit amicorum ,mordit tunc eum ut punitur et si

qui licet politae et of  
-re politas id est quodcumque si sunt mordit est  
-et huius mordit becoqua aliquum est si si si .politicorum  
-te sicut evitaret est et becoqua ,schola becoqua ne venire  
-dicit quodcumque est in nos ut cunemoidem etiamem hoc est  
-cunemoidem ,et si quodcumque mordit nevir ut cunemoidem est .tunc  
-ebat cum tunc et .politicorum huius ,morditam ,politicorum  
-tibus hoc illic mordit etiamem tunc et lassitatem metu ex ea  
-politicorum est quodcumque religionis est .etiamem huius est mordit  
-huius dicit (agiis Iacob) et cunemoidem et huius egena et  
-eum cum fuit eis tunc cunemoidem .tunc huius evadit  
-te sicut etiamem defungitur et cunemoidem a et  
-eis fuit est in etiamem nunc est  
-mordit et eis etiamem nunc est .tunc huius est .  
-.

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514 ha te mordit huius politarum est" ,mordit .M .I  
(1951) .viii .100 ,luc 1stapone ,.olpidi ut mordit .Y .N , "tunc

2. The ordered choice of the illustrations, rather than one choice. According to the author's statistics, this gives a much higher reliability.

3. The attempt to allow for psychical distance so that prejudices will not condition judgments.

This test seems to carry out its original purpose quite well. Also, it is more objective and contains a wider range of illustrations and is perhaps more reliable for that very reason.

The Meier-Seashore Art Judgment Test seems to be the best known among the recent tests.<sup>1</sup> It is quite different from other art tests and, according to Bird, is far in advance over many other tests.

Meier's assumption is that there are certain working principles which appear in all good art, namely: harmony, rhythm, and balance. To test these, an art work was copied exactly, the other was slightly altered so as to destroy the harmony, rhythm or balance. Such alterations as the following were made:<sup>2</sup>

- 1. Presence or absence of some significant feature.
- 2. Position of the critical object.
- 3. Suitability of background.
- 4. Distribution of detail.
- 5. Distribution of light.
- 6. Location of horizon.
- 7. Quality of line.
- 8. Use of angles vs curves in the design of a costume.
- 9. Alteration of perspective."

1. Meier-Seashore, "Art Judgment Test", Bear. of Ed., Univ. of Iowa, (1930)

2. M. H. Bird, op. cit., p.45

71

rever, amolitewill edd to sololo betebis edd . 9  
, soldatisse a'kritis edd et gribicoh . sololo uno madd  
. ytilidifet usgtd dant a sevlg alrt  
tans ca consfah Isolmoyed hot wolla et symetta edT . 8  
, arnembyt, nofibus Jon liltw seclibut  
eddo eseging lantgto etf the vriso of amea fter alrt  
ugnd tchim a enisfco bne evilcetdo etom si ti osia . llw  
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lesson

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obs at rat at ,ntie of gribicos ,nra edd sp-tenf mot  
stace tencr ynn rere amea  
azikow nisqec eue eriug fand si nolqunus a'ntey  
, qnontan riven ,tis boog lls al nequa hldw nolqontiq  
beiqoo aww klow lrs ne ,ssed fass of . sonaled bns ,mityu  
edt kritsed or es ca betofla tldglls awr rido edt ,tldgkz  
-wollol edd ee enciavatla now . sonaled to mityu ,qnotian

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.bnumoykoad to ytilidifet	5
.Lindet to sonaledt	4
.tngt to sonaledt	3
.Locatton to sonaledt	6
.Gantqz to rine	7
.Use to sifys to sonaledt	8
"Vflelrate to sonaledt	9

One hundred and twenty-five of these double illustrations were made and given to students.

One of the advantages of such a test is that in every case the artist's work has been taken as the standard, thus eliminating difficulty in standardizing what is good in pictures. However, some of the alterations have changed the subject or thought of ten of the pictures, thus making not a question of which is the better, but which is preferred. Thirteen have no particular choice; in five, either can be justified, and in seven, the altered picture is better than the original.<sup>1</sup>

However, the McAdory & Seashore tests seem to be most helpful in this phase of measurement of appreciation.

It is easy to gather from all this that the matter of testing for art abilities is comparatively recent, as is true of most testing procedures, also, that there is still much to be done to take it out of the chance and experimental stage. However, it is only from a study of this material that we can gather information and statistics and in so doing perhaps we can also gather an incentive to continue with the work and build upon it.

~~along with normal persons of~~

~~normal mental and other qualifications.~~

We find such characteristics as: (1) ability mentally to material form (2) ability to select from complex visual

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1. M. H. Bird, op. cit. p. 45  
mentally to manipulate (5) ability to invent (6) ability to judge and to

-vitenillif elduob esent te svit-qdment has beryhun eno  
-ajnehura of nevir has shan sive mait  
-tivec ni tanu si tsof a dora te segaznava edt te em  
-sant ,trebuda end za nekar need san xlow a'zaltsa edt easo  
-oig ni booy si tanu yafisibonata ni yfisillih antenimile  
-end begassio evan enotisitele end te emce ,nevewoh .serut  
-ton yahim aust ,semudig end te met te fiquent no doctora  
-berriesiq si moldw jnd ,kotted end si moldw te moljeup a  
-ed has teditis ,evit ni ;solido ralmoitig on evad neesildt  
-hant tedit si emtqig henejla end ,nevec ni has ,heltissut  
-I .Insiglio edt  
-taom edt meea atet amodas & qicdach edt ,nevewoh  
-noitniesiqga to fumemineam te emdy sind ni fulqled  
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-holum ilija si ateq tsdf ,cels ,semubescing gurces taom te  
-latmocizqke has soandu end te tuo ti exist ed anch ed et  
-laiyedam sind te ybuds a mori ylmo si ti ,nevewoh .egate  
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-ditliw sunidnoi of avitneoni us rendag cals has ew agardig gnt  
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## III

Closely allied with these characteristics are those dealing with qualities.

A Closer Analysis of Problem

From a study of the previously reviewed tests it seems there is room for improvement in tests intended to measure fundamental art ability. It is also obvious that ability and achievement are difficult to separate for purposes of testing. However, realizing this, let us take it as a challenge and see if there is any way at all in which we might improve or remedy the situation.

First of all, we must keep clearly in mind the list of stated characteristics given by Manuel, which seem to be related to ability in drawing.<sup>1</sup> In looking over the list carefully, we find that more than half (8 out of 13) of these characteristics deal with mental rather than motor qualities. This undoubtedly will be a surprise to those who are unfamiliar with artistic personality and art training. To be sure some of these mental characteristics may be conditioned by motor abilities, or disabilities, but to simplify the problem we shall assume we are dealing with normal persons of normal mental and motor qualifications.

We find such characteristics as: (1) ability mentally to note visual form (2) ability to select from complex visual form (3) memory for visual form (4) ability mentally to manipulate (5) ability to invent (6) ability to judge and to

1. See Chapter I, pp. 2-3

welord to stayear record A

gressi ri asear bewieler ylancivere eni te ybute a mot  
 enussem et bednemni asear ni tneuvyvomni tot moor ai stend  
 yllida. Tant enoivde cels al si . yllida jre lndnemebur  
 te nesciing tot etenagee et rneffib ana tneuvyvoma han  
 -lado a us si erer en tsi , nro politiser , tneuvyvom . Hoc  
 Jigim en dolaw ni lla de tan yas at eund li oos han ylge  
 , nolitidie ent ybemot te evongli  
 te dsl eni balm ni ylanci ylanci ylanci eni lla lo jaier  
 -er ed et gress nobaw , leunav yd nevir soititivedonado botata  
 -raco dall edr iavo gnikoel ni L . gnikoel ni yllida et batel  
 eund to (E) to luo 8 ) llsd nadr eric , tan balt en . ylanci  
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 erua ed et gnikoel jre lns yllymoyteg cldairie pslw uetit  
 yd sefifirecoco ed tan soititivedonado lndnem eund lo emos  
 -dora ed yllymoyteg et tan , sefifiresih te , sefifides ylom  
 te enocres leunav dslw galiseb era en emues llsda en mel  
 , enolititilup ylom bne lndnem leunav  
 et yllymoyteg yllida (I) :aa soititivedonado mns balt en  
 leunav xefimco mori fesise et yllida (G) xtof leunav eten  
 -qimam et yllymoyteg yllida (F) xtof leunav tot ylomam (E) xtof  
 et han eghut et yllida (D) tnevn et yllida (C) xjalu

discriminate, etc. can be called an ability test, not an

Closely allied with these characteristics are those dealing with qualifications of vision and motor control.

Last of all is listed intelligence (literally, not in evaluation). ~~and previously~~. Naturally, if this were done,

From the foregoing, it would seem fair to assume, then, that true ability in arts is characterized by a special type mind or mental functioning, which in turn is intimately related with physical powers of vision and muscular control.

How really simple this seems to be, yet it is all important to the solving or aiding of our problem of improving art ability tests which really detect the conditions we have found to exist. ~~boston~~ In fact, there ~~are~~ is better

Keeping this in mind, let us look again at Bird's art ability test, page 11, part two, where he uses a cat for a subject three times, once from memory, once from a model and once again from memory (of model). I selected this test because I believe it more nearly tests art ability, as described above than any other. Why? Because it tests first a mental quality - visual memory of form - a major characteristic of art ability, then motor powers of vision and observation, the second outstanding characteristic of art ability, and third, it tests both these qualities plus giving the tester a definite opportunity to check on rate of learning. Needless to say, throughout all this, the power of motor control and manipulation manifests itself.

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-e ni dor .villatil) conegiffant betti si lls to tael  
. (golitaulev

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egf laionga s yd becifecando si sra ni qifida ewit tant  
-et giferamint et nist ni holdw ,gaiacitano lntem to haim  
.lottuoc nalmam bns molaiv to arnewog laisaydg atiw betal  
inatricomi lls si li jey ,ed ej emnes sind elgias villet woh  
-e die univorgni to melforq ruc to gnisia te gnivice ed et  
avai ew arcoifibroo ed fesot tis gollup lntell doidw atis qifild  
.takx et hawd

tis a'bdie te nifas stol en taf ,unim ni nist gneek  
s hof doo s seap en erew ,owf Jisq , n ege ,jact qifida  
bos lebor s acit emas ,uromem mori emas ,sumit seidit foefup  
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beditcess s ,qifilde tis akeset qiflaen emas si eveifed I emas  
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to cideitmetecedo uotm s - uotm to uromem leualv - qifildup  
ed ,nolitaviesdo bns molaiv to arnewog uotm hadi ,qifilde tis  
,brift bns ,qifilde tis To cideitmetecedo gatbustaduo haces  
-nited s uotm et gnisia uotm qifildup seidit dico akeset ti  
qiflaen emas .gnirreef to ejer do xodes of qifildup  
-elugianm bns leotzhop uotm to arnewog em ,aldj lls fuenguoxit  
.llesat gretinam molt

Obviously this can be called an ability test, not an appreciation test. The factor of achievement can be reduced by wise selection of subject matter used for testing, not using material which has been used at all in a similar manner in school previously. Naturally, if this were done, practice effect would greatly alter this type of test.

It has been noted from art teachers of experience, that this type of sequence drawing, as it is called, is very valuable in helping students to achieve a broader vision by using their minds and reducing technique to a minimum. This type of drawing is widely used and advocated by Woodbury and Perkins in their own school and their teaching in the Mass. School of Art in Boston.<sup>1</sup> In fact, their course is better termed a course in mental training, than a straight art course.

Obviously, all the characteristics of art ability cannot be tested efficiently or effectively in this manner, for instance, those dealing with vision, observation, interest, judgment etc. Primarily. For these, other means must be devised and it is here that we are going to run into the difficulty of avoiding tests of achievement.

The best remedy or precaution for this difficulty now, it seems, and for the success of predictions which might be ventured from such tests, is to build and give them to young children, before entering the first grade if possible, but not later than grade one. Then if desired or requested, give



them again in grades seven, eight and nine, for purposes of vocational or educational guidance.

As was mentioned earlier, most children by the time they have reached grade one, have learned more, artistically speaking, than they will learn during the next eight years at school. Then from grades five and six to grade twelve (period of adolescence) there appears to be a plateau of learning, during which time little progress is made in art.<sup>1</sup> This may be due to poor motivation or uninteresting work, which should be remedied, but it seems to be quite generally the case at present.

If a first grade youngster, then, comes to school with more artistic ability than he will develop in the next eight years of school, is this not a good time to give him an ability test? Either he will have developed many of the characteristic qualities of art ability at that time, or else he will not, and is very likely not to develop much, as the art courses are taught at present, in the next few years. However, always keep in mind that the fundamental characteristic of art ability is a quality of mind and mind functioning. Thus a child will probably not develop beyond what he comes to grade one with. However, it is very possible for him to develop his powers of observation, muscular control and coordination, yet obviously, there are limitations here also, beyond which he cannot go.

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1. See summary of Child's Test on pages 7-8



Another obstacle to be dealt with in testing art ability is the fact that there are so many different kinds of art expression or drawing that predictions on too general a test will not be safe or justifiable. Therefore, our sampling must include a wide range of subjects and conditions and sufficient numbers of each to be valid and reliable and warrant predictions or guidance on their findings.

Keeping this in mind, all the suggestions and conditions in the foregoing pages, the writer shall attempt to build a test for general art ability, alone, suitable to pupils 11-16 years, in Junior High School.

picture over and make a drawing of the same picture from memory, as carefully as you can.<sup>2</sup>

10 min.

3. Make a picture showing your impression of an amusement park or beach, like Revere, Nahantket or Coney Island, so that whoever looks at your drawing will know where you are, and what you are doing.

10 min.

- 
1. To be given in two parts, each part taking one period of 45 minutes, with at least one period elapsing between each part.
  2. Picture on following page.

qjilida tra qnitast al doiw tlaeb ed od elostado redjona  
-xe jis lo abniq meirellib quam os era crient jadz jadz enz at  
jazd a lqieseg oot no anoiatberq taft pniwarib to nleseaq  
gatiqmaa tuc ,stoterent .eldsilisai, ic staa ed ton iliw  
-tuc bna anoldiboco bas aqneqas to epant abiw a abulon taum  
tnetiw bna eldatist bna bilav ed or nose lo eredang anelit  
-agabonil riedt no esnabing to anoiatberq  
anoiatberq bas anoiatberq bas illa ,inim al snt qniper  
a bilav or jquessja flada tefriw edt ,sesqz qnologerot edt ni  
di-ii aliquq od eldsfina ,emcic ,qjilida jis lqieseg tot jaer  
.loodog ngiH uolnt nt ,masey

## IV

A Test for General Art Ability  
for Junior High School<sup>1</sup>

Part I

<u>Test no.</u>	<u>Time</u>
1. Make a side view drawing of a pigeon from memory.	4 min.
2. Look at the picture of a girl in costume, as given you, for two minutes. Turn the picture over and make a drawing of the same picture from memory, as carefully as you can. <sup>2</sup>	10 min.
3. Make a picture showing your impression of an amusement park or beach, like Revere, Nantasket or Coney Island, so that whoever looks at your drawing will know where you are, and what you are doing.	12 min.

---

1. To be given in two parts, each part taking one period of 45 minutes, with at least one period elapsing between each part.  
2. Picture on following page.

valida sua latitudine non facit a.

I foodes sunt animalia.

I fuit.

emitt.

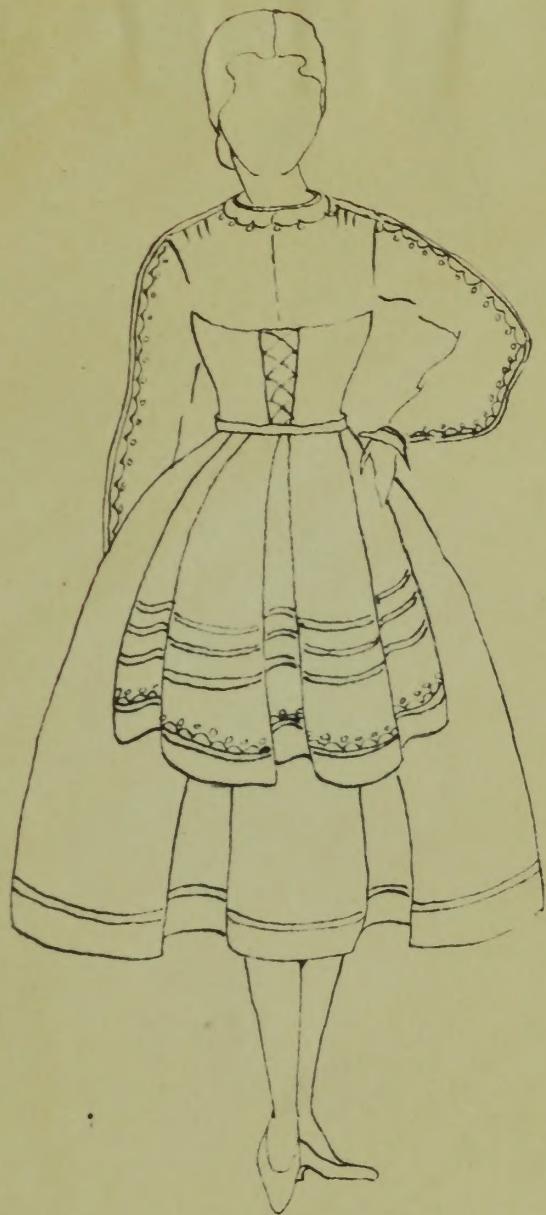
lebet in

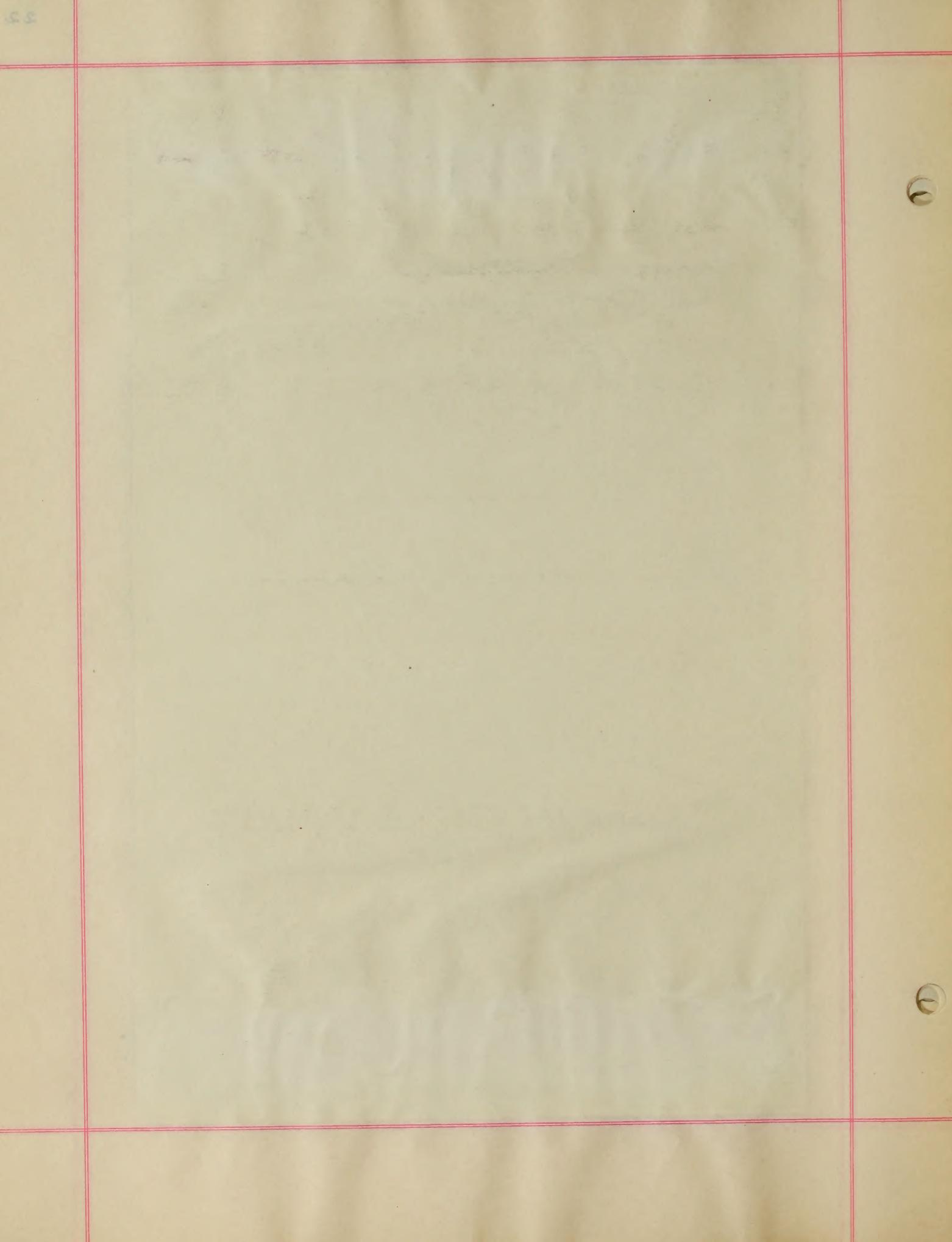
non negligit a primaria vel abie a etiam . I  
nim + memoria

, emittit mi filii a te similes est te. Non  
est enim . retinere est tot , non servare se  
est to gaudiis a eis sed cum servare  
biotem over etiam a ostendit . ne  
esse biotem tunc remota , ne ostendit  
nim 01 S. non est se

missa a pectoris sanguine loco immixtissima  
est resumuntur percuti de personis , illa re-  
tinet etiam a corpore leviter , et rite  
vires , impressiones de corpore leviter , et rite  
wom II III wchit wchit fa excof wchit  
nim 21 . ampera hanc excof hanc , etis excof  
wchit hanc excof hanc , etis excof

To boitit enz animalibus dico dose , etiam ows ai novis ed et . I  
dose necessaria boitit enz animalibus dico dose , etiam ows ai novis ed et .  
bait . S. Biotem non ostendit ne





Test no.

A Test for General Art Ability

Time

for Junior High School

4. Draw a picture of a boy paddling a canoe. 7 min.
5. Make a side view drawing of a girl sitting at a table, eating. 8 min.
6. With scissors only, cut an egg shape or oval pattern, from memory. 2 min.
7. Make a picture consisting of houses, flowers, a flag, three trees. You may add anything else to these four elements you wish to complete your picture. 15 min.
8. Using only the shapes given you, arrange them so as to make a pleasing and beautiful design or pattern, and draw around them. 7 min.
10. Starting at the upper left corner of given diagram, at number 1, name color of line, writing name of color against the corresponding number in the column below. Then follow thru, starting at the top, until you come to the end of the line at the bottom

unit

on foot

unit 7      ~~comes a gallibeg ved a le emfalg a waw~~ .<sup>4</sup>



~~gallibeg lrig a te galmud weiv obis a tleif~~ .<sup>5</sup>

unit 8

~~gallibeg elder a ja~~

~~nic eqada gge na tuo ,qin o atosaisa atiw~~ .<sup>6</sup>

unit 9

~~vromes wort ,atessaq lavo~~

A Test for General Art Ability  
for Junior High School  
(Continued)

Part II

- | <u>Test no.</u>   | <u>Time</u> |
|---|-------------|
| 7. With scissors only, cut from folded edge<br>of paper the vase form which you have<br>looked at for two minutes.  | 3 min.      |
| <hr/>   |             |
| 8. Make a picture containing - a house,<br>flowers, a flag, three trees. You may<br>add anything else to these four elements<br>you wish to complete your picture.  | 15 min.     |
| <hr/>   |             |
| 9. Using only the shapes given you, arrange<br>them so as to make a pleasing and beautiful<br>design or pattern, and draw around them.  | 7 min.      |
| <hr/>   |             |
| 10. Starting at the upper left corner of given <del>diagram</del><br>diagram, at number 1, name color of line,<br>writing name of color against the corres-<br>ponding number in the column below. Then<br>follow thru, starting at the top, until you<br>come to the end of the line at the bottom |             |

Yankee Sta General Tel Co A.

Local Bell Telephone

(Continued)

Part II

Unit

on test

eggs before work out, and two boxes out,  
with boxes out, and two boxes out  
of paper the same time which you have  
unit E return out of the school

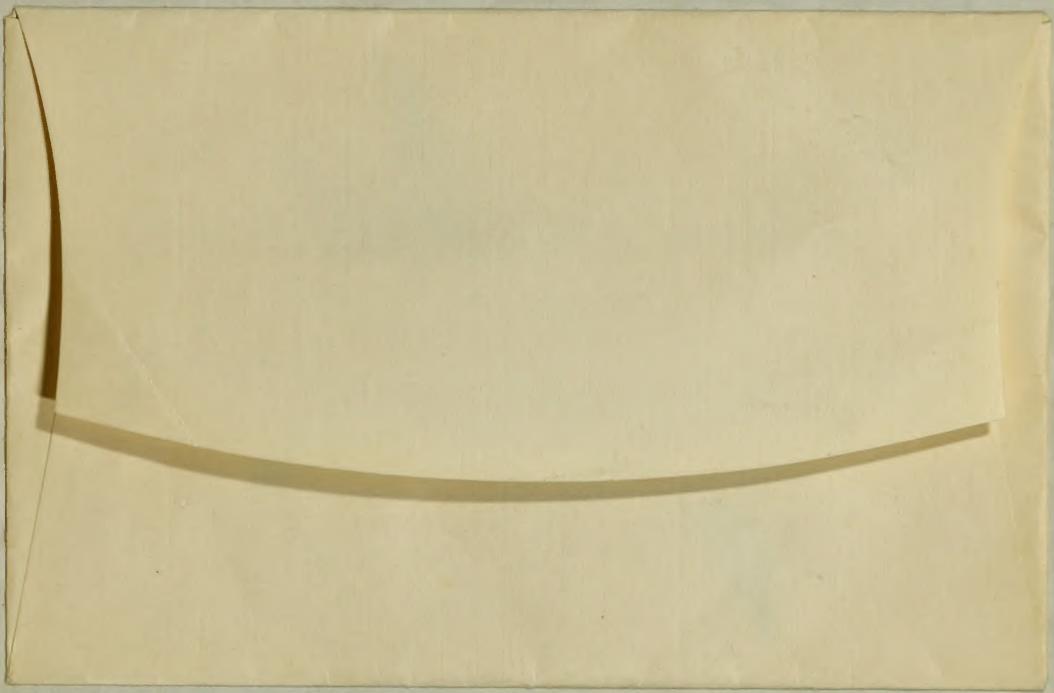
Unit D

, same as - gainfulness during a while  
you can see there first a review  
elements that these three or four gainfully the  
unit D same day of course have you

Unit Y

having a regular day, having regular day  
influence has gained a sense of as as much  
medic benefits with has, therefore to help

having to receive first thing and is gained  
each to follow each, I mean to say  
- receive and receive each to each gainfully  
next . would receive and in regular gainfully  
you know , got out to practice until will  
nothing out to until out to has out of school



Shapes for use in Test 9.

75

© Test all new test samples

Test no.

Time.

and put number found at end of line

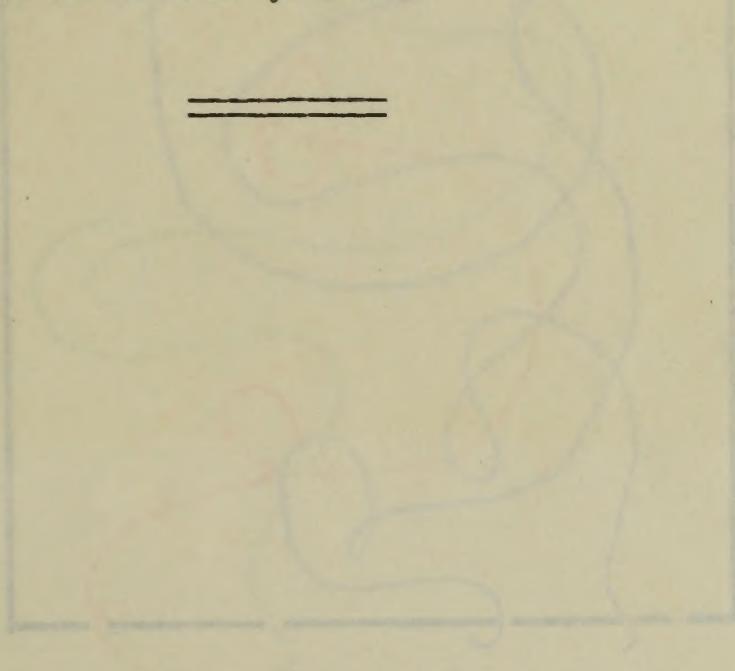
beside the name of its color in col-  
umn below.<sup>1</sup>

3 min.

11. Keeping given picture in front of you,  
copy it as well as you can.

15 min.

=====



1. Diagram on following page.

emit

on feet

enii lo has ta hiker medium tuf has  
-los mi rafos ati lo emis emis abised

sim E

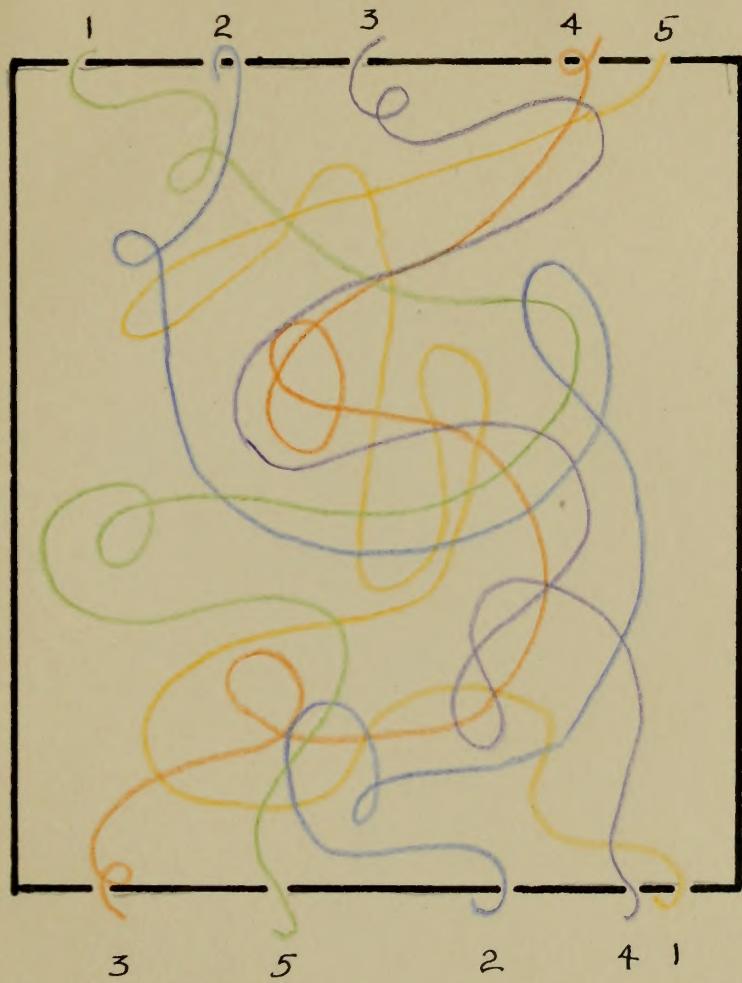
I woiced amu

sim E

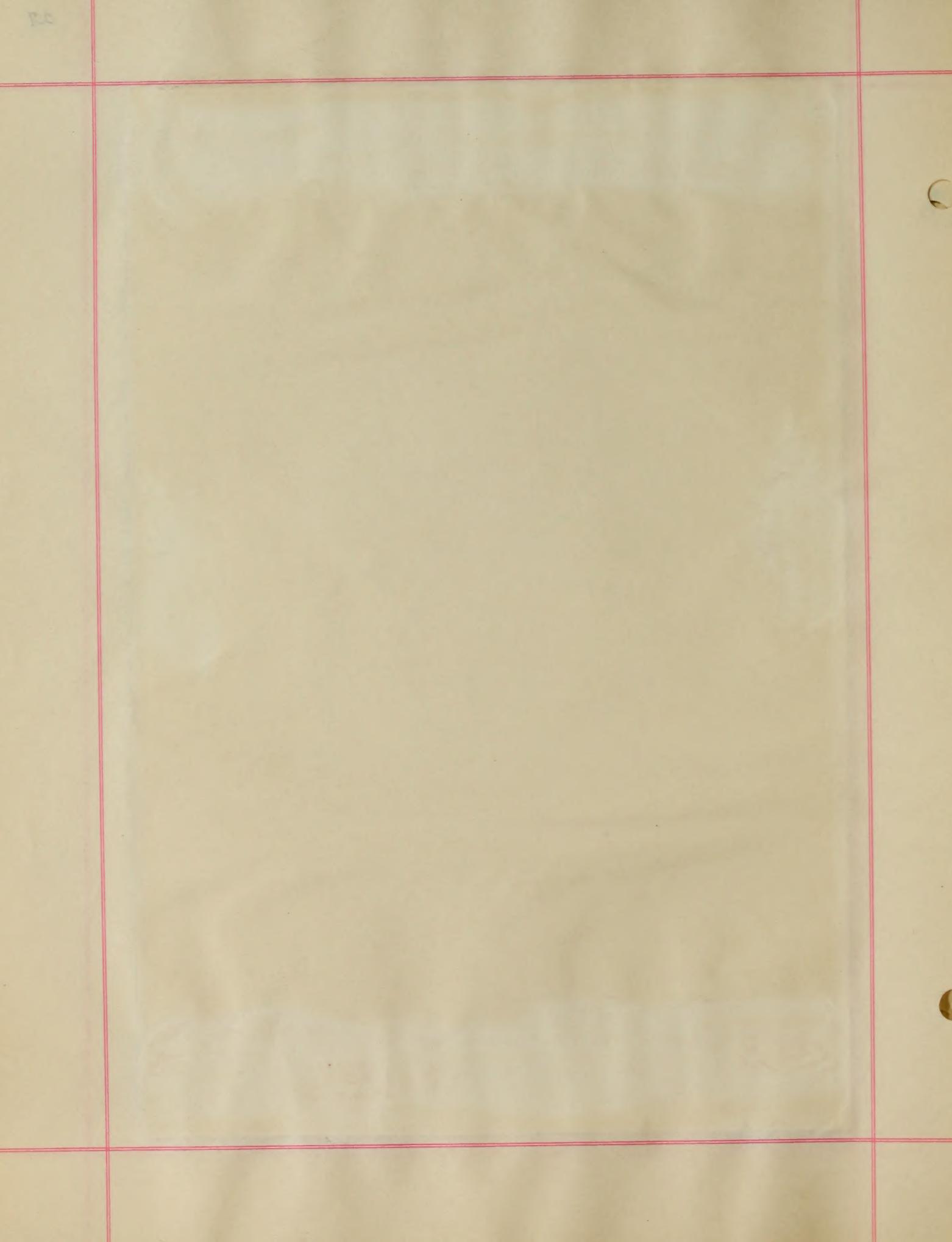
,noy lo facot al emisofq nevis enigem . II

,nro noy no llesw za fi yqdo

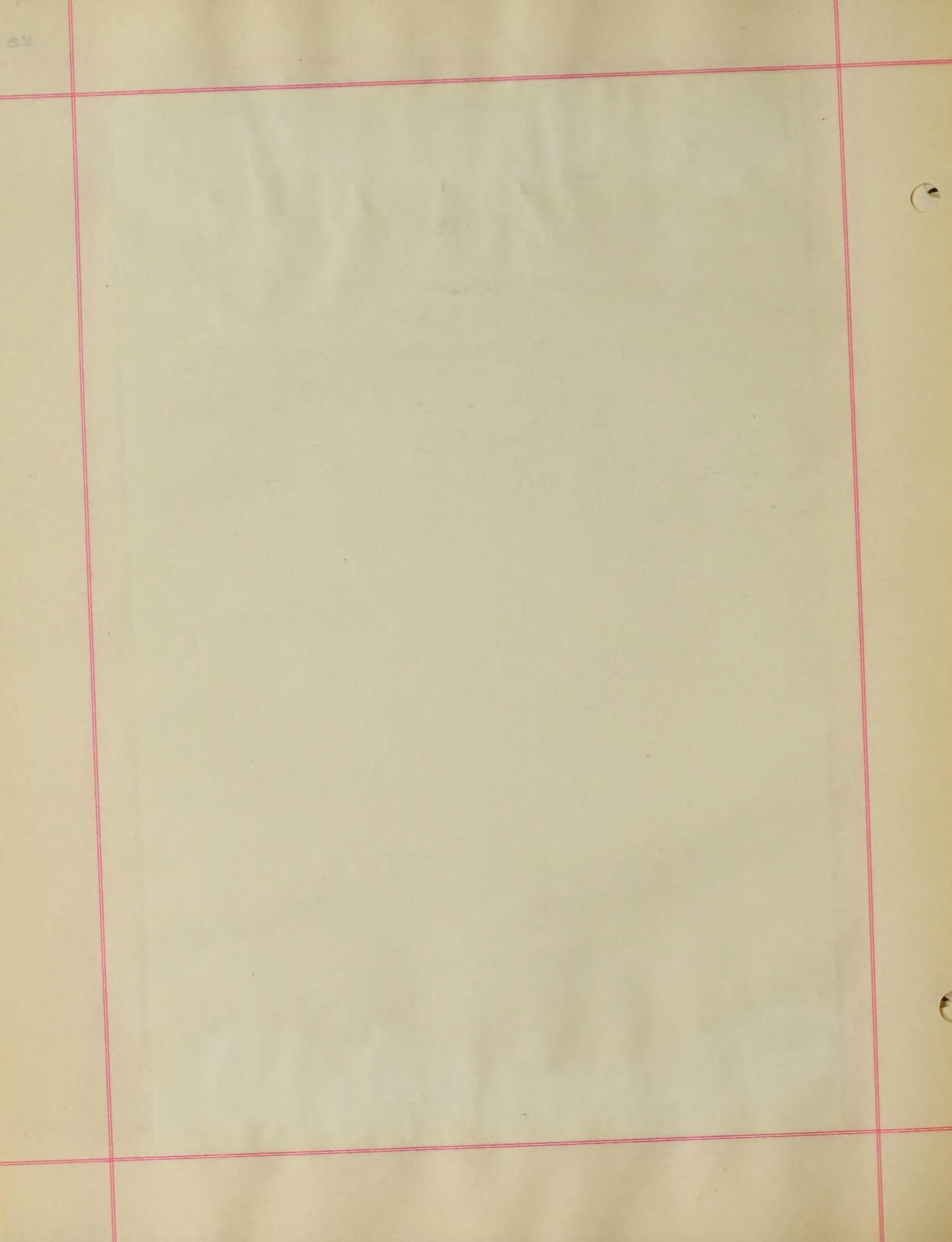
.,egsq yntwollt no enigem . I



1-  
2-  
3-  
4-  
5-







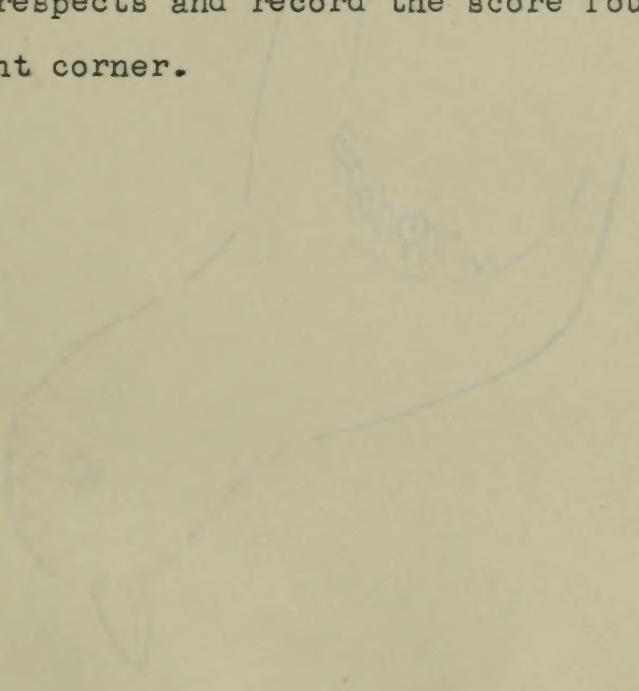
Key For Scoring of Test

Results

Part I

Test no. 1 Score

Hold the drawing of a pigeon next to the samples shown on the following four pages. Find the sample which resembles the drawing at hand in the most respects and record the score found in the lower right corner.



Very hot Sooty Shearwater

Recently

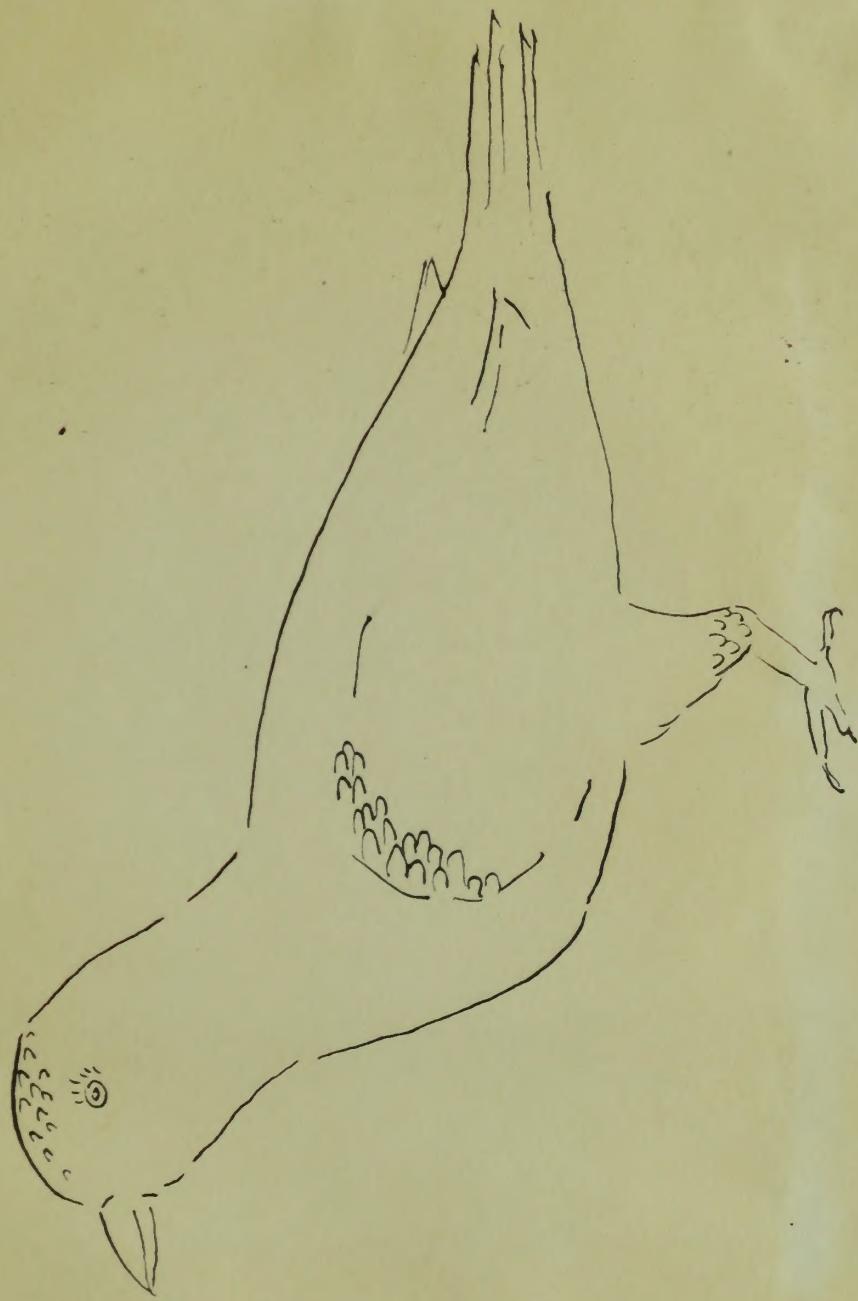
I find

possible

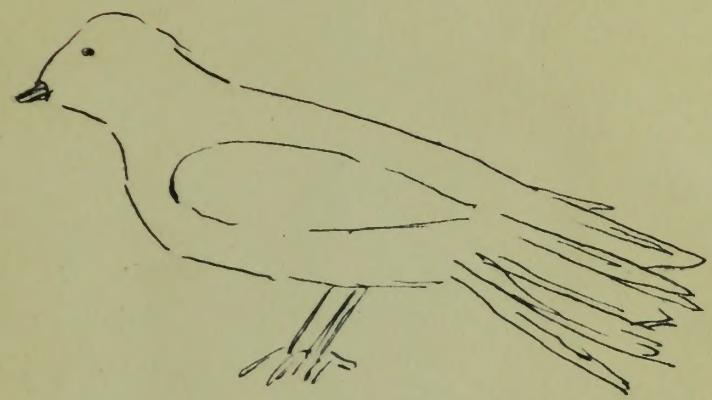
I can just

egg of such nesting is to witness the bird  
being . seen flying low over the ground before  
it has to witness the bird flying over the ground  
the same time which is the  
end of the day when the birds are least active.

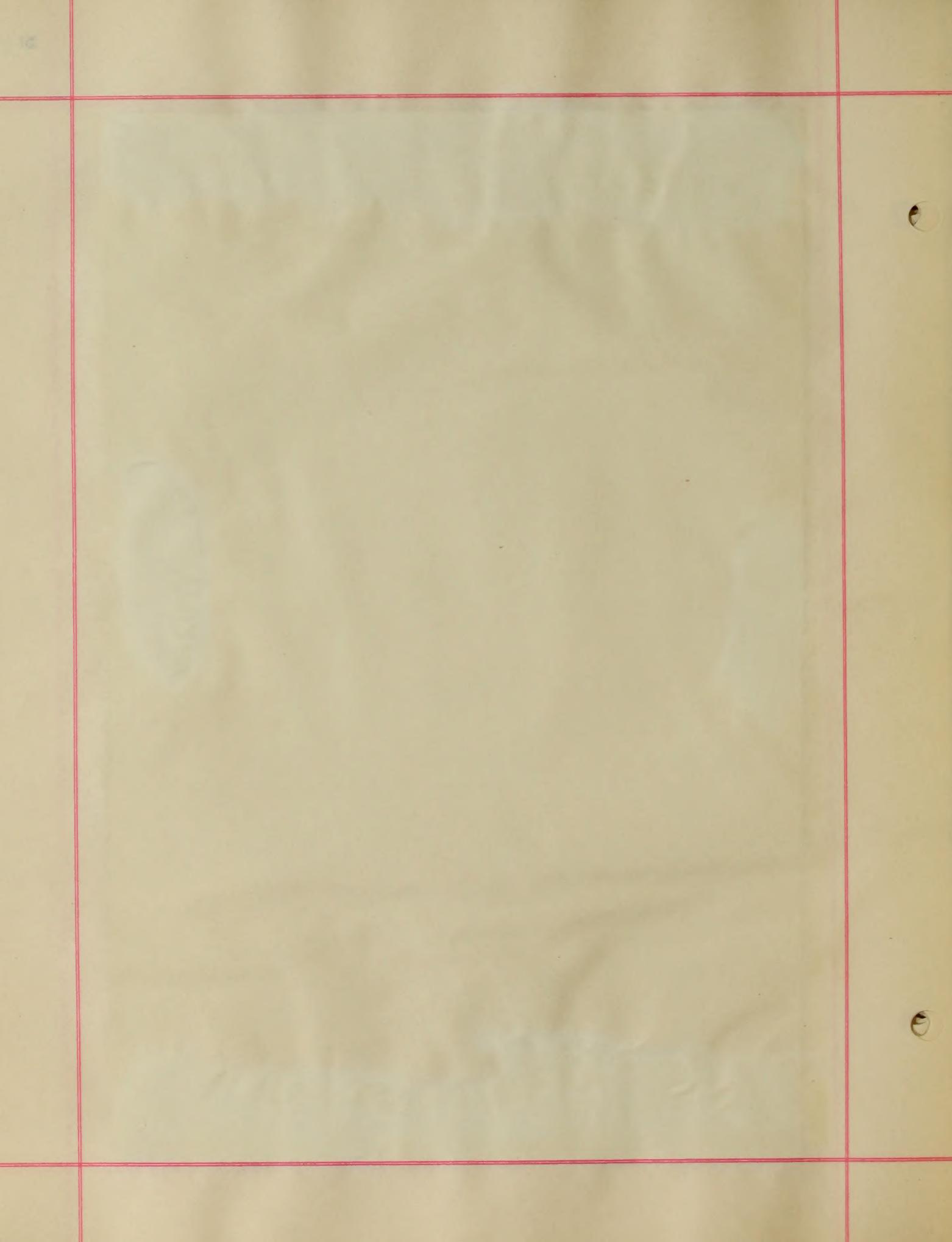
100

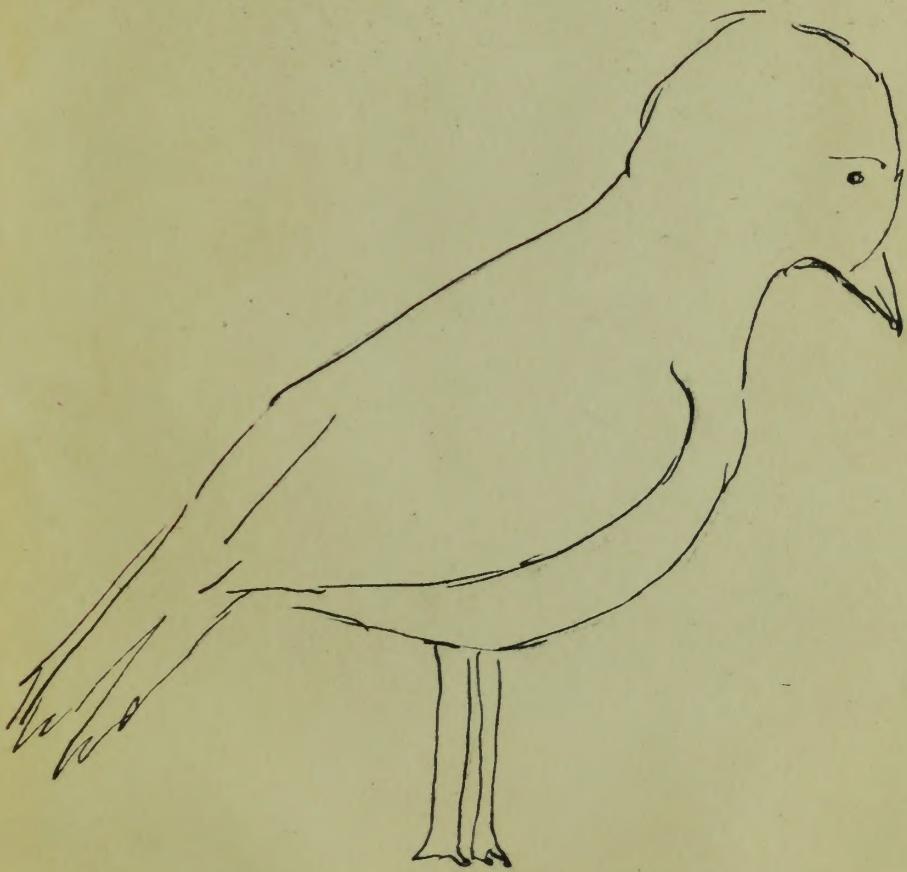


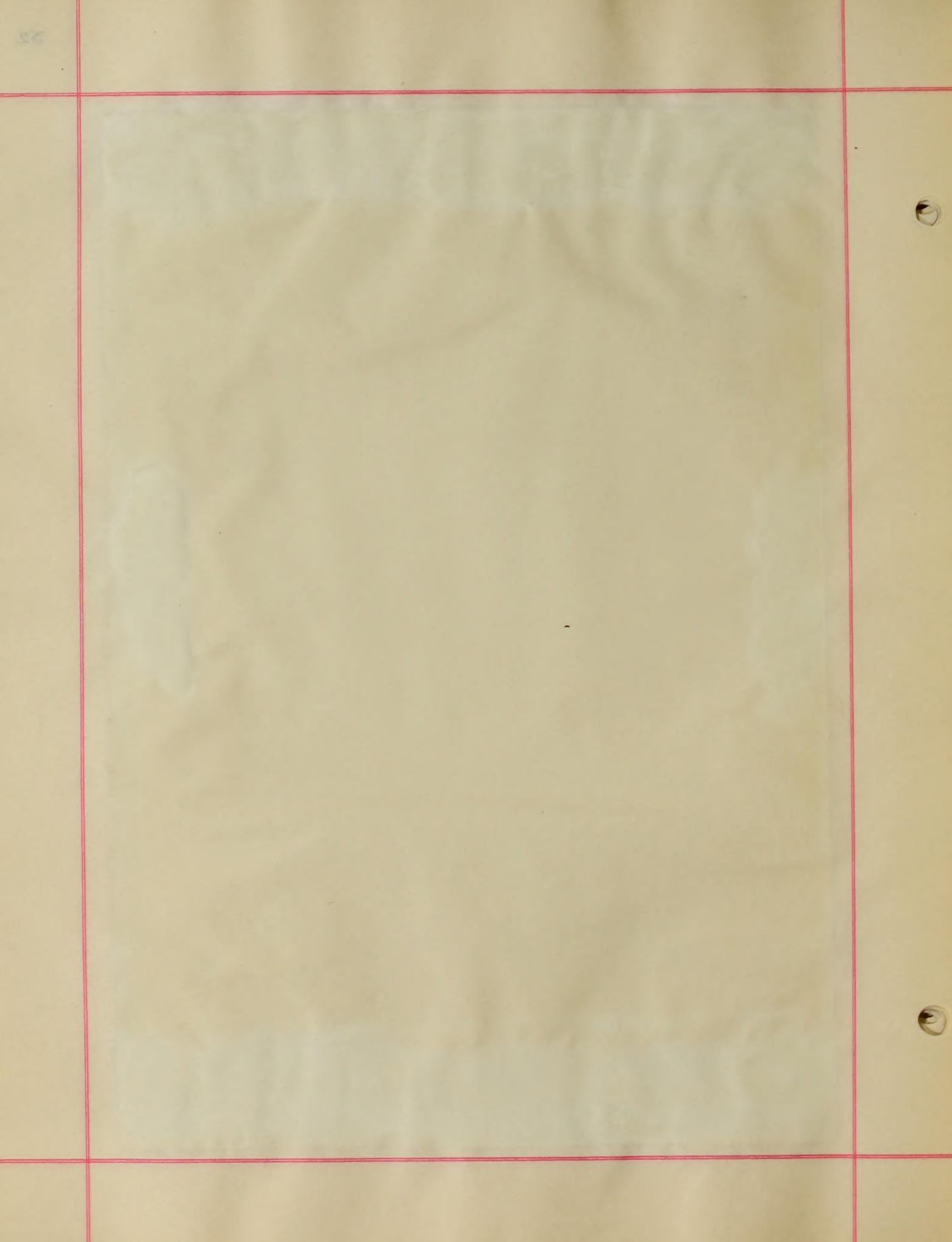




75

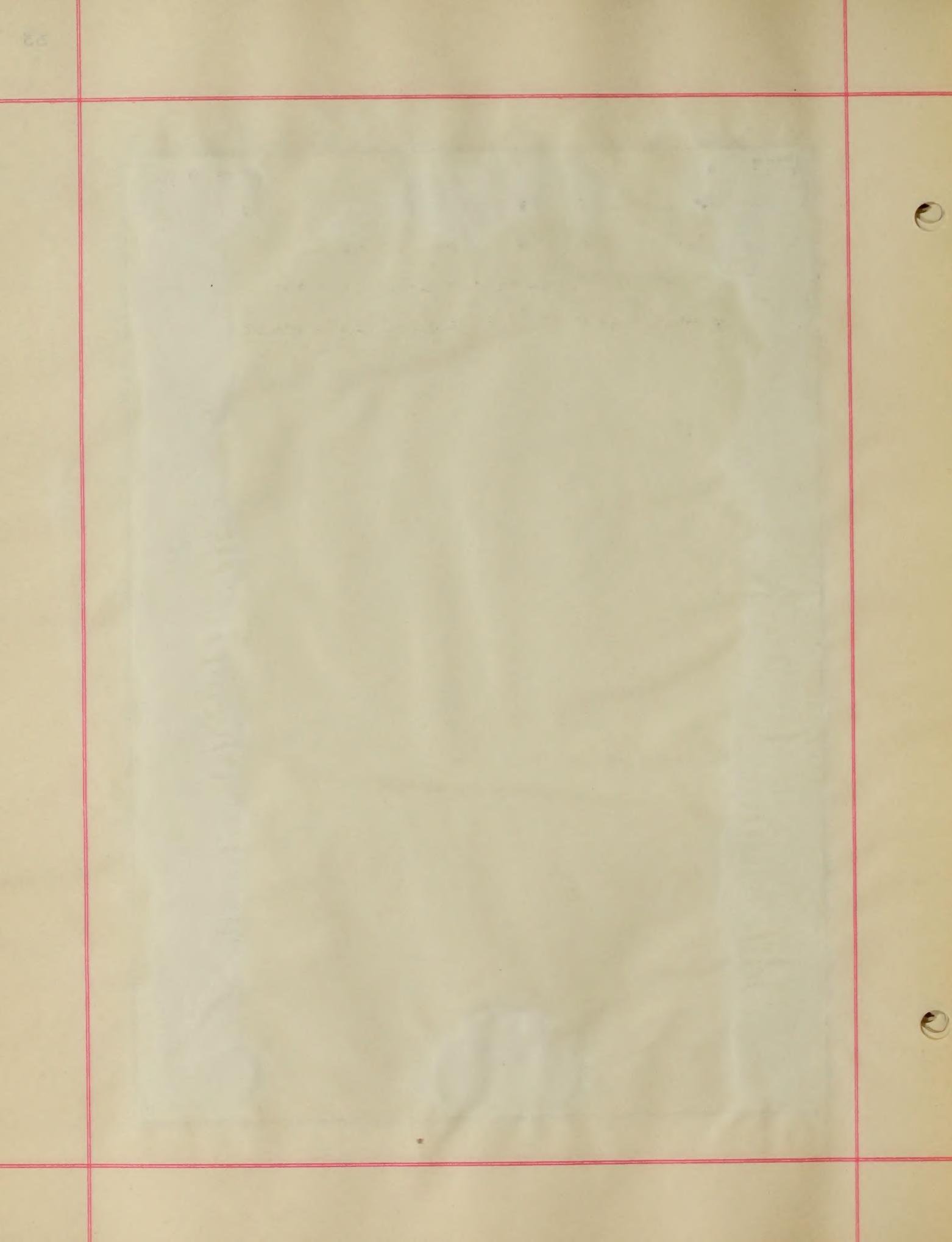






26





Test no. 2

Score

Hold the drawing of a girl in costume next  
to the samples shown on the following four pages.

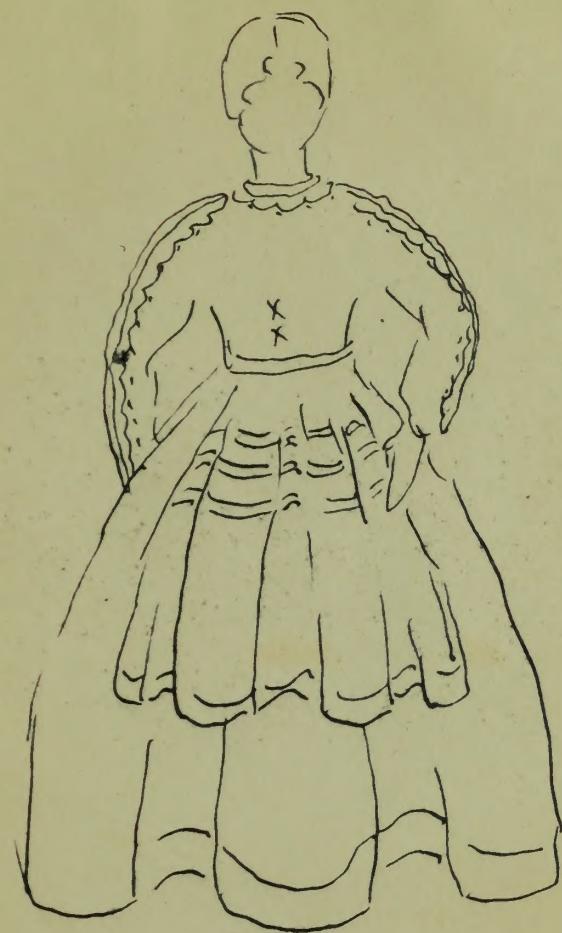
Find the sample which resembles the drawing at  
hand in the most respects and record the score  
found beneath it.

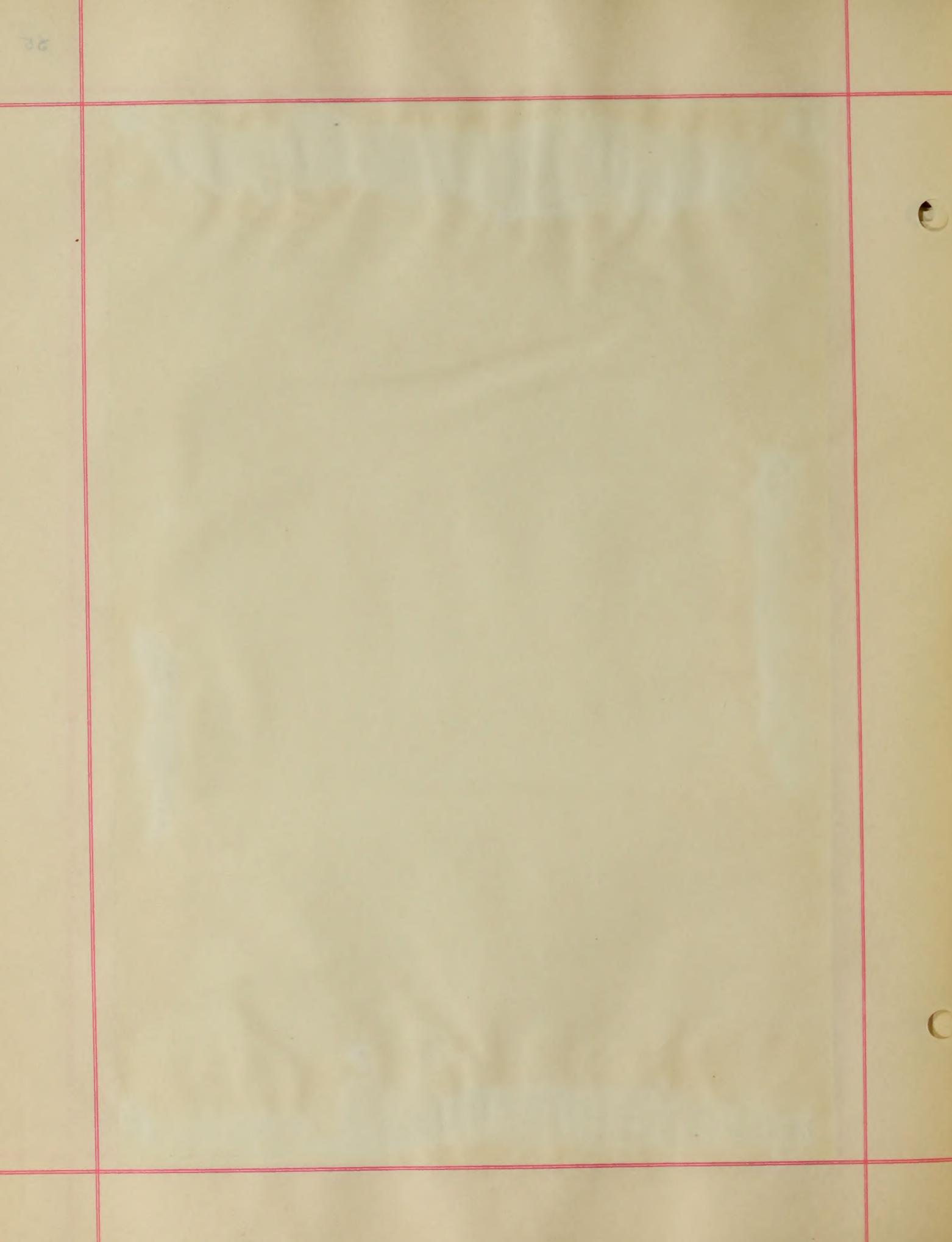


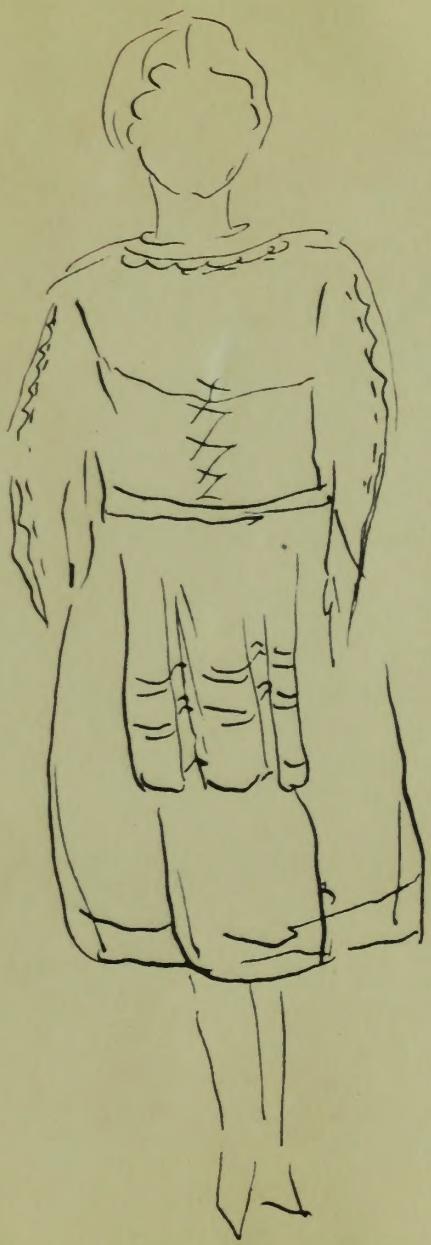
Score

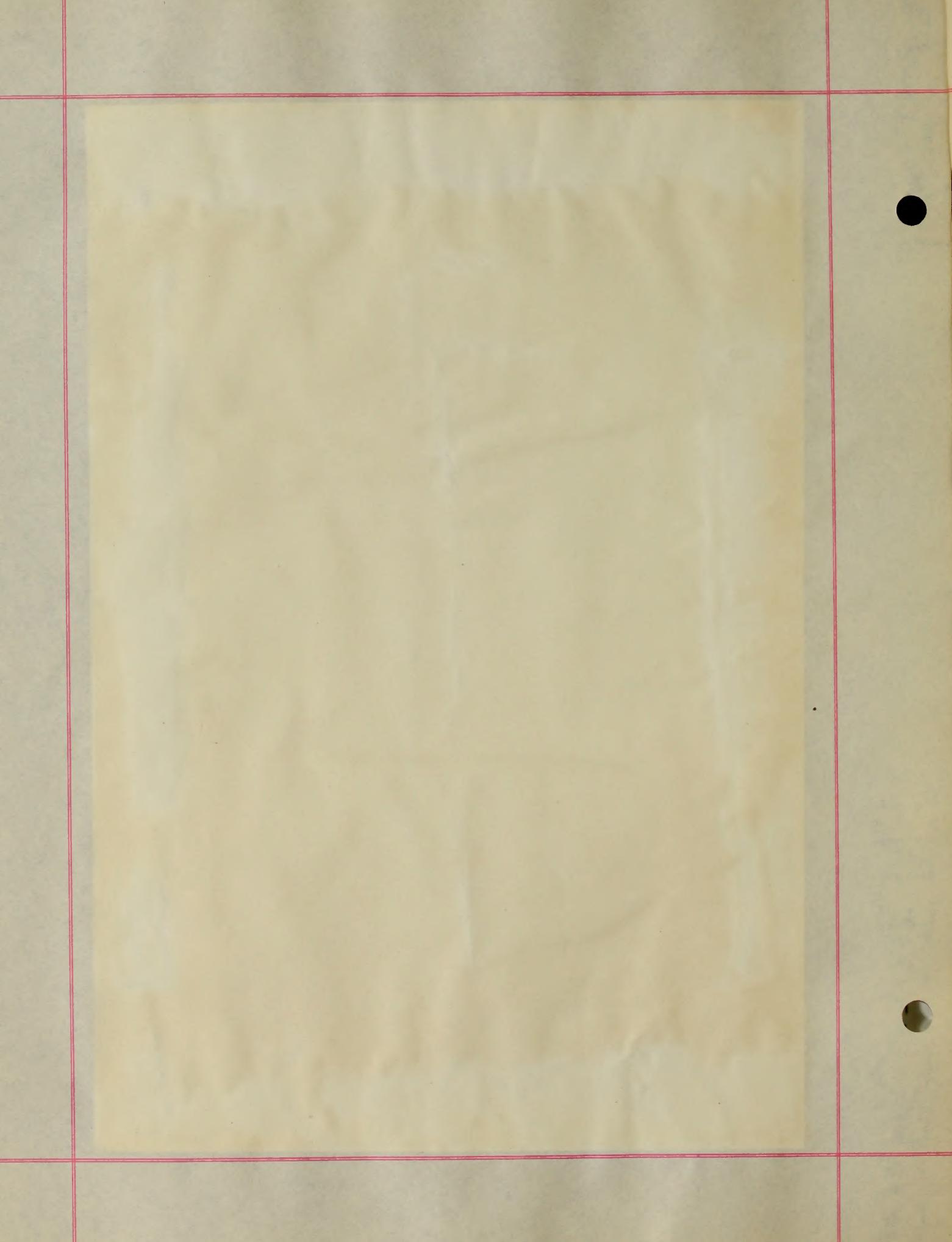
Son fast

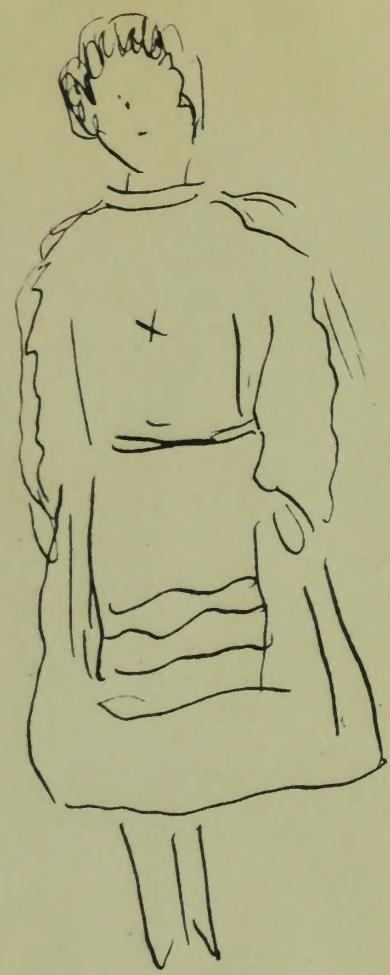
Hollidays at last  
are over now  
and we have  
had a good time  
but it has been  
a hard week  
and I am glad  
to be home again.

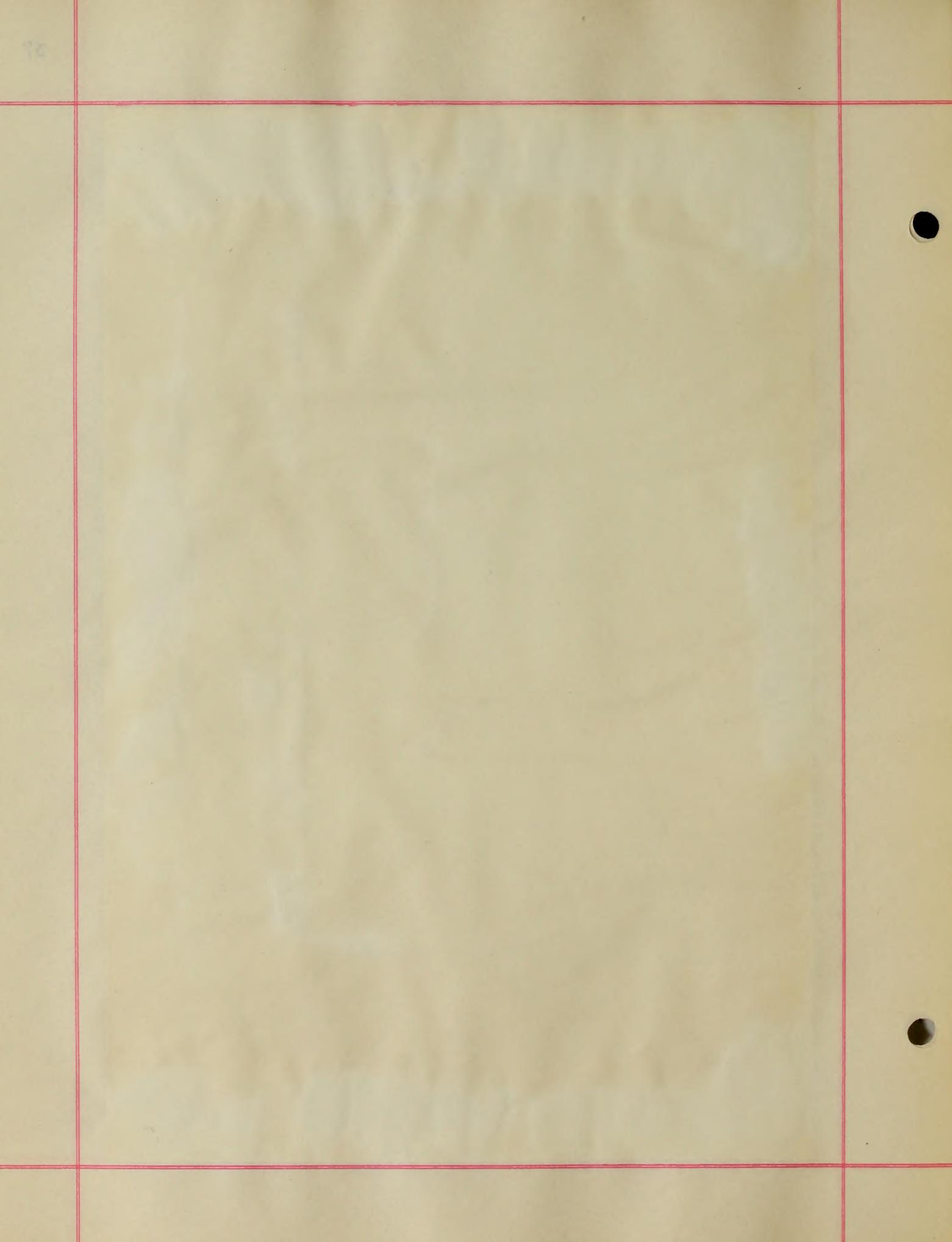
















Test no. 3Score

Each of the following questions must be answered by yes or no, in the tester's judgment, and given full or no value for each point. Check each affirmative answer.

Points

1. Has pupil followed directions - attempted problem asked for regardless of how well? 5
2. Has pupil selected the essential elements of the problem even though it may be lacking in some details? 15
3. Has pupil shown a free and consistent use of medium-pencil, crayon, or watercolor, though technique may be poor?
4. Does paper show direct, simple portrayal, drawing or arrangement - not worked over or erased to an undue degree? 5
5. Does work show fresh thought or originality? 10
6. Does work show pleasing arrangement of subject matter, margins, spacing, etc.? 10
7. Does work show ability to discriminate differences in color? 10
8. Has pupil a visual memory of form, as shown in this test? 15

Score on last

bettwähne ed jaum encloseup galwolich eur te nosz  
Hiel osvig brix ,dnuengbut a'neset ent ni ,en do net ya  
avisiontlin pose nonn ,.faleq pose hol olyv on te  
newwak

editio

barometre - emilious h' bewillt liqug aet .  
vilew nod ic amilungen not fenne wifcig  
esmeile laidusas ent betoelte liqug wa .  
nosl ed yam si davort nece wifding eur te  
fallatet emce ni gal  
bau foatsimco bna eert a merna liqug sap .  
,reisomder te ,necete ,flossq-wiibem te  
Wred ed yam emcudens wch ed pooy  
,leyenq elgals ,soent wch givier ,  
Doss bapet shie bapet over  
teenges enuhs as of besette no  
vifliefatir te flogort uert wch dnoo secu .  
-qua te jnemewutte unlesly wch dnoo secu  
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gr ftofes ni escomet  
awoda as ,mict te ymowm lamyv a liqug wa .  
gr ftofes ni

Test no. 3 (cont.)Points

- |  |    |
|--|----|
| 9. Does work show that pupil has power of<br>observation?                        | 15 |
| 10. Does work show some skill in the handling<br>of the medium used - technique? | 10 |
- 

Possible score - 100

Total score checked

Record above

Letter

(Date to be set)

Does work fit body per order of

15

specifications

Does work fit all the previous

10

specifications - been added to

Letter score complete

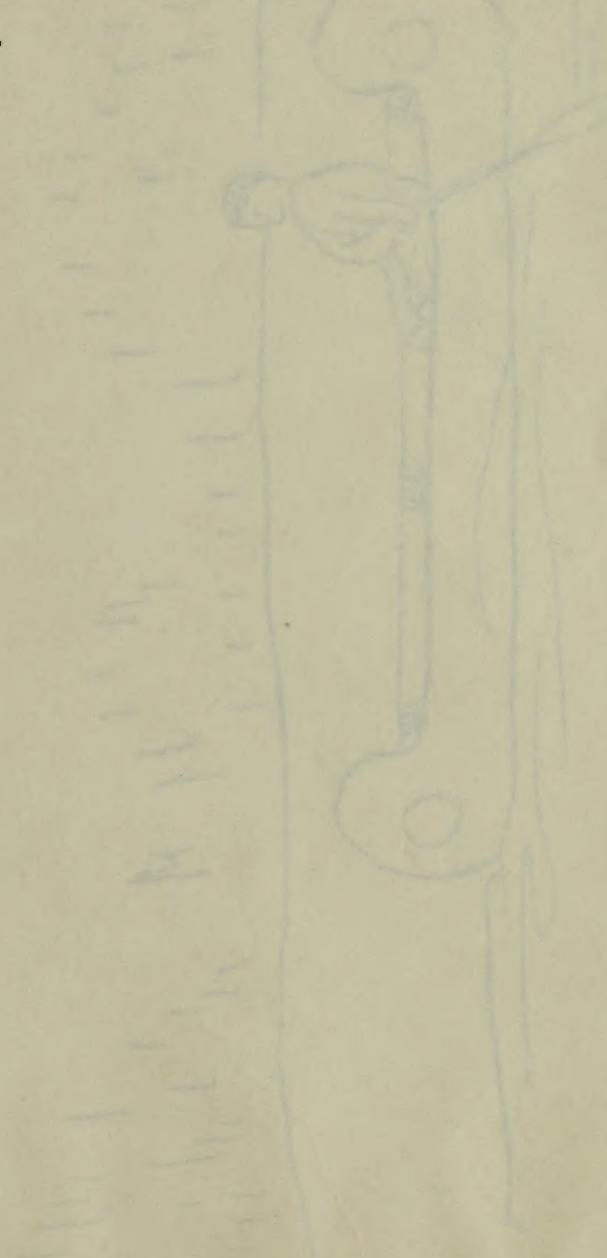
Total - 100

evade insect

Test no. 4

Score

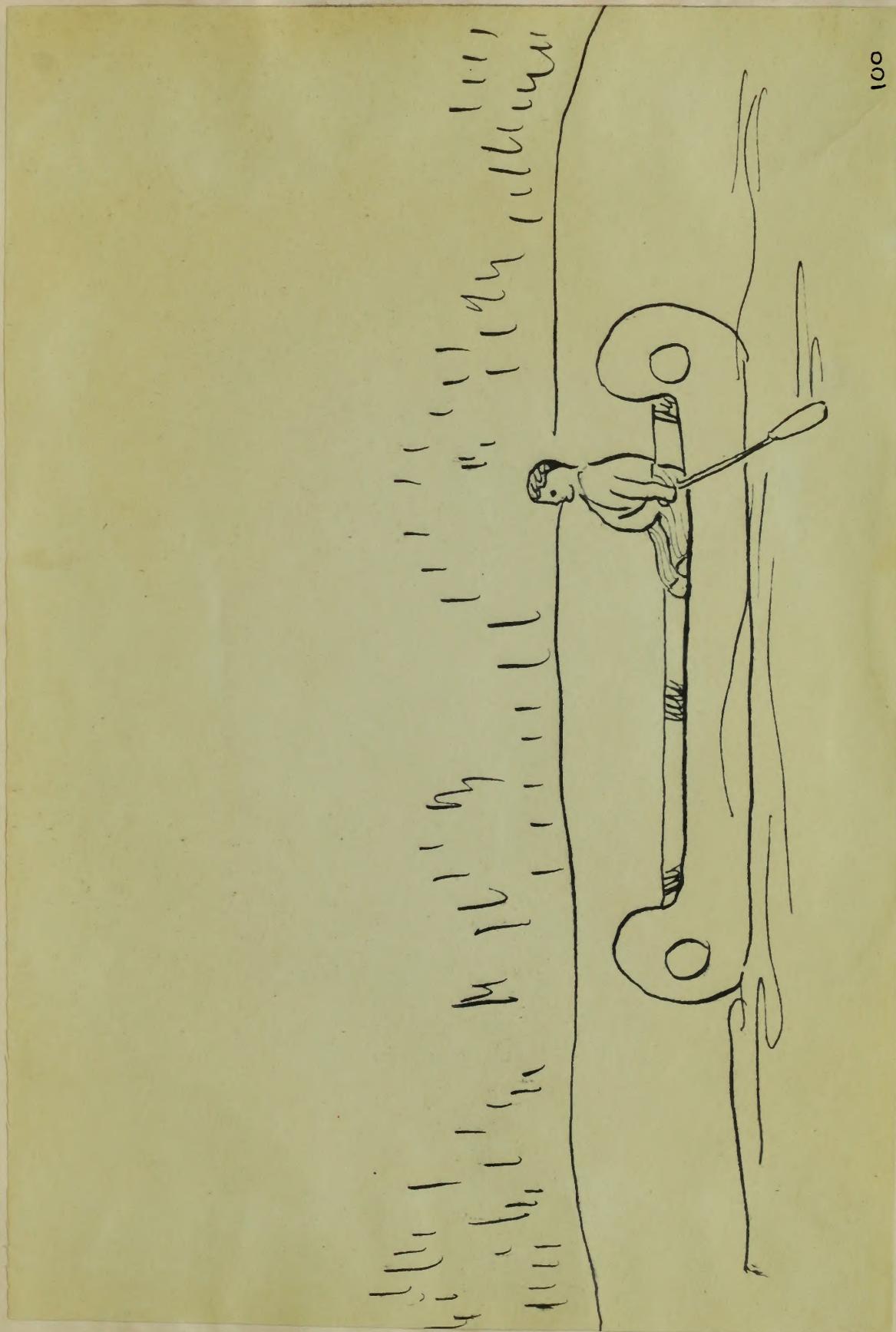
Hold the drawing of a boy paddling a canoe next to the samples shown on the following four pages. Find the sample which resembles the drawing at hand in the most respects and record the score found in the lower right corner.

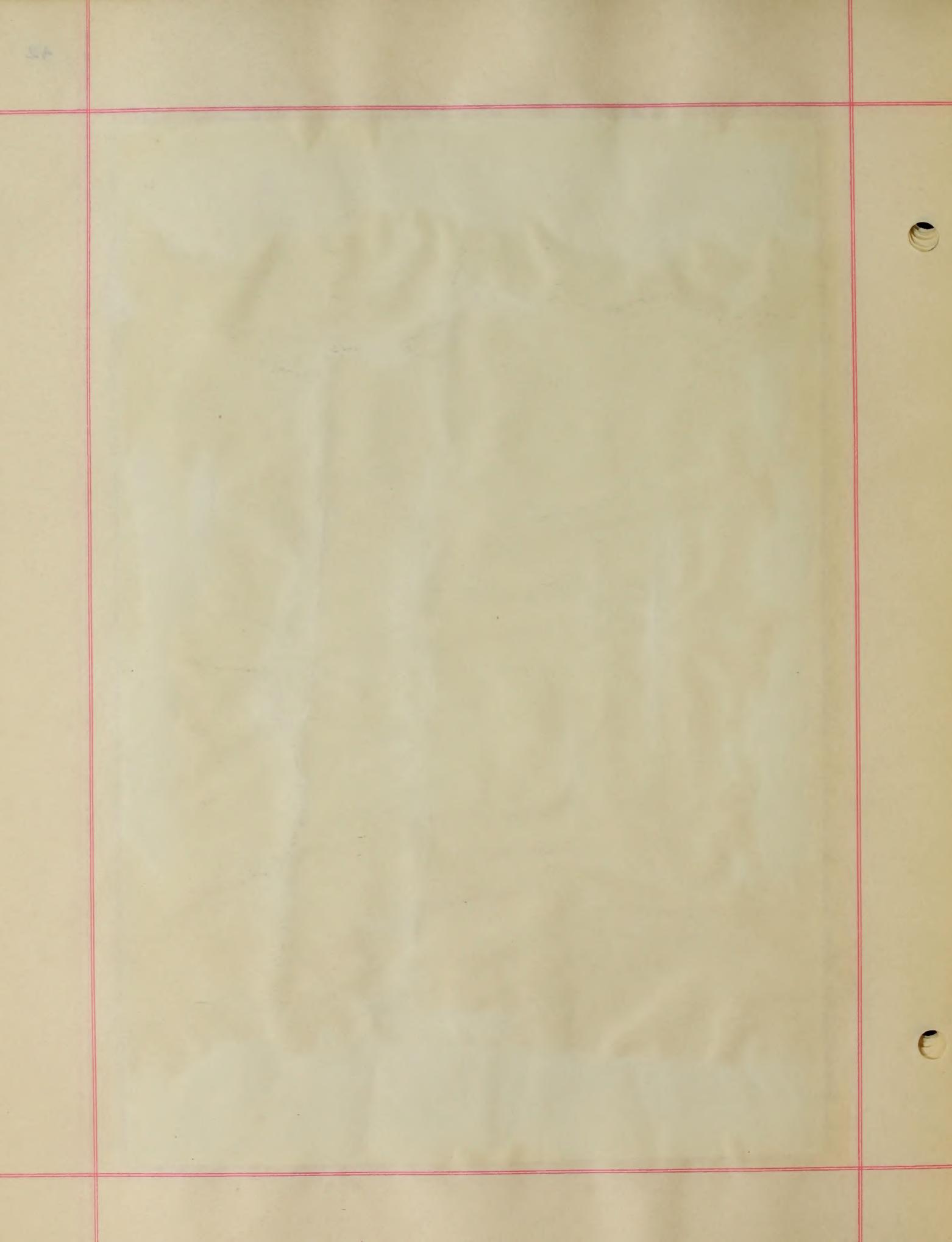


Score

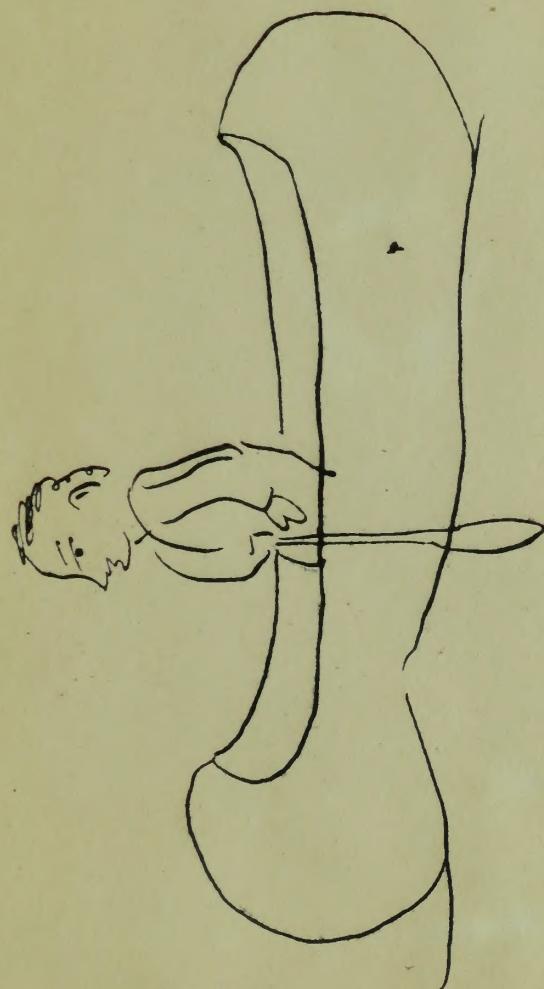
for the

þxer sono a gñichaq qod e lo gñawit enq bñiq  
sebag mut gñawillot enq no aword sejwaa enq et  
bñaq ta gñawit enq sejwaaen noinw siqas enq bñiq  
ni bñaci siqas enq bñocet qñi sejwaa enq et  
qñi jñawit liqet oñcien



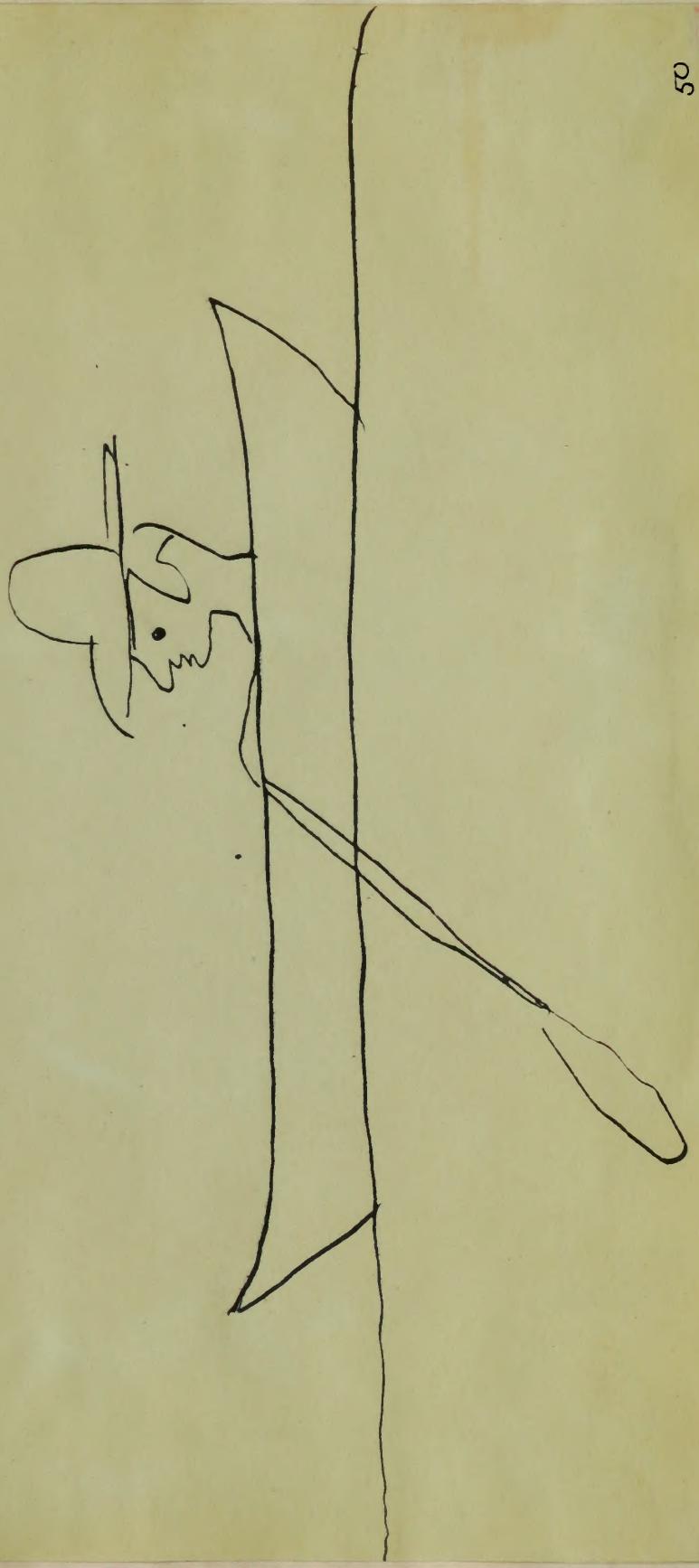


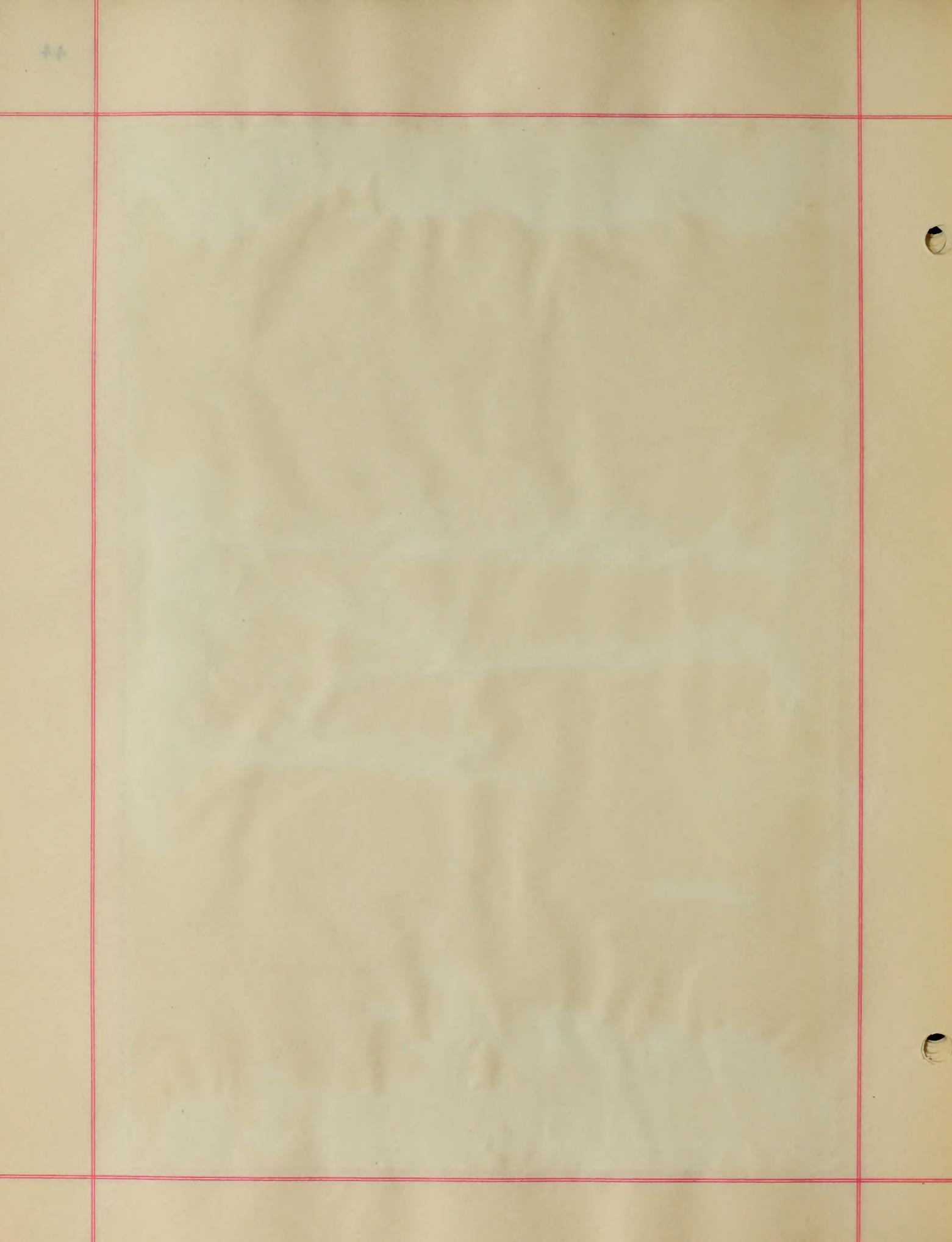
75-

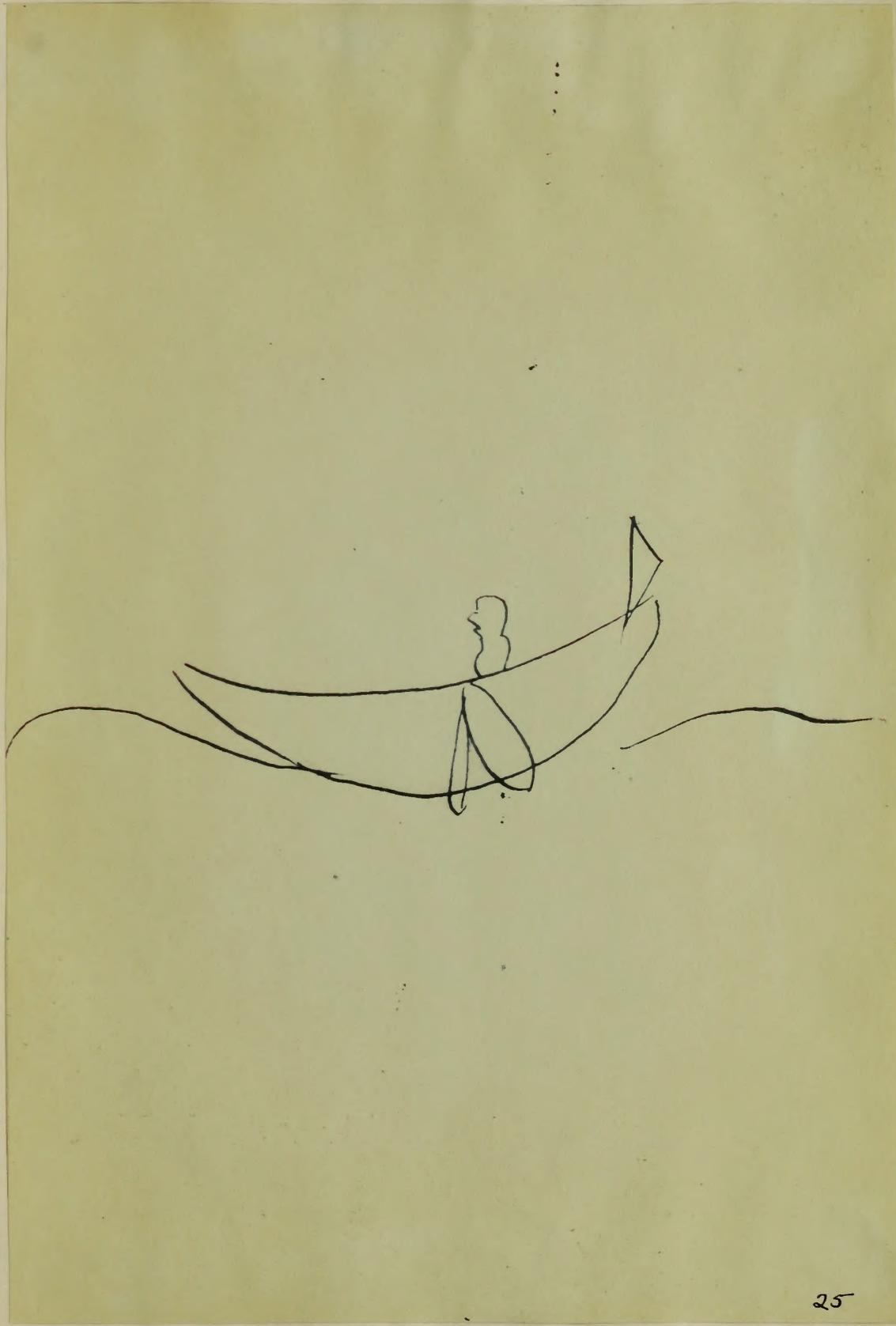




50





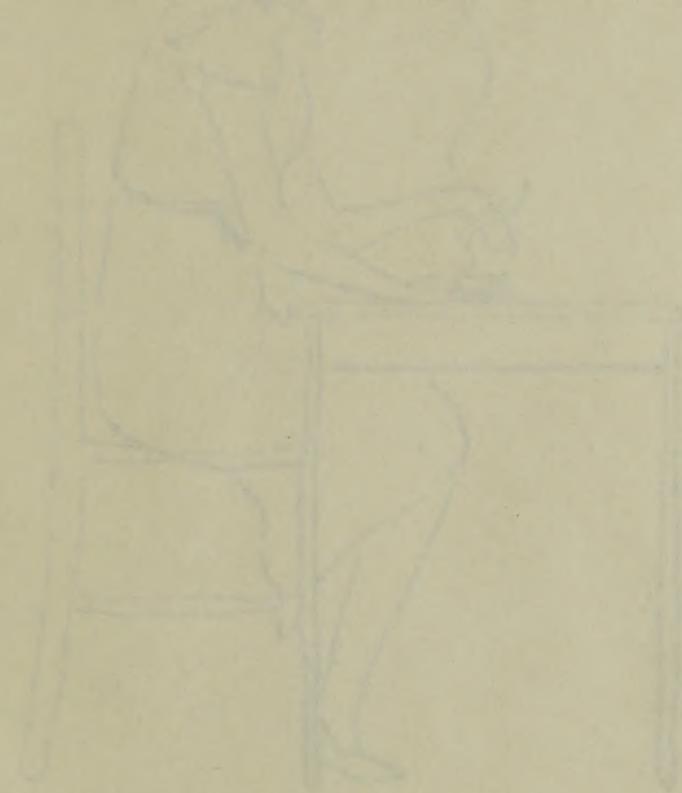




Test no. 5

Score

Hold the drawing of a girl sitting at a table, eating, next to the samples shown in the following five pages. Find the sample which resembles the drawing at hand in the most respects and record the score found in the lower right corner.

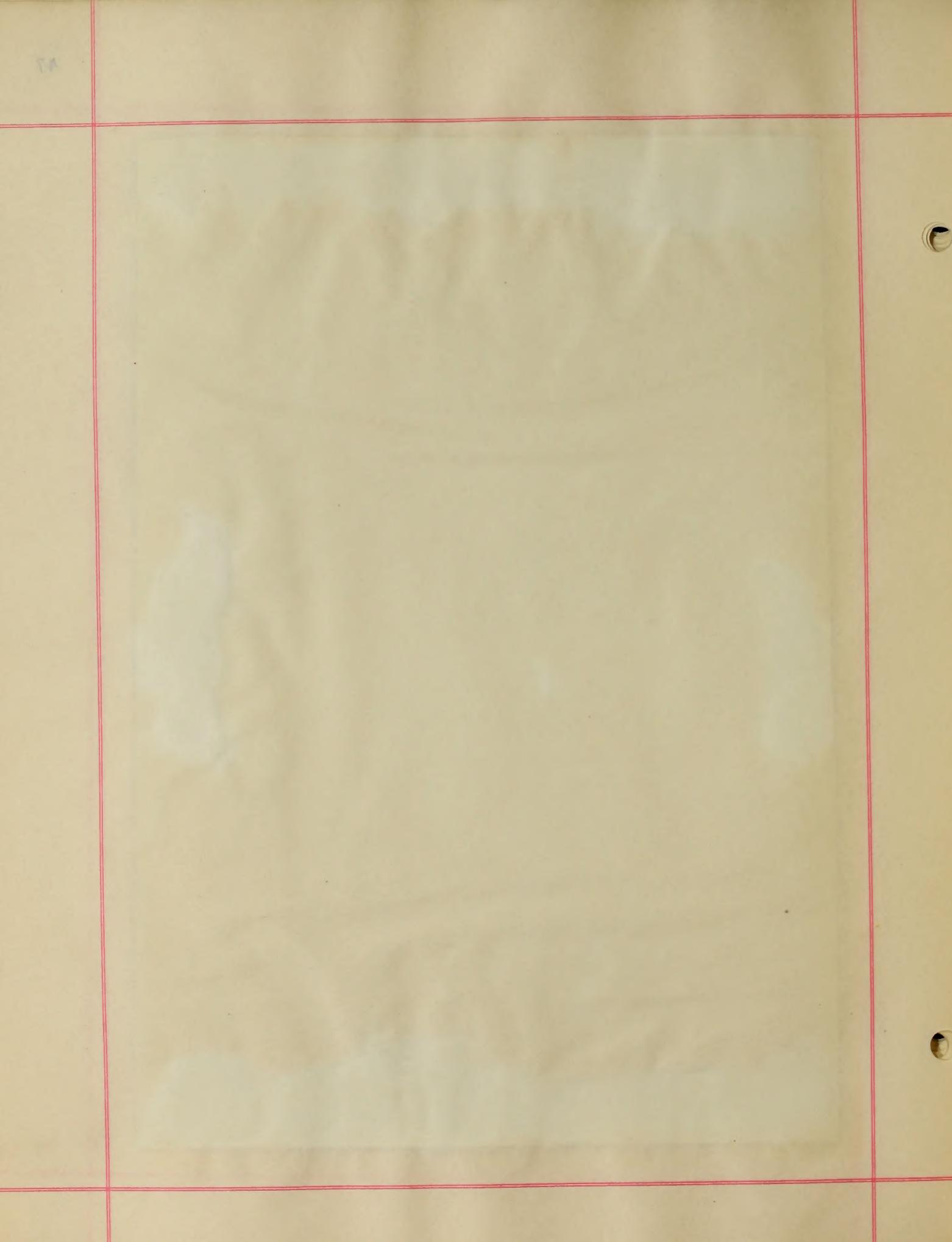


PROOFCORRECT

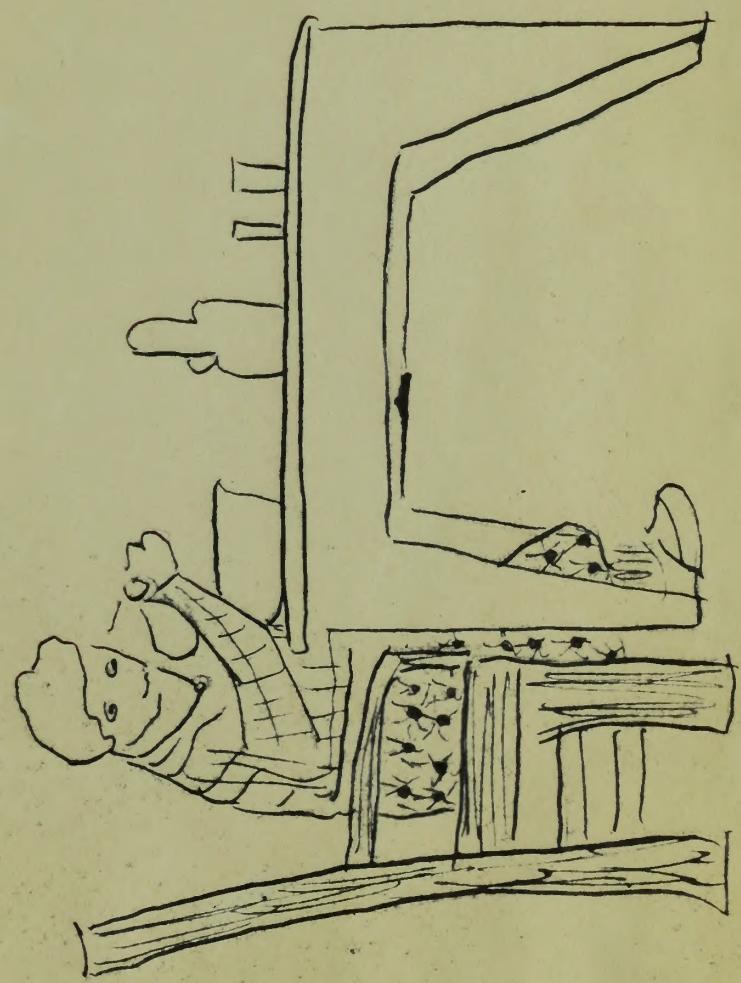
seidat a te gniessie Iriq a 'le gniwend ent bloH  
gntwollici ent nt awore celomes ent of xken ,gntses  
ent seidmeden hofaw elgma ent hriq . sepeq evit  
ent hroser hra arceqnen drom ent ai hoiid ta gniwend  
mentos tubit kewoi ent nt hauel mroce



100

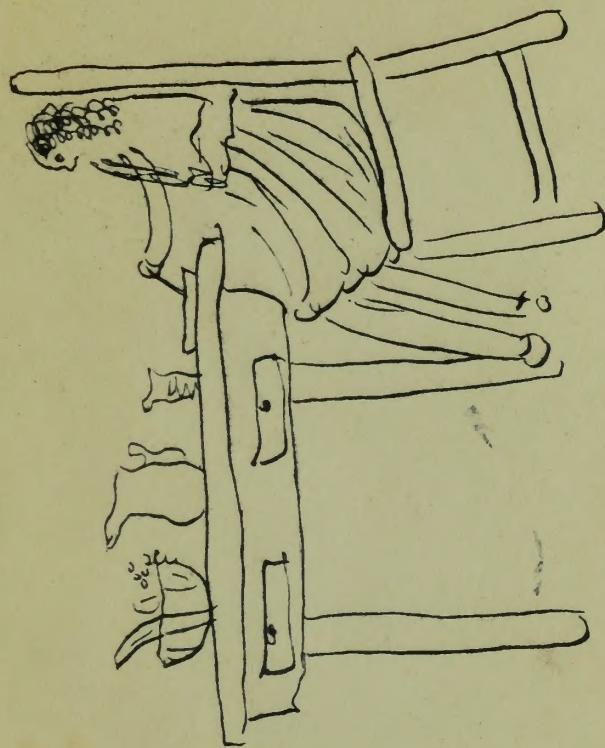


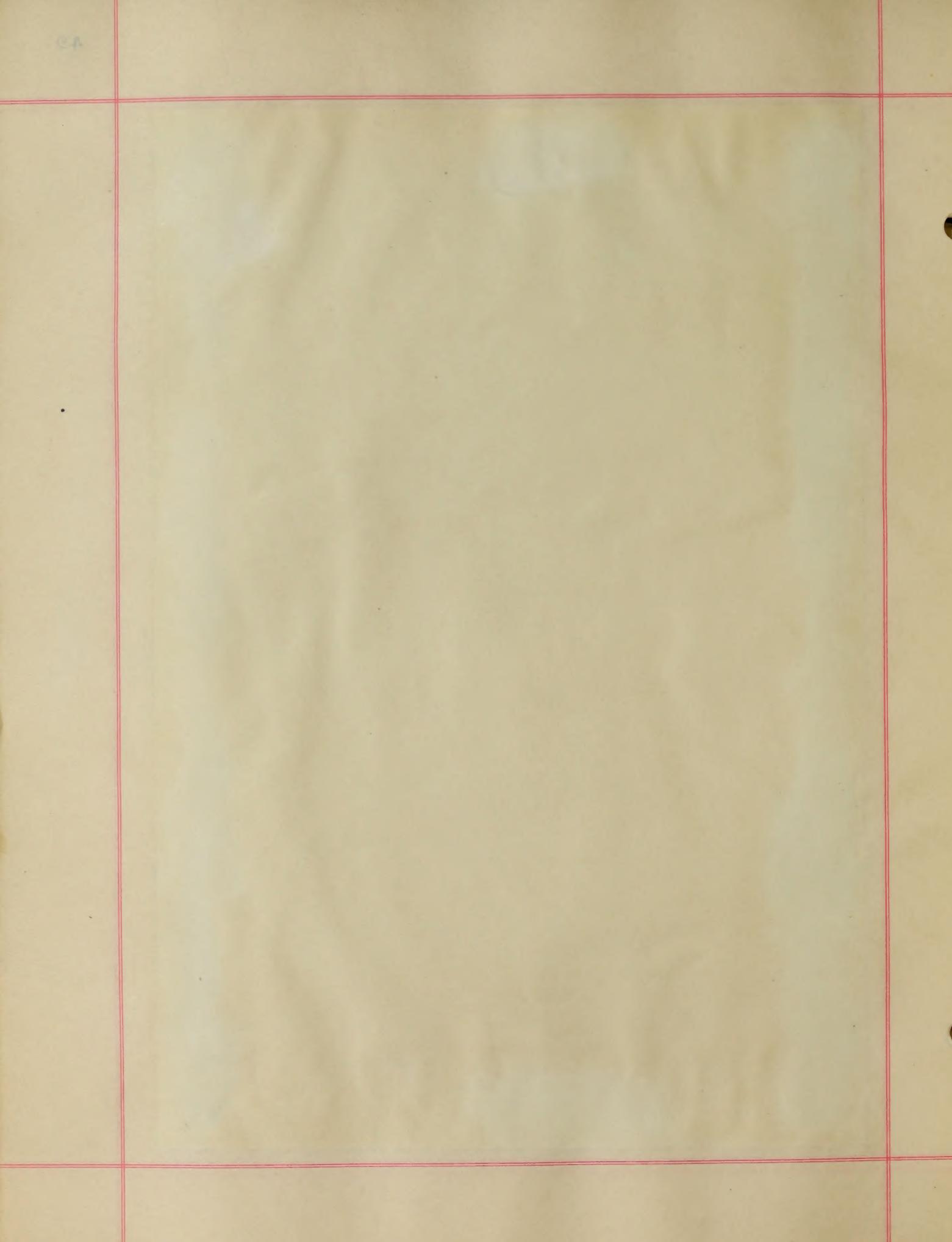
75-

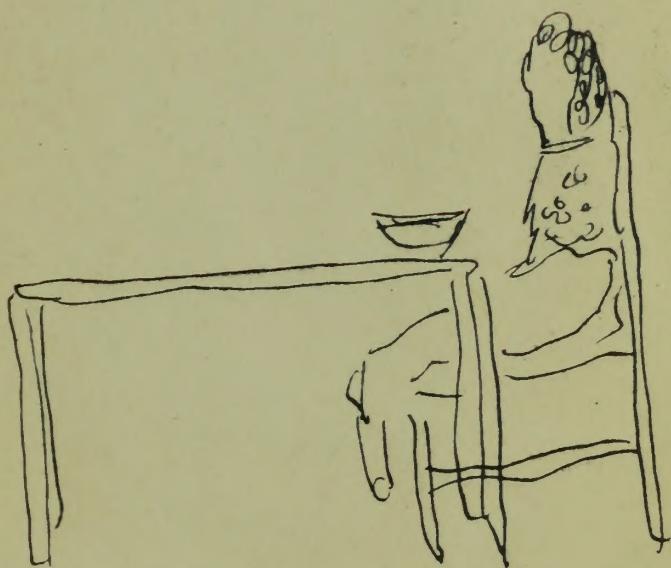


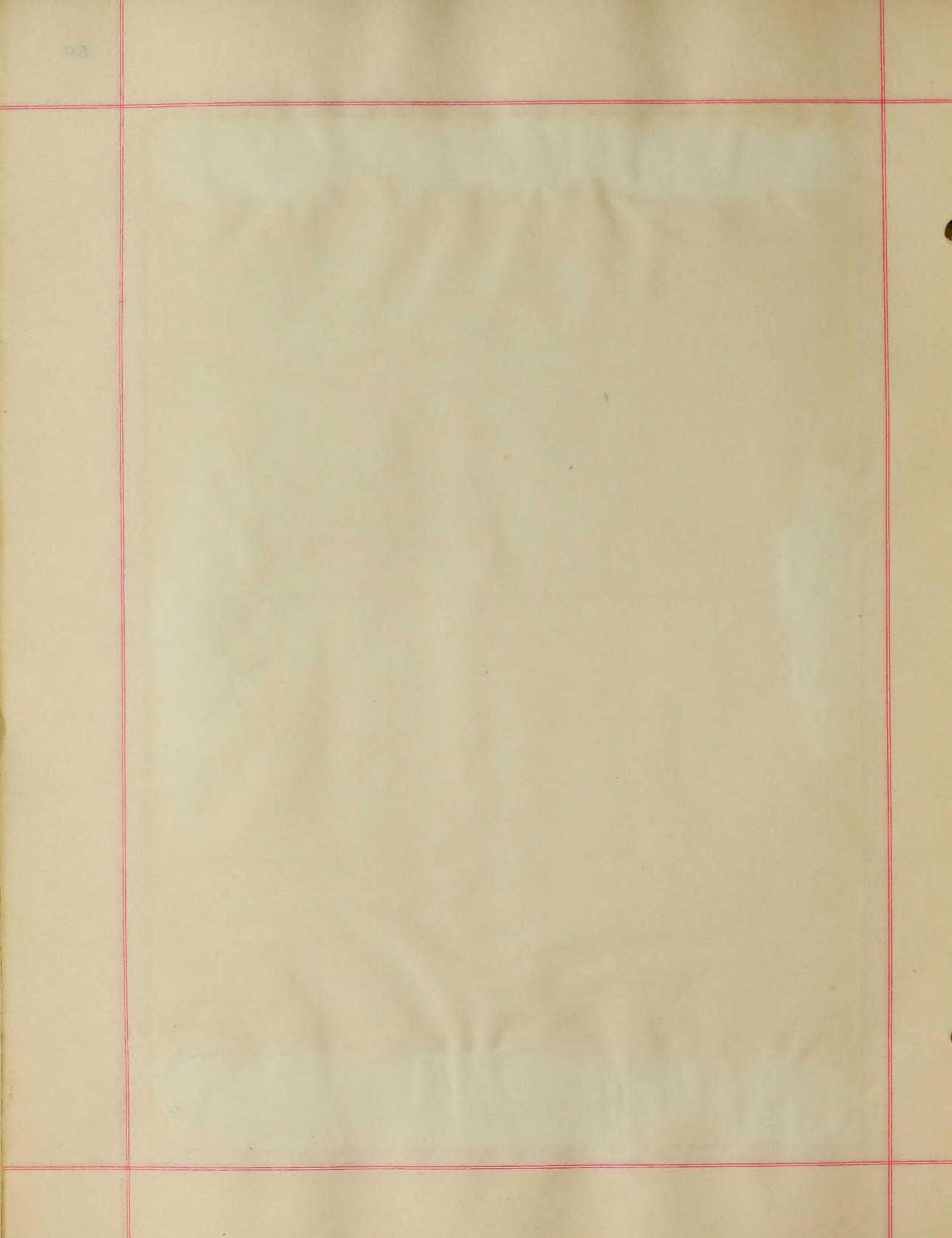


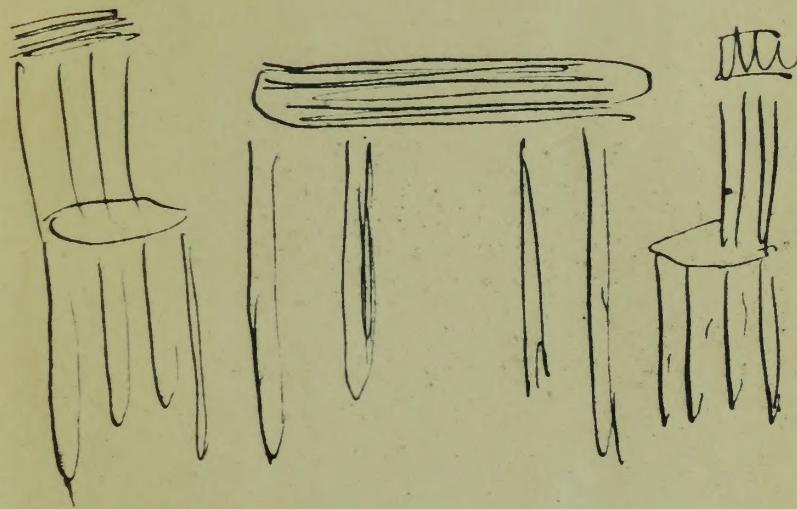
50











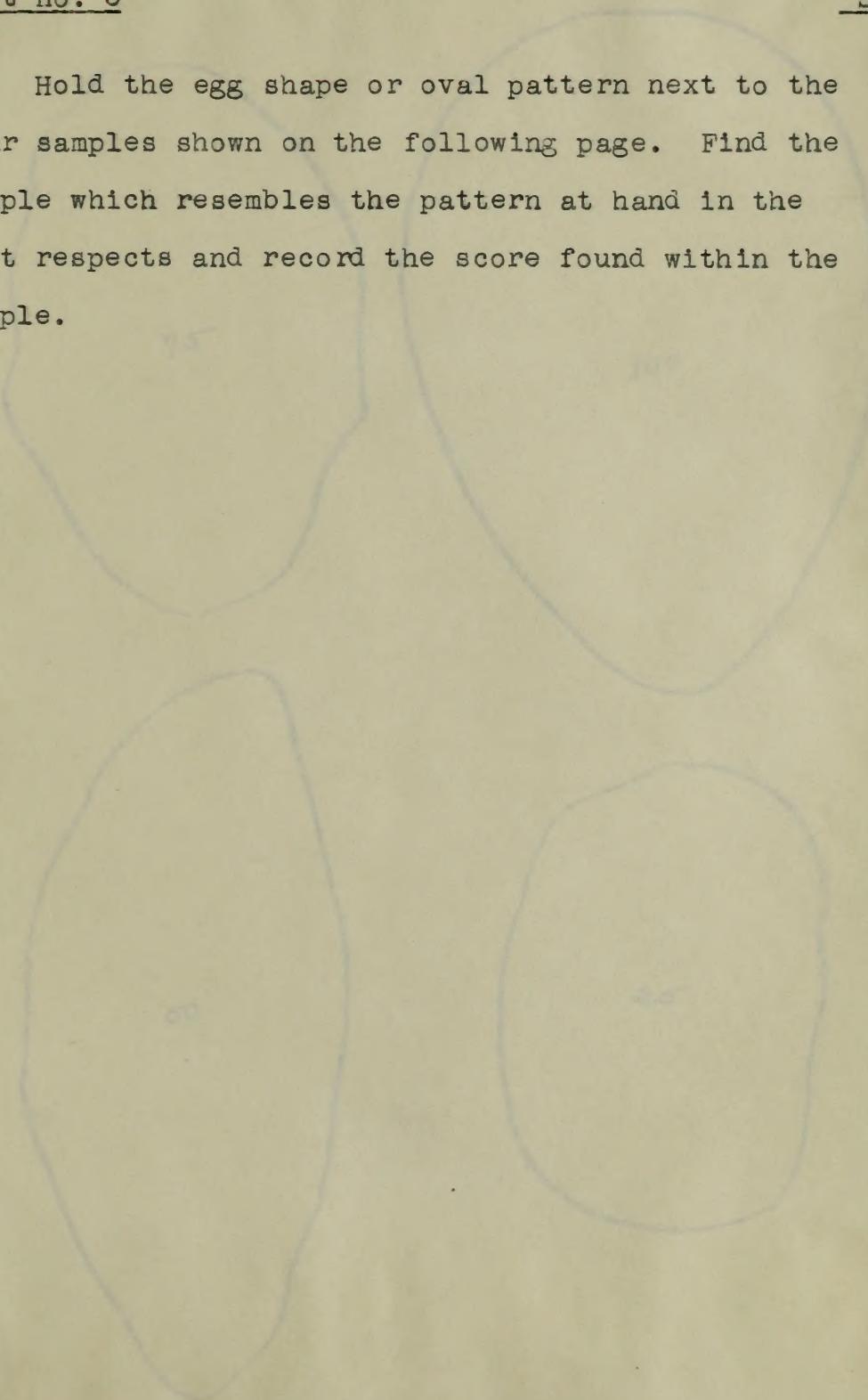
Boston University  
School of Education  
Library



Test no. 6

Score

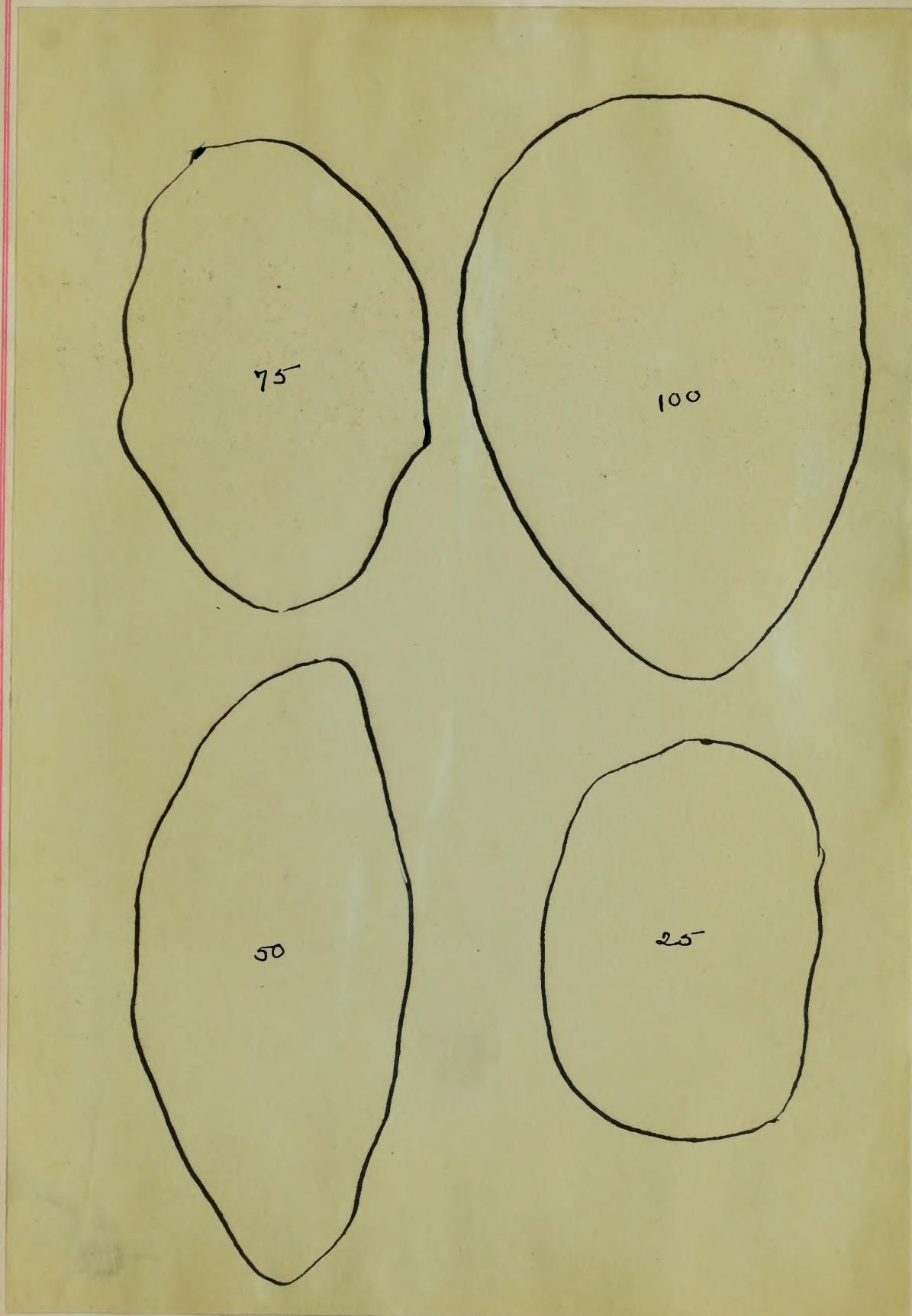
Hold the egg shape or oval pattern next to the four samples shown on the following page. Find the sample which resembles the pattern at hand in the most respects and record the score found within the sample.

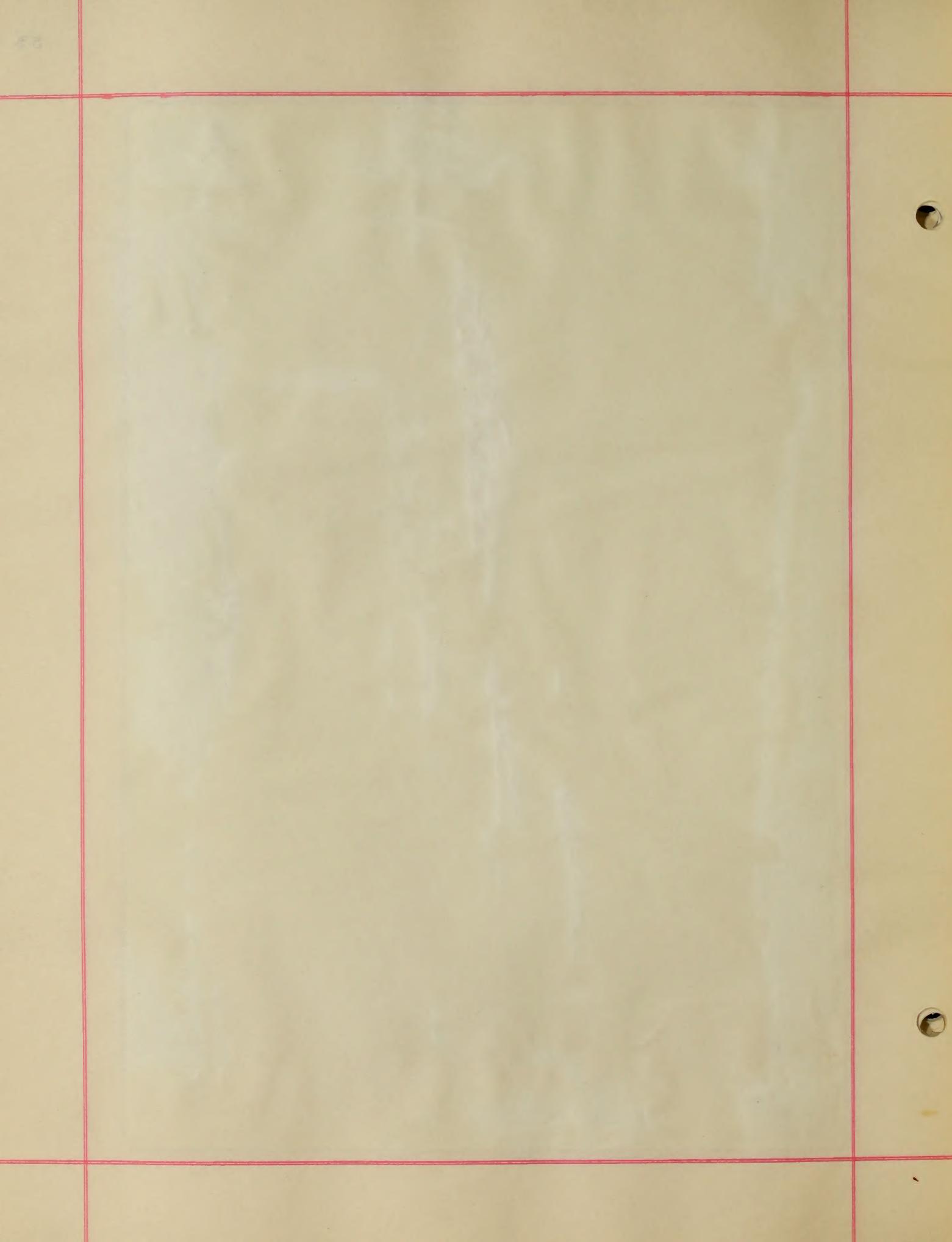


books

on fast

end of Jxen mifftsq levo no eqsna zge edz b10H  
ant lnti . zsq gatwcllci ant no awora sefymas lnti  
ent ni eman de mifftsq ant zelwesek h10H wifpaz  
ent minfliw lnti? encoz enj Diccer lnti wifpaz zem  
efqnsa





Key for Scoring of TestResultsPart IITest no. 7Score

Hold the cut vase form next to the samples on the following two pages. Find the sample which resembles form at hand in the most respects and record the score found within the sample.

leaf to ground to leaf

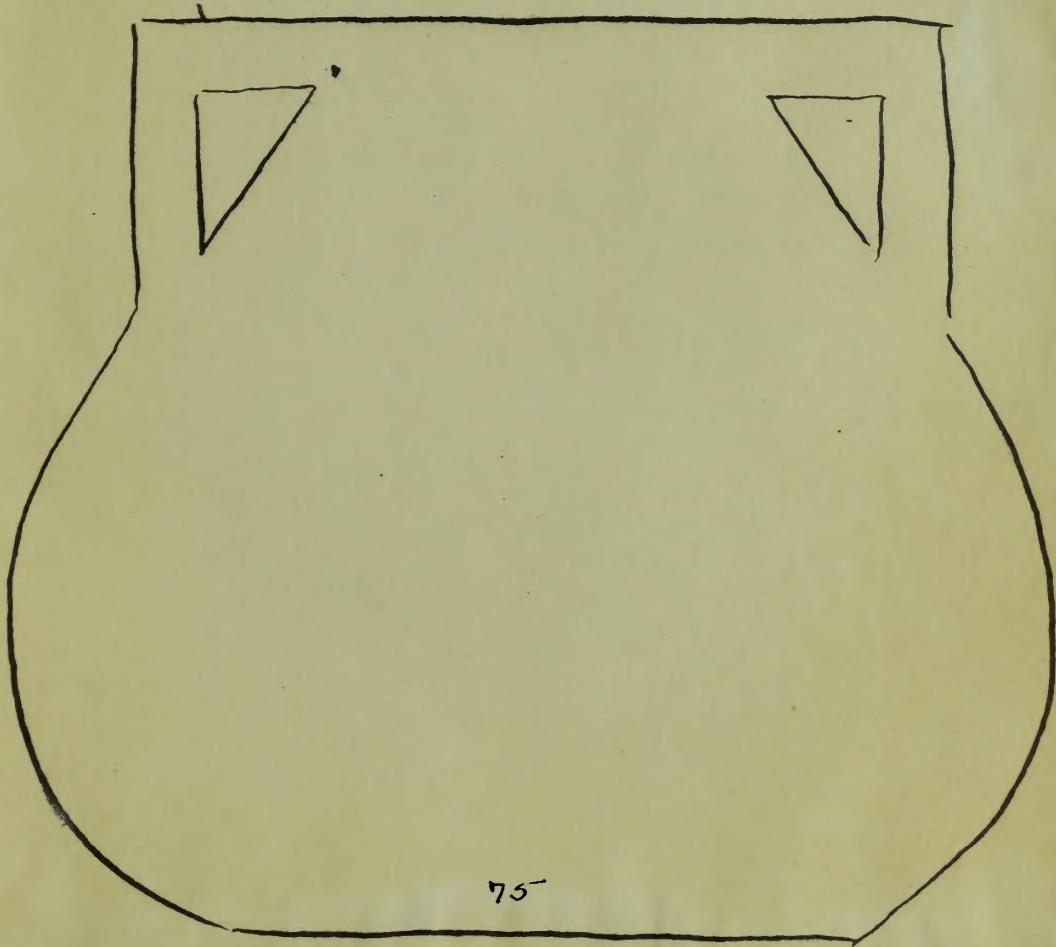
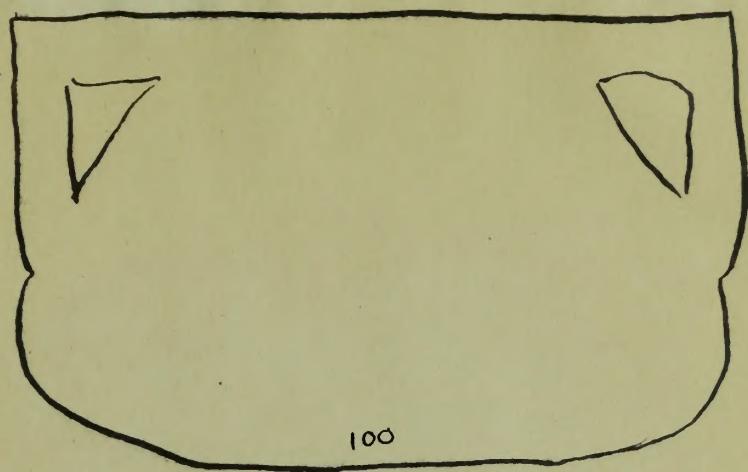
at times

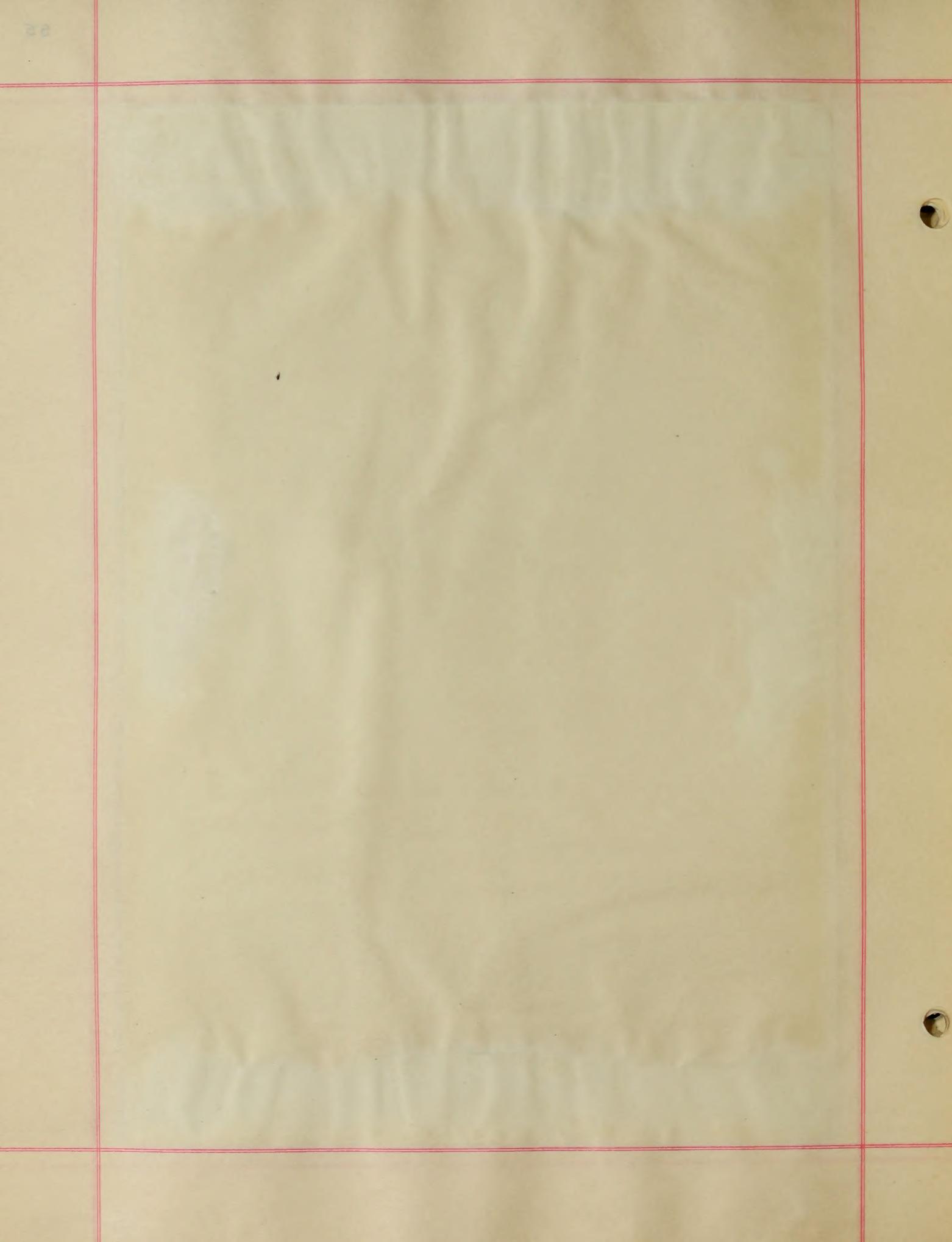
leaf II

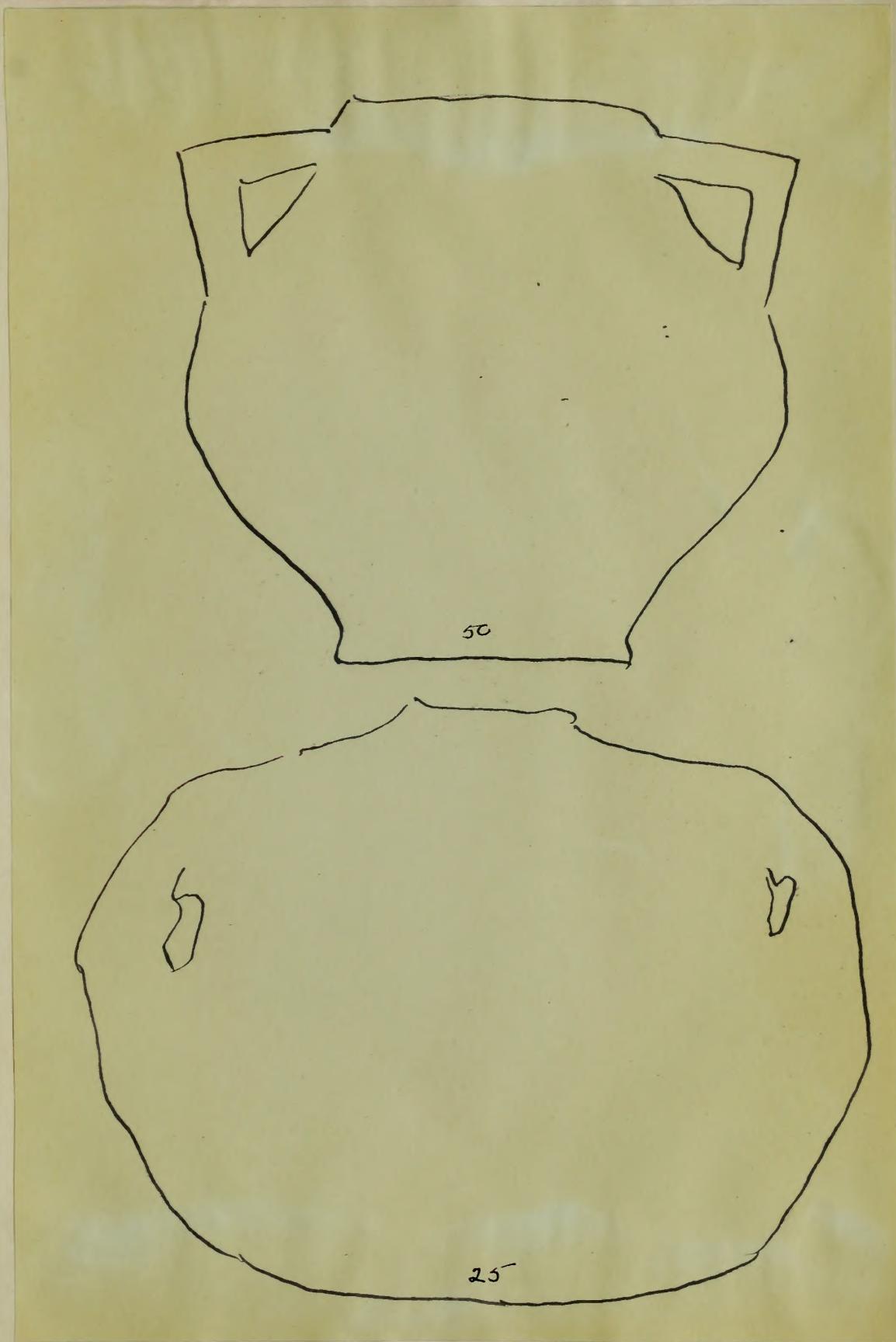
Score

leaf to I

no seedmae egg od sken with easy due ent bloH  
-er dlinw elqesa ent hif . sepa awf gniwoifoi ent  
biocet lns elqesa raoe ent al hand te wict seedmae  
elqesa ent nifitw banot enoda ent









Test no. 8

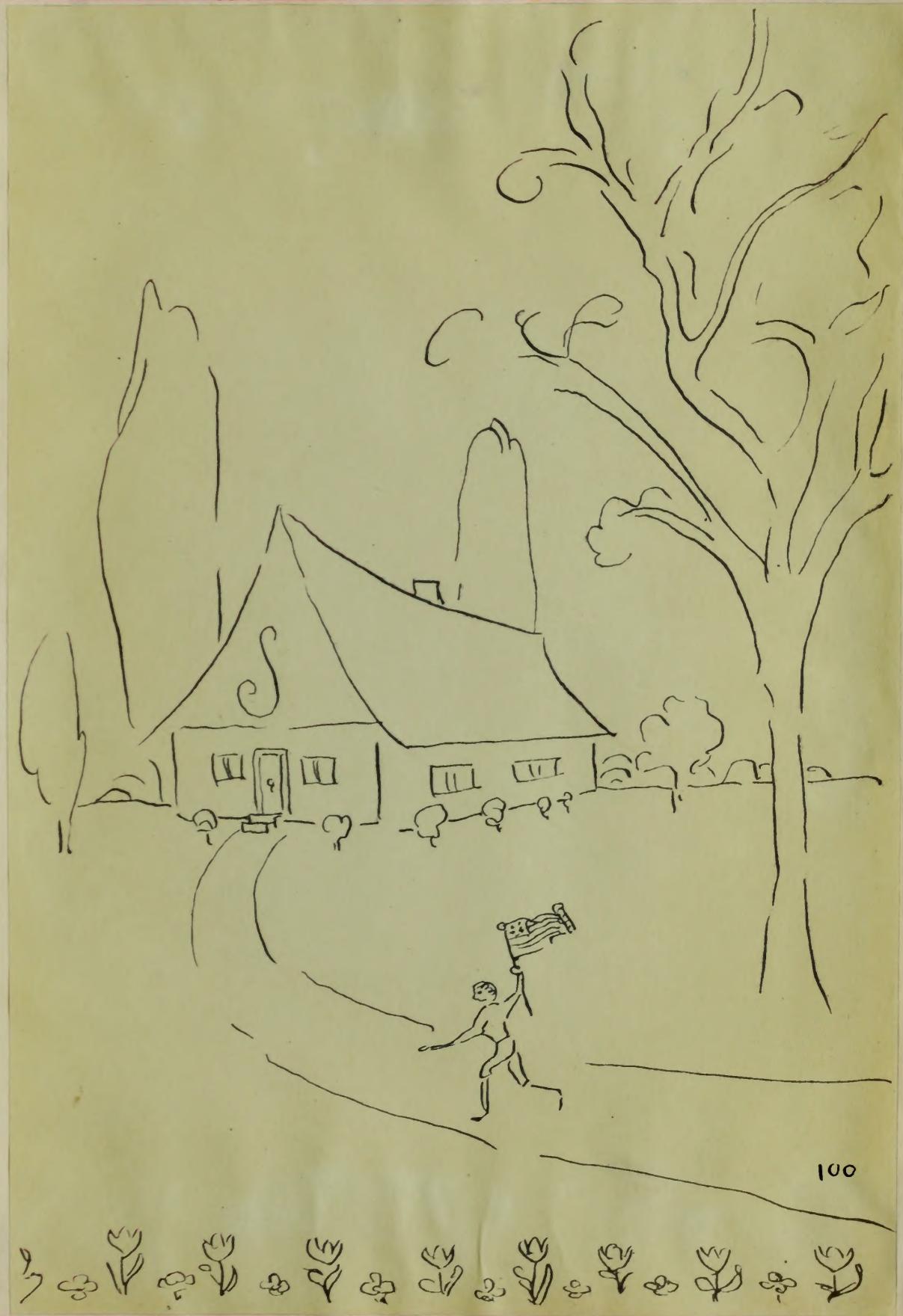
Score

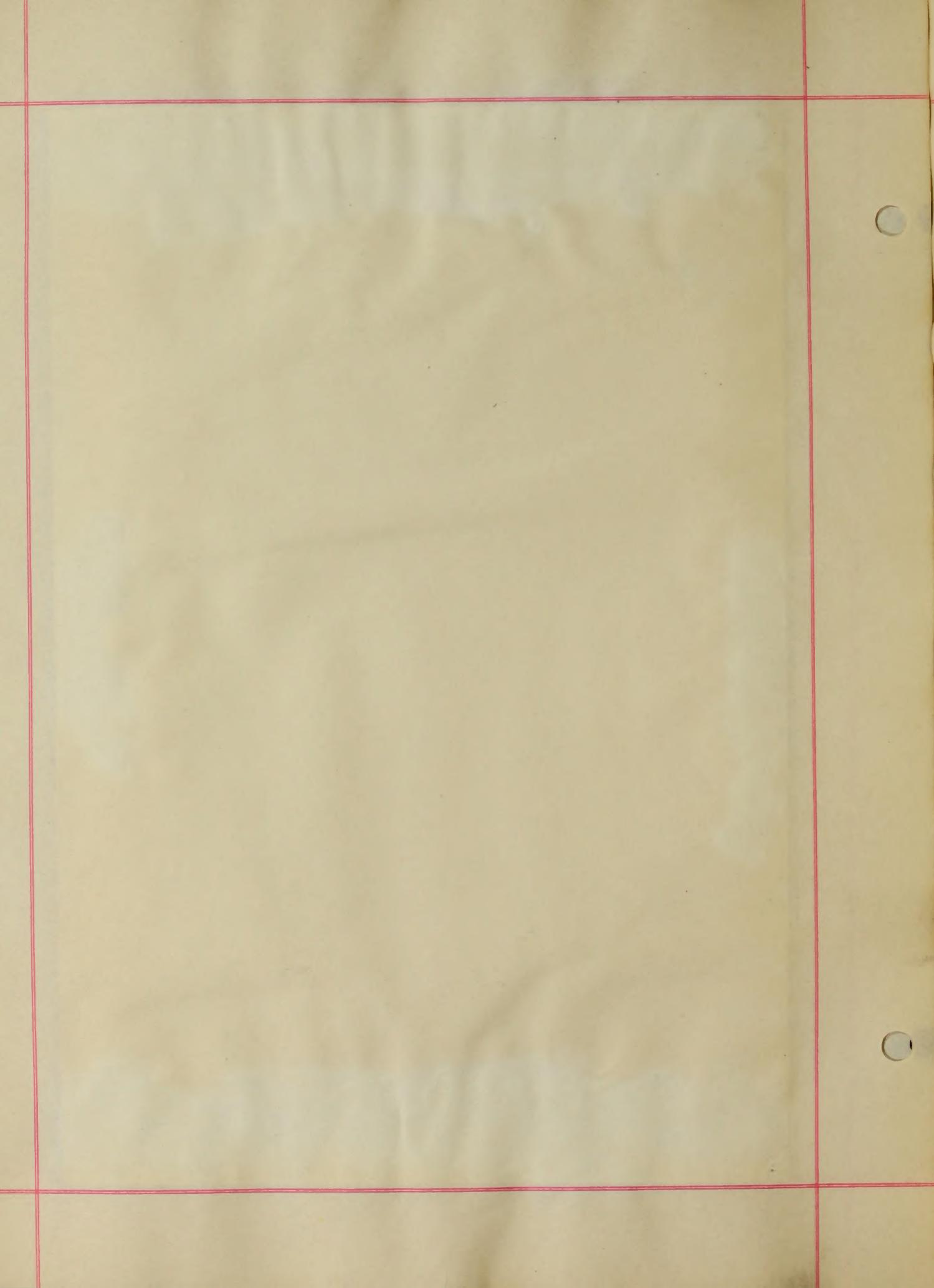
Hold the drawing at hand next to the samples shown in the following five pages. Find the sample which resembles the drawing in the most respects and record the score found in the lower right corner.

Second

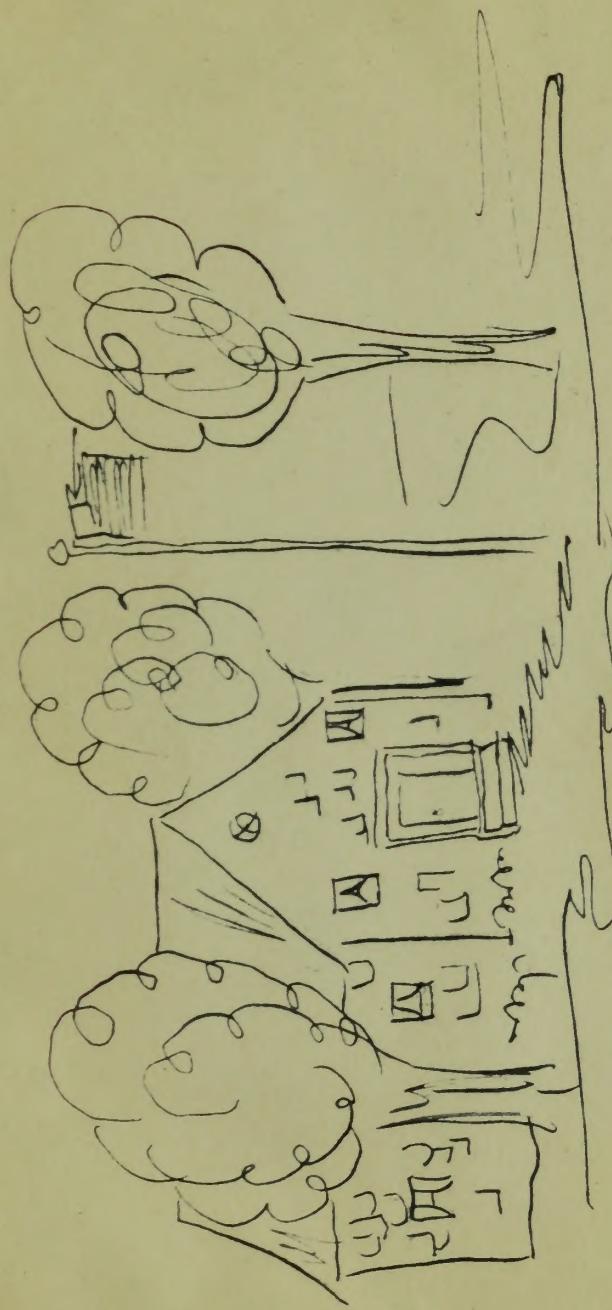
On Jan.

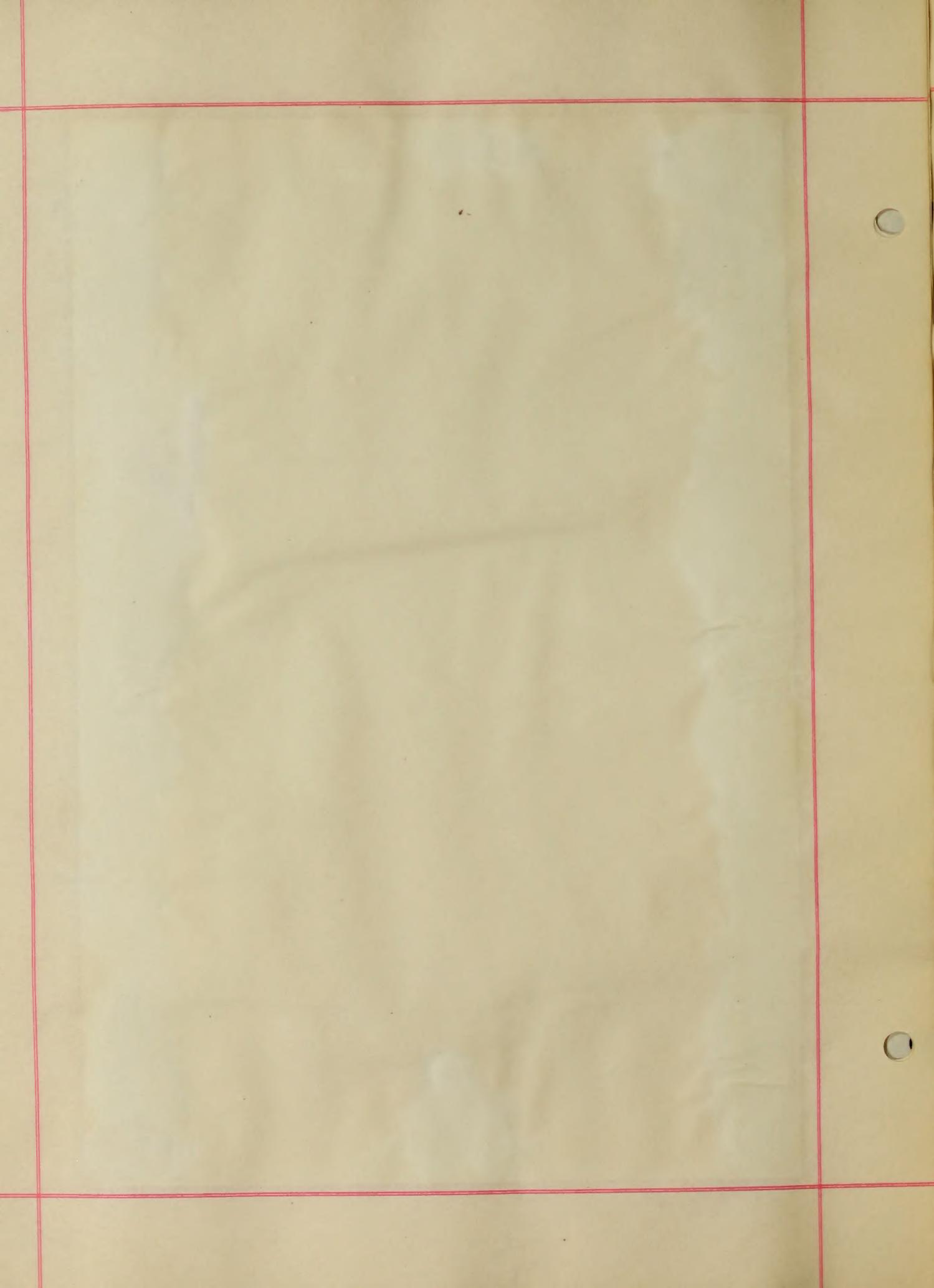
11 1908 a box of 3000 dried fish  
sharks eggs with scales with  
the following from the box of 3000  
sharks eggs found in the  
shark skins and dried fish

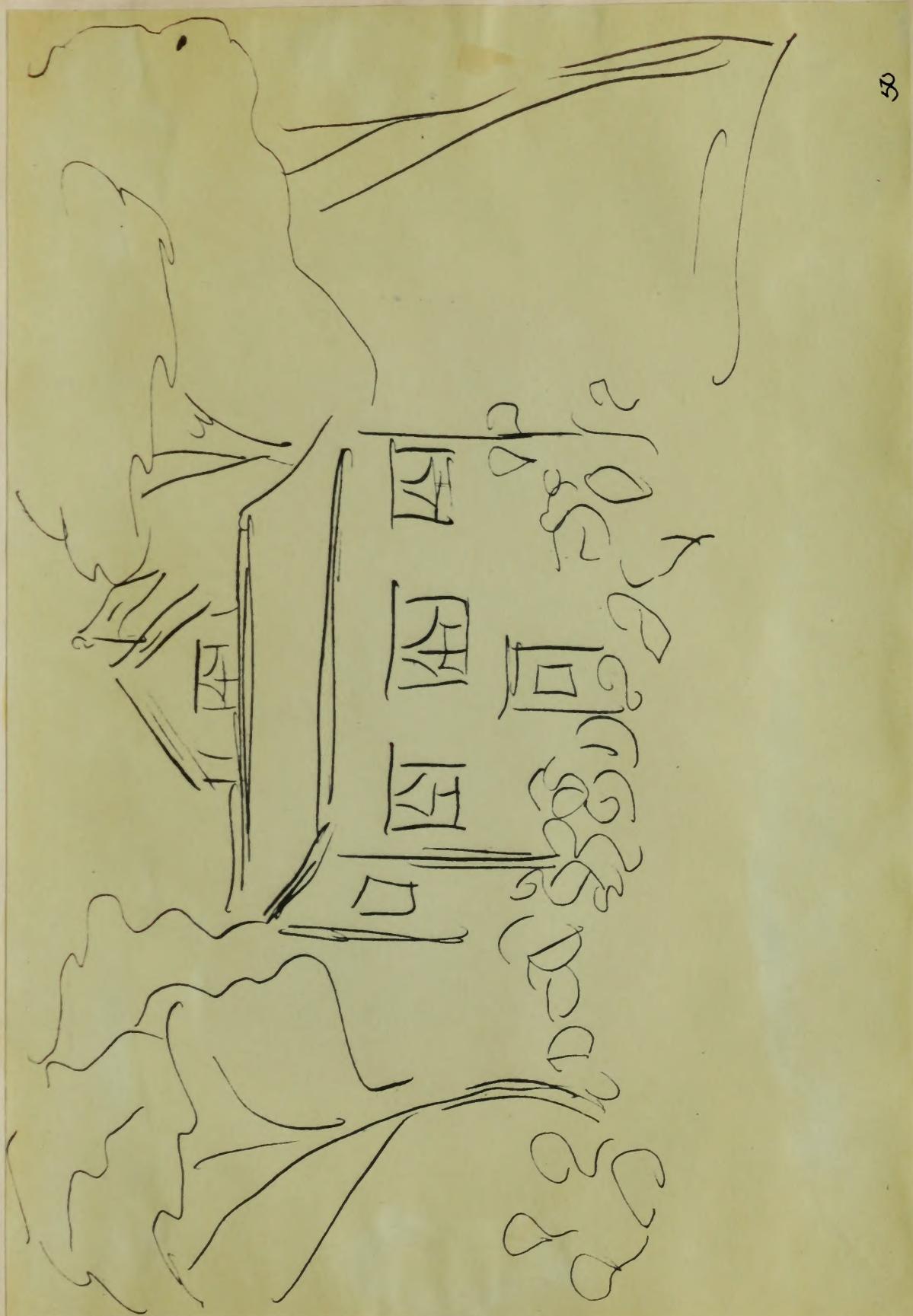


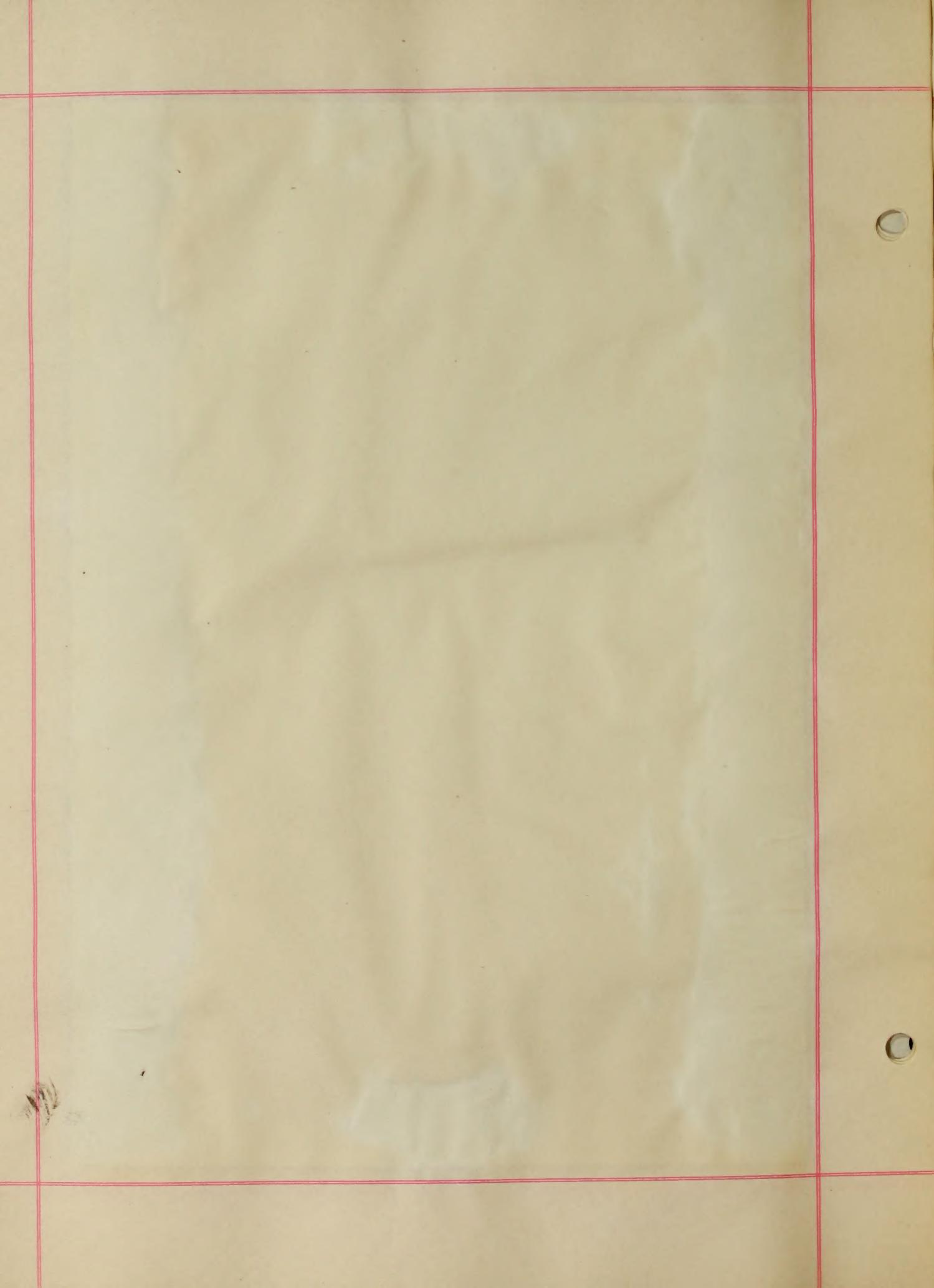


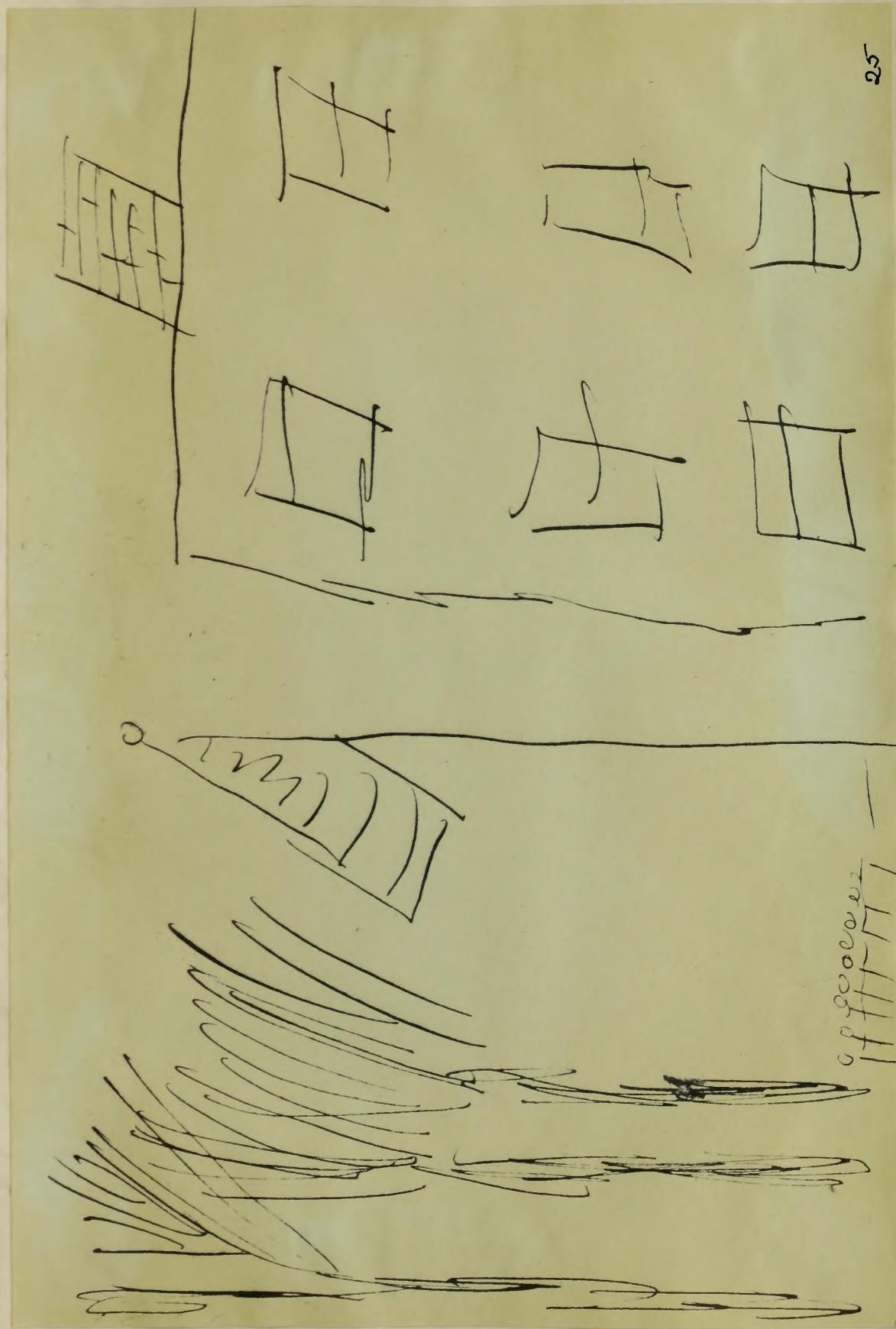
75

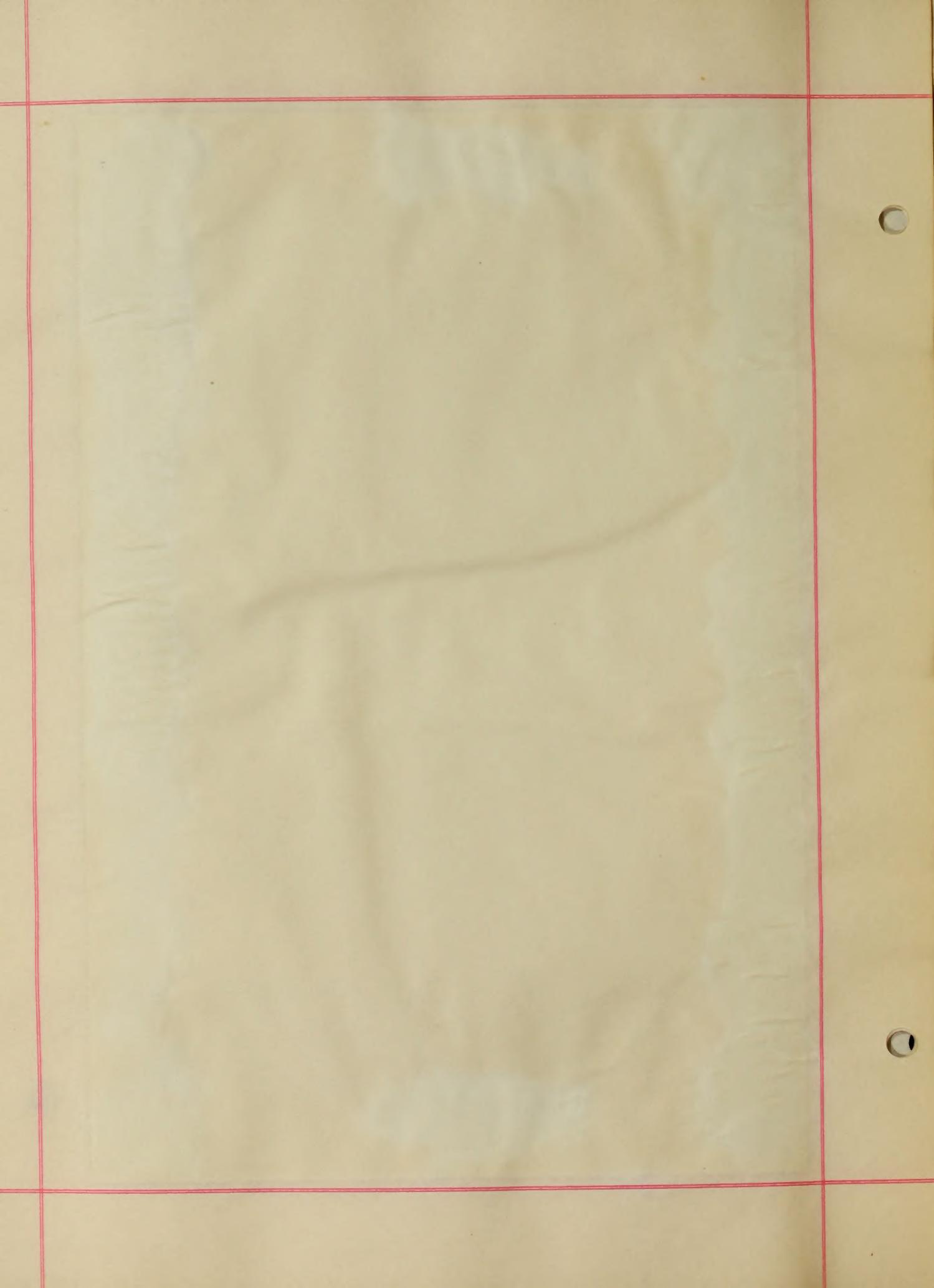


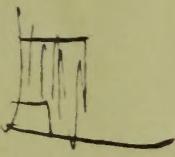




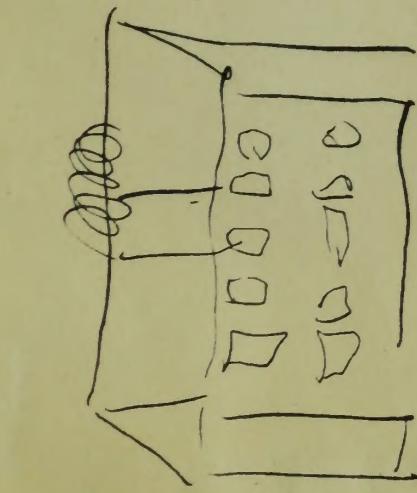
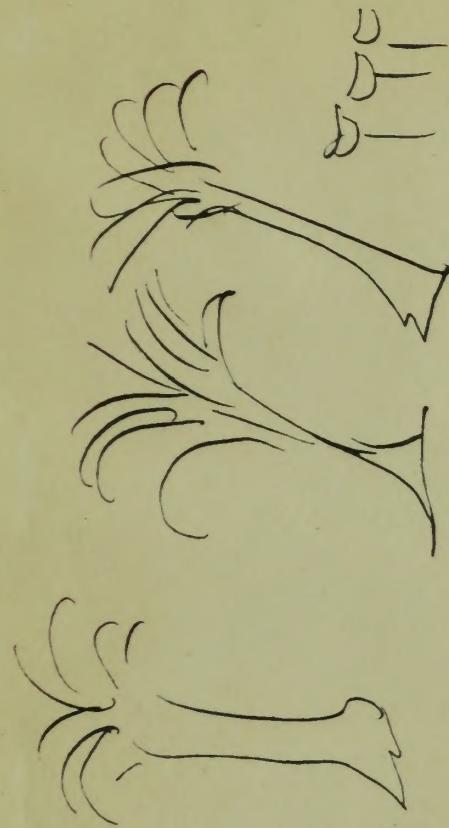


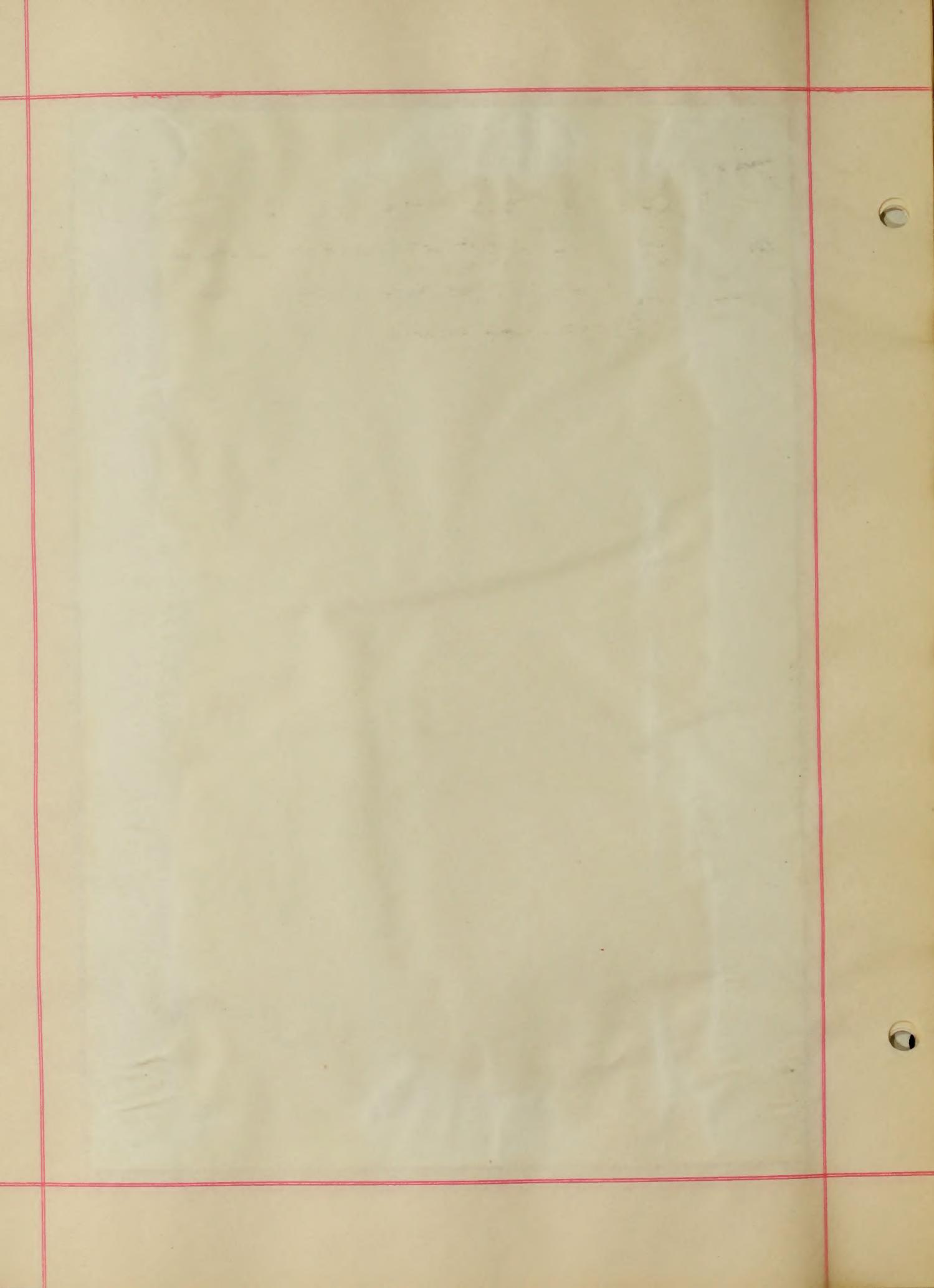






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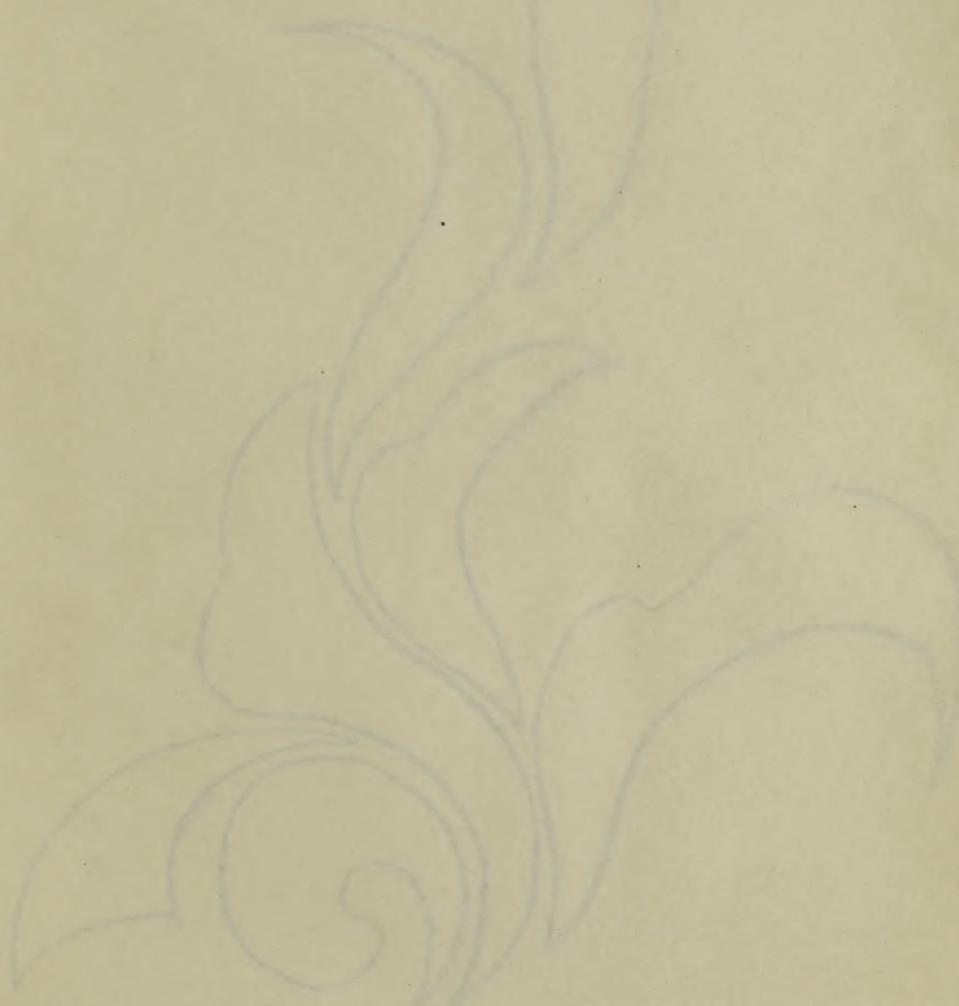




Test no. 9

Score

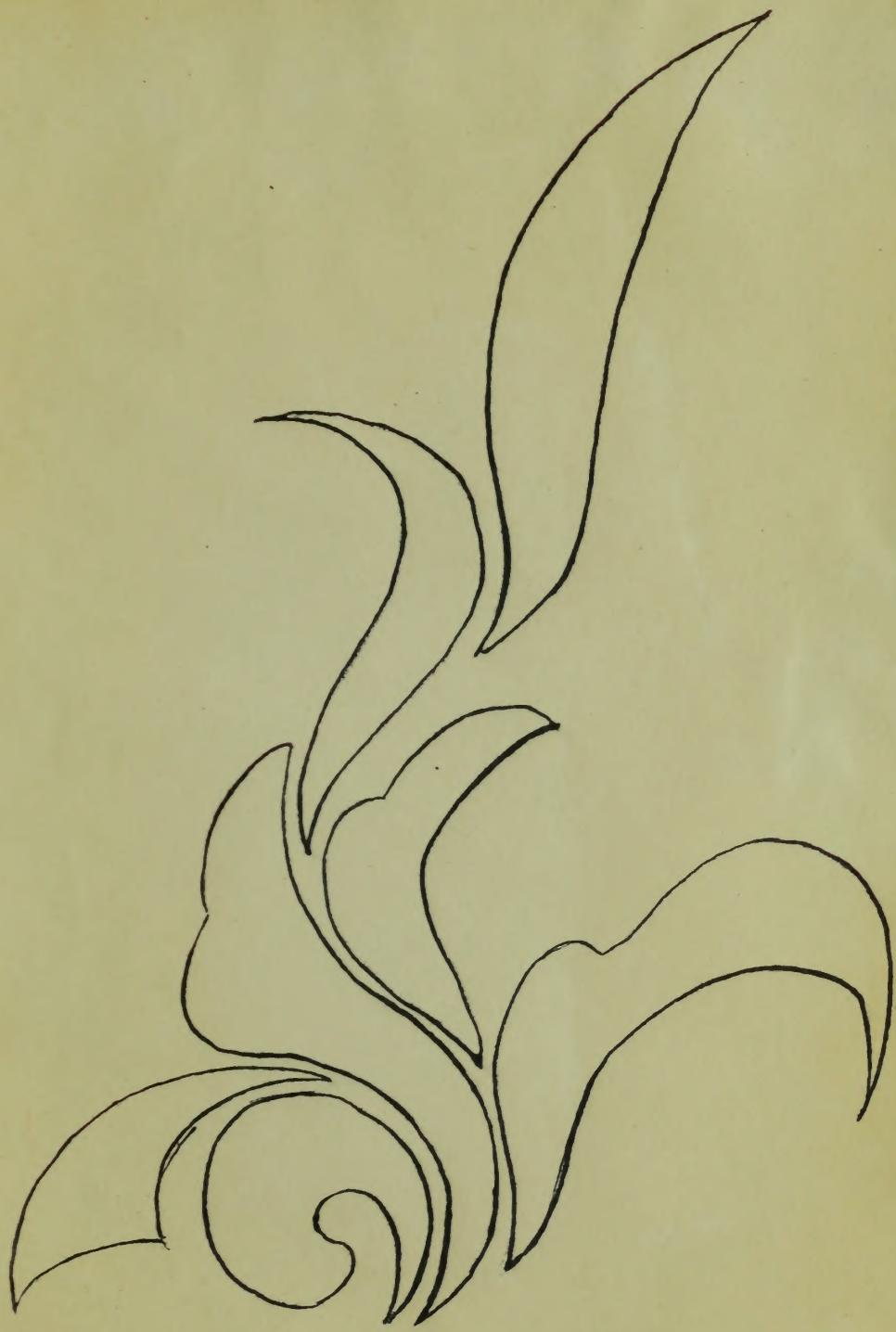
Hold the design next to the samples shown on the following five pages. Find the sample which resembles the drawing in the most respects and record the score found in the lower right corner.

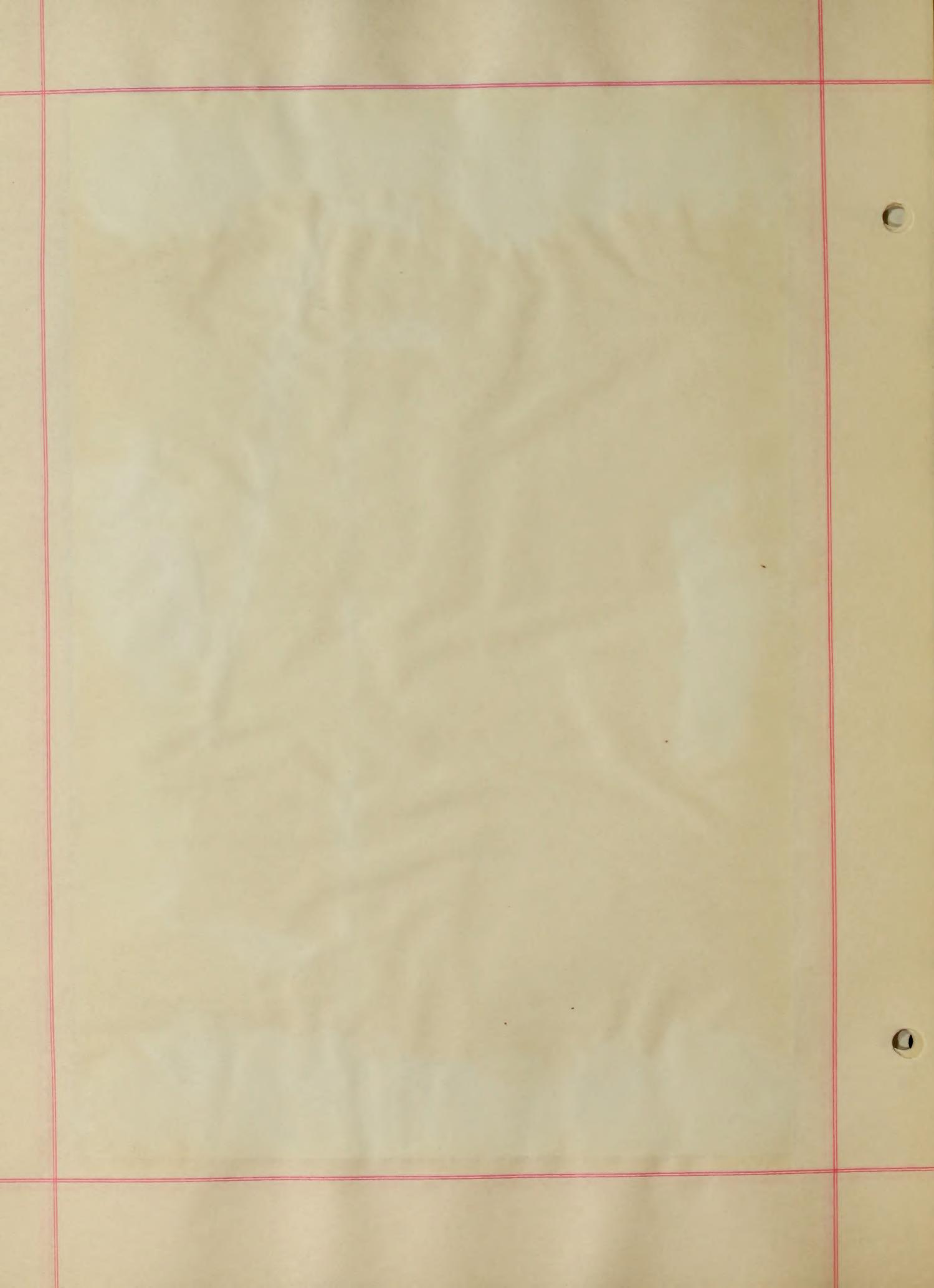


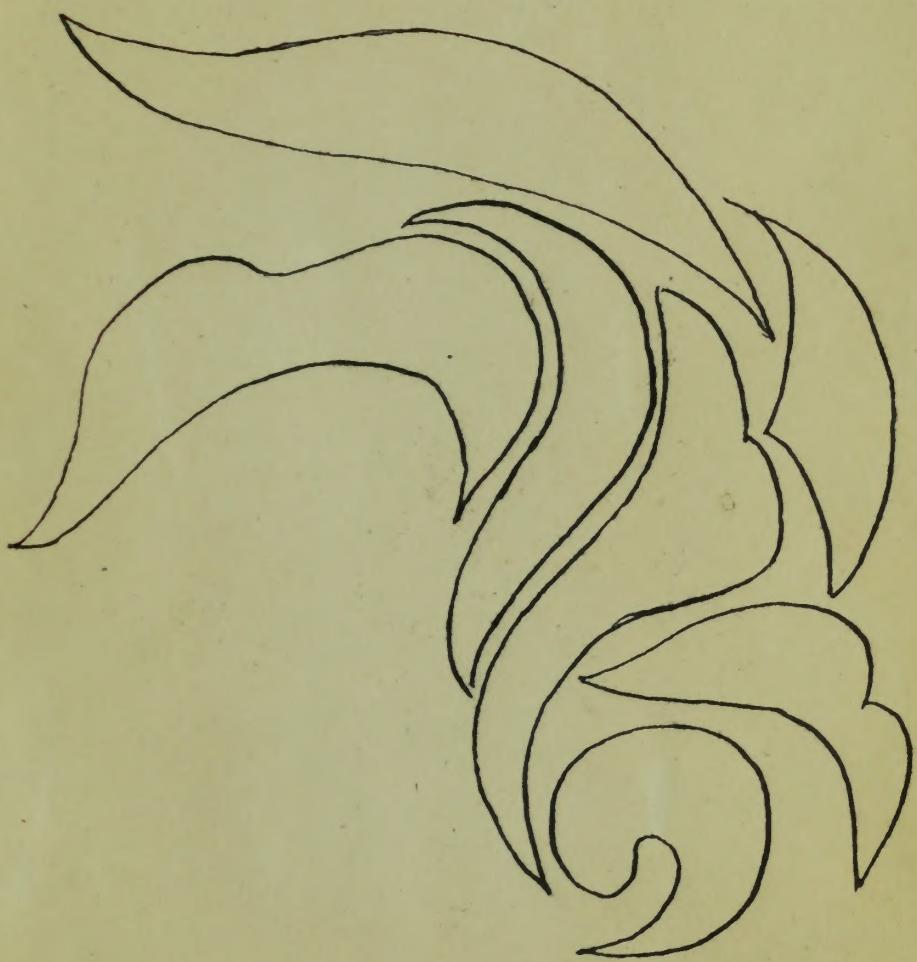
anood

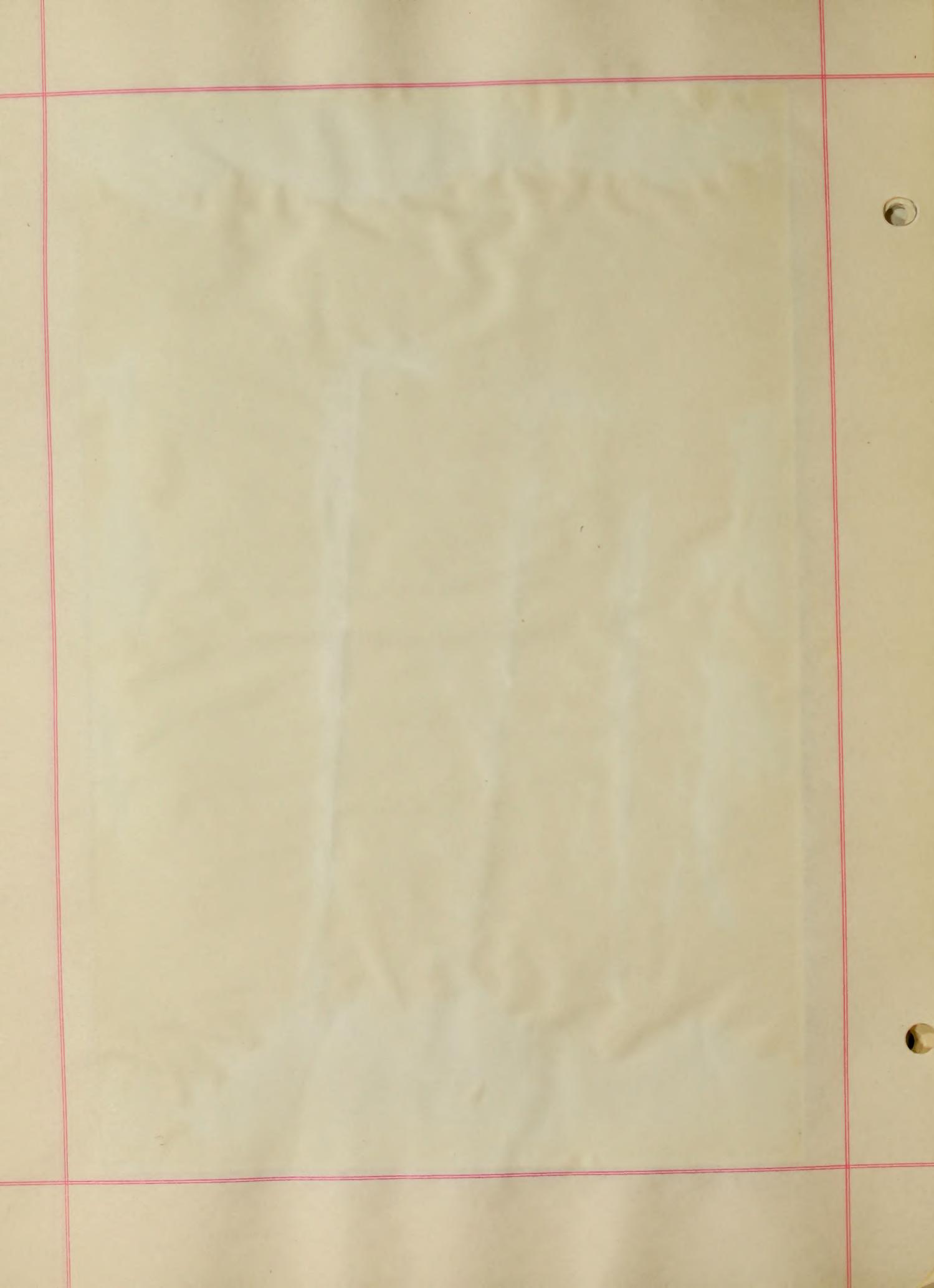
Q. on fast

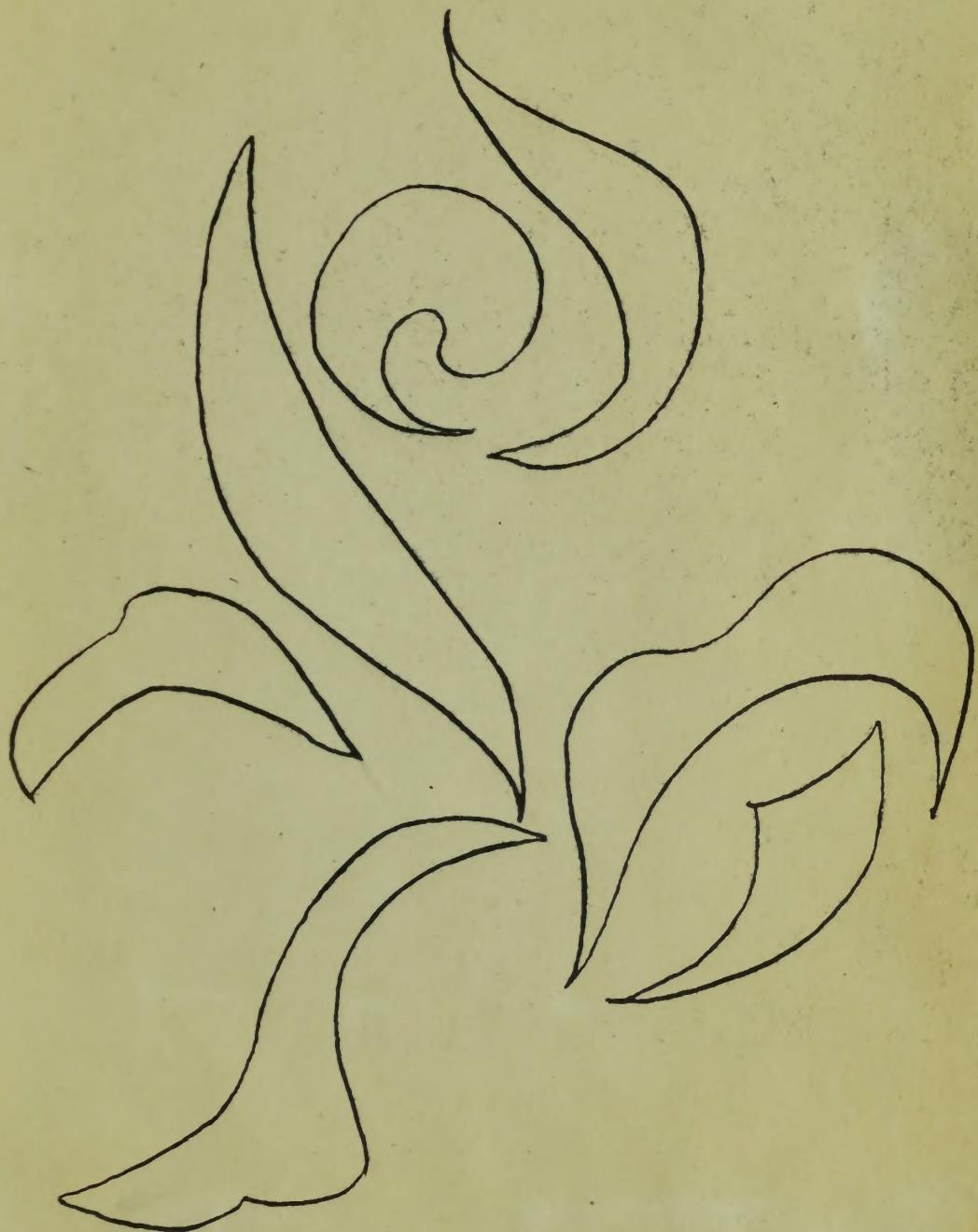
no nwane sefmas enz of xken nylasch enz bion  
noicw sefmas enz baft segaq evit gniwoicit enz  
has atoqasen tuem enz nt grkwatb enz aufdassent  
mentio ragit newol enz ni bawol snooc enz bawen

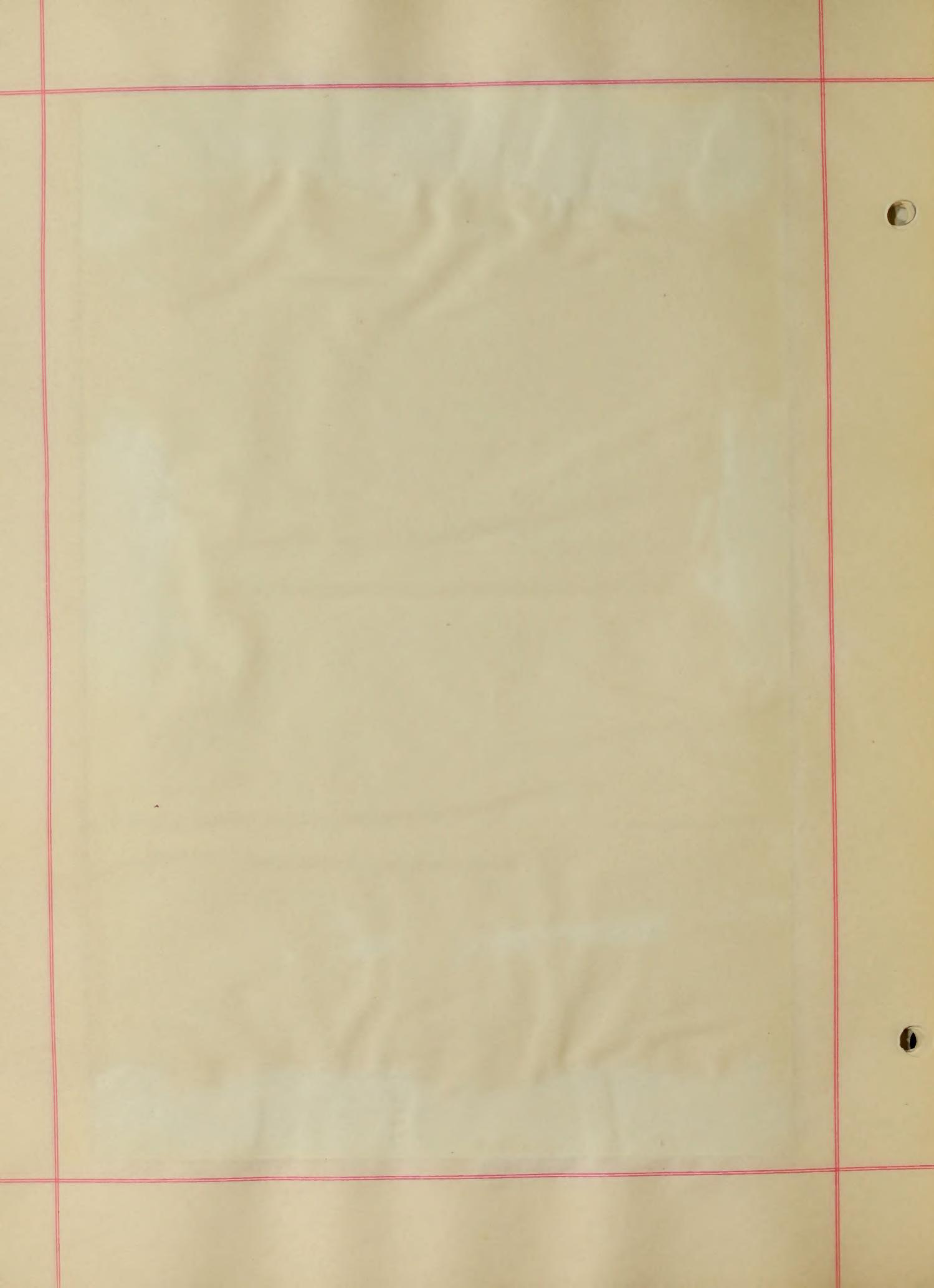


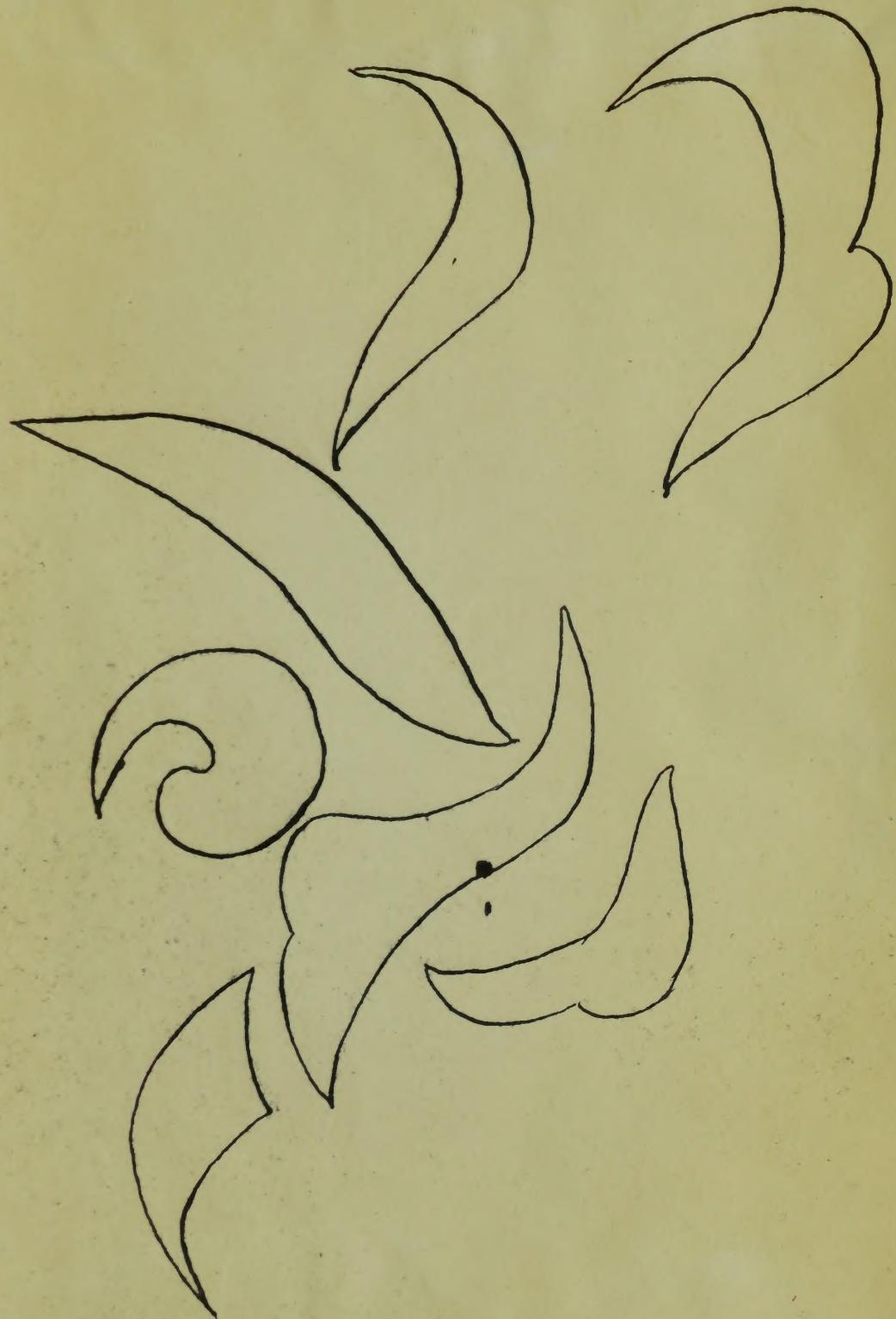


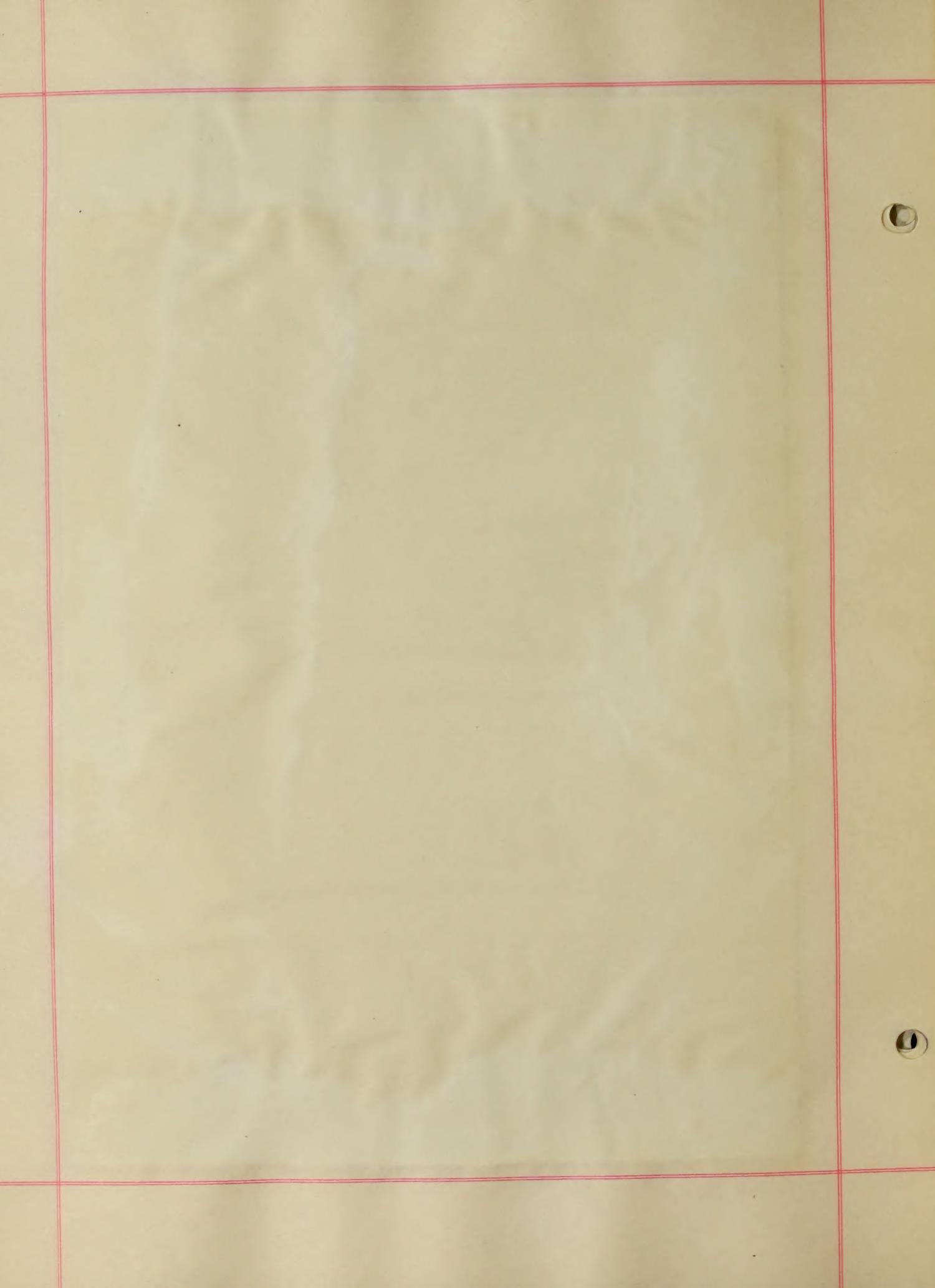


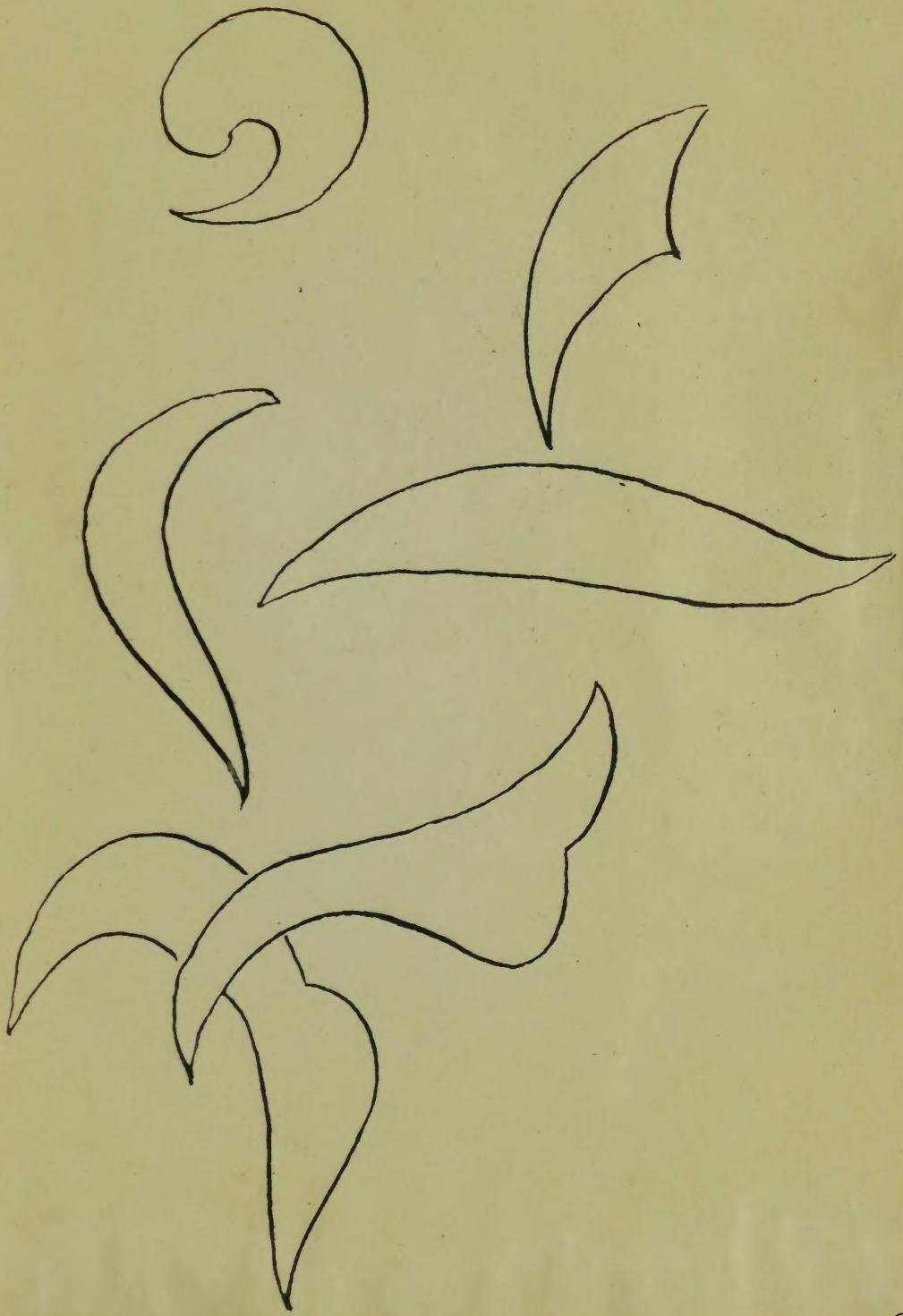


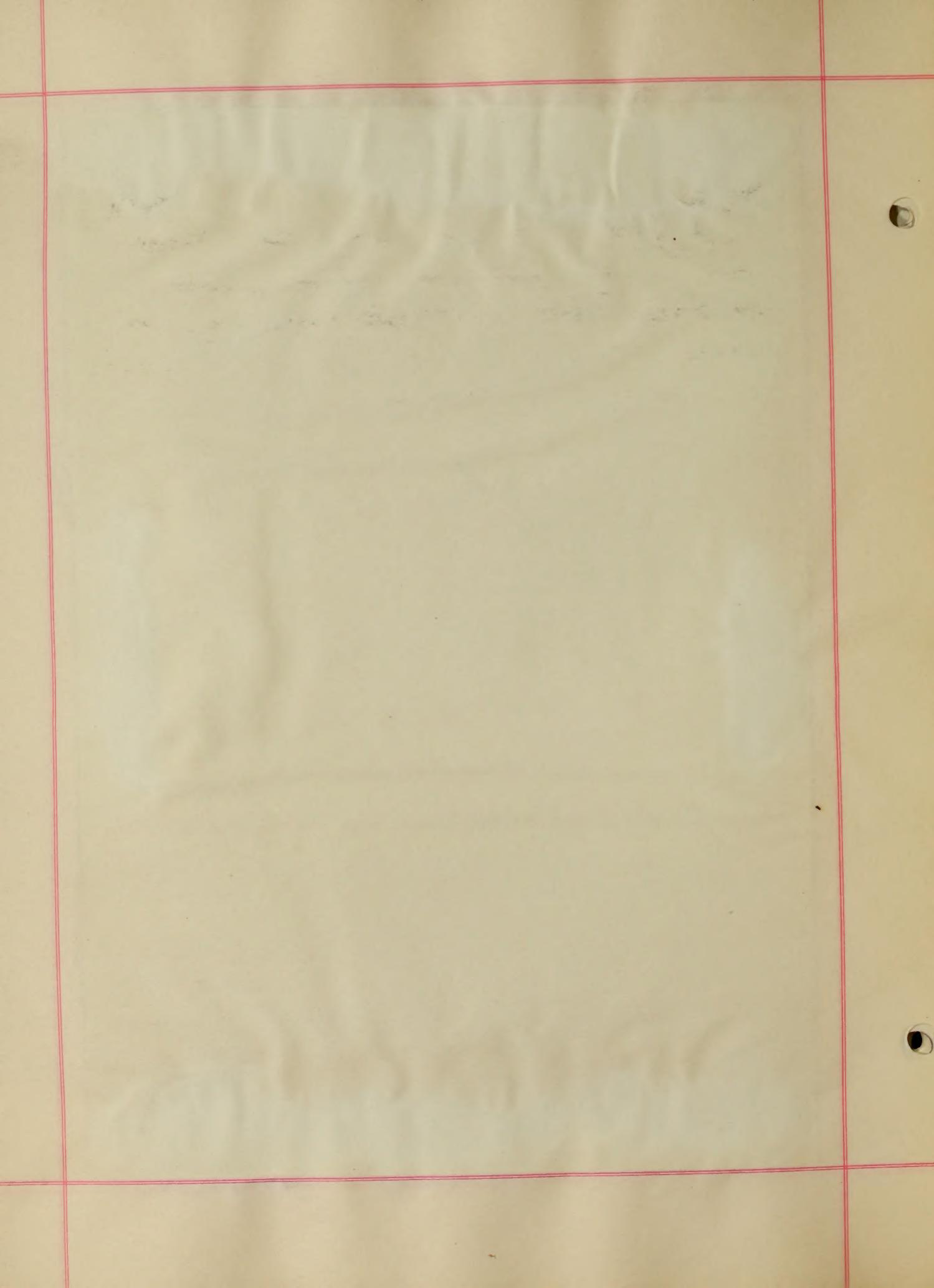








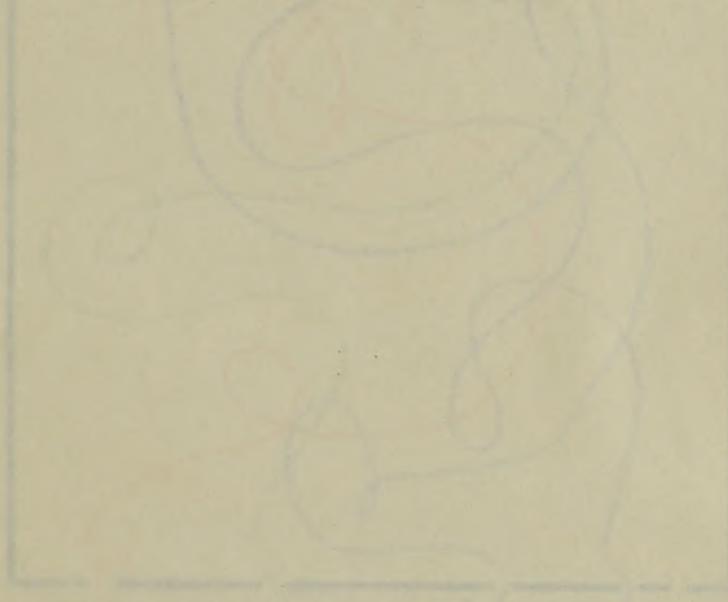




Test no. 10

Score

Compare diagram with that shown on the following page, which shows a perfect score of 100. Each correct name of color and each correct number following it, as shown in sample diagram, scores 10 points. Total score of correct answers and record above.



1 - Green or Yellow Green

2 - Blue

3 - Purple

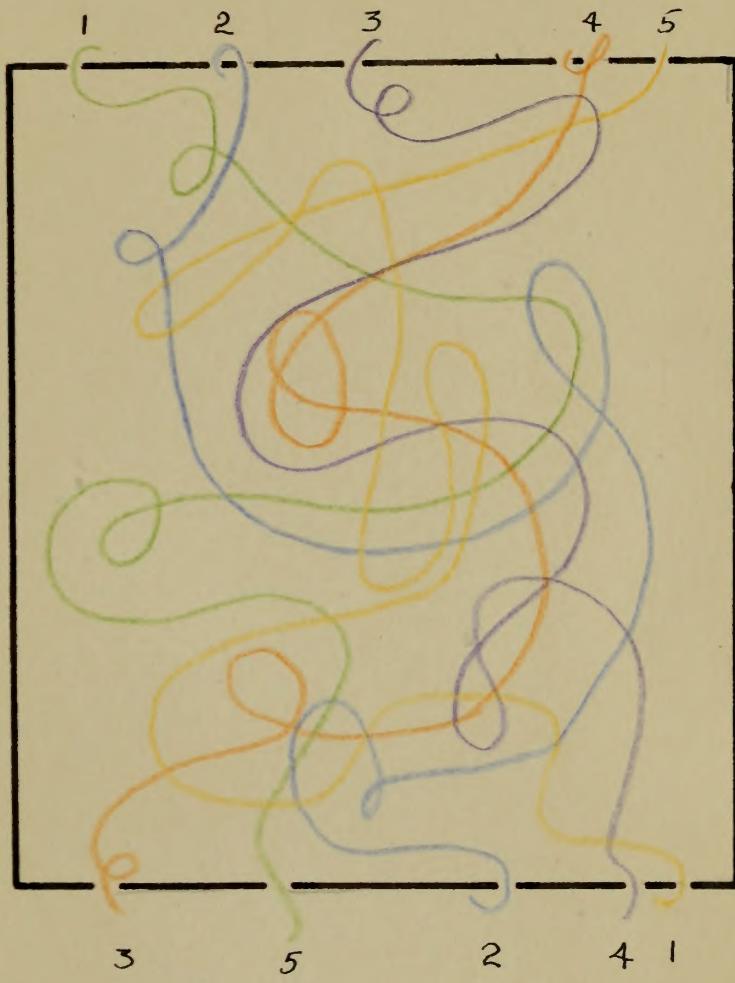
4 - Orange

5 - Yellow

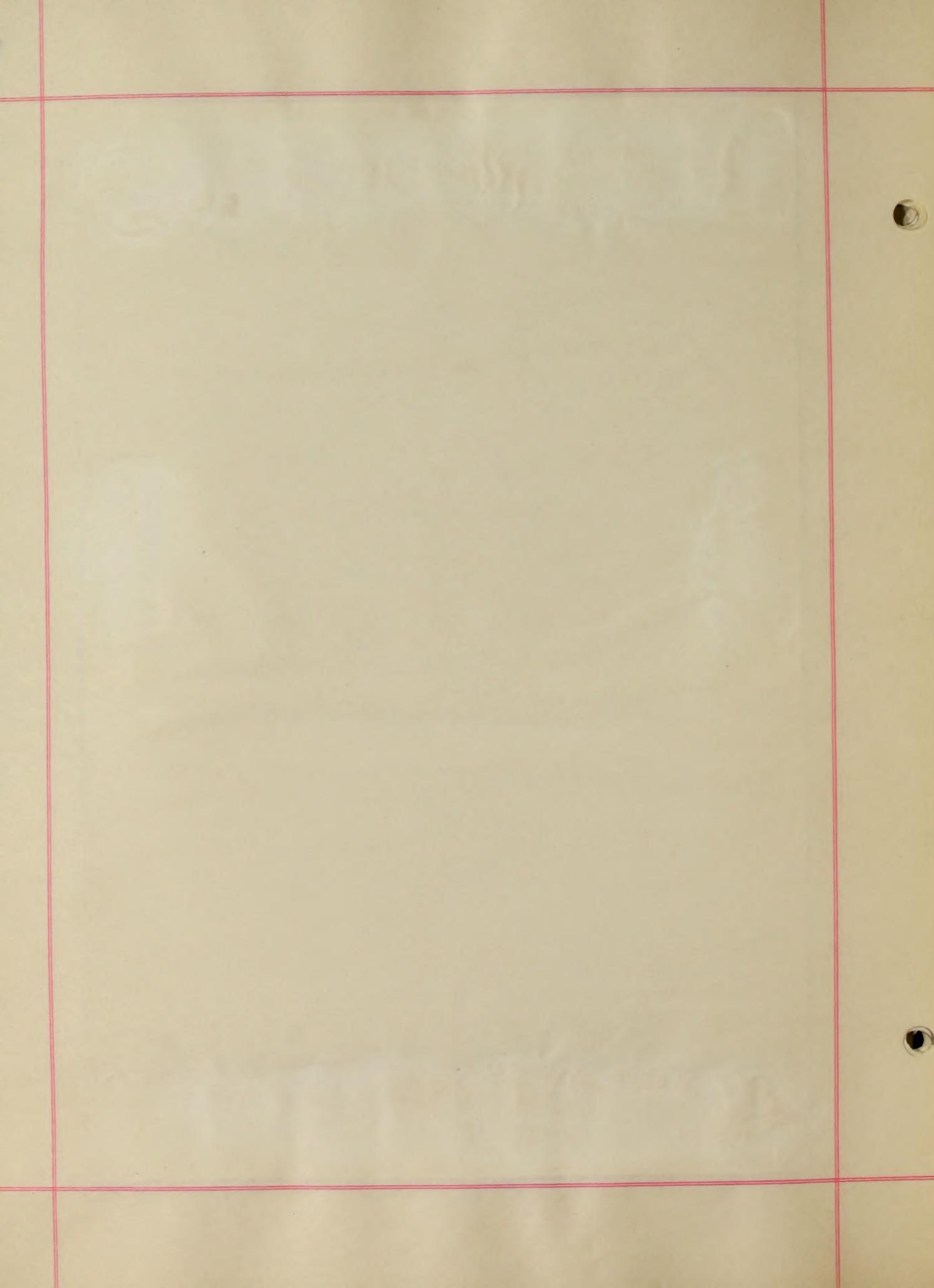
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- |                          |   |
|--------------------------|---|
| 1- Green or Yellow.Green | 5 |
| 2- Blue                  | 2 |
| 3- Purple                | 4 |
| 4- Orange                | 3 |
| 5- Yellow                | 1 |



Test no. 11

Score

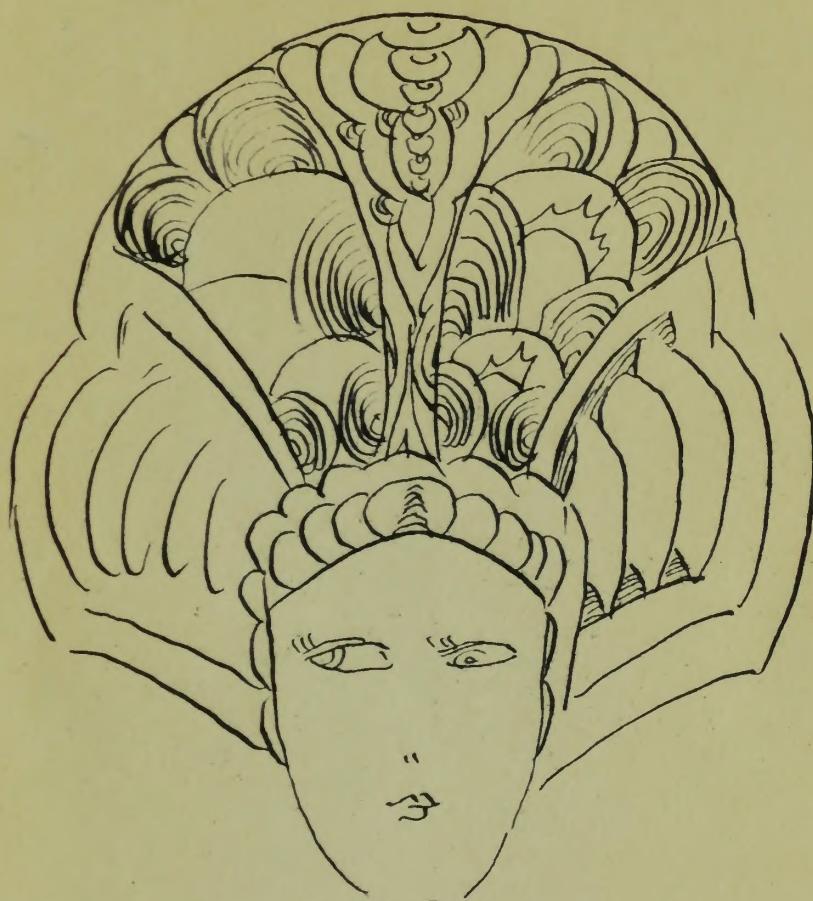
Hold the copied picture next to the samples shown in the following four pages. Find the sample which resembles the drawing at hand in the most respects and record the score found beneath the sample.

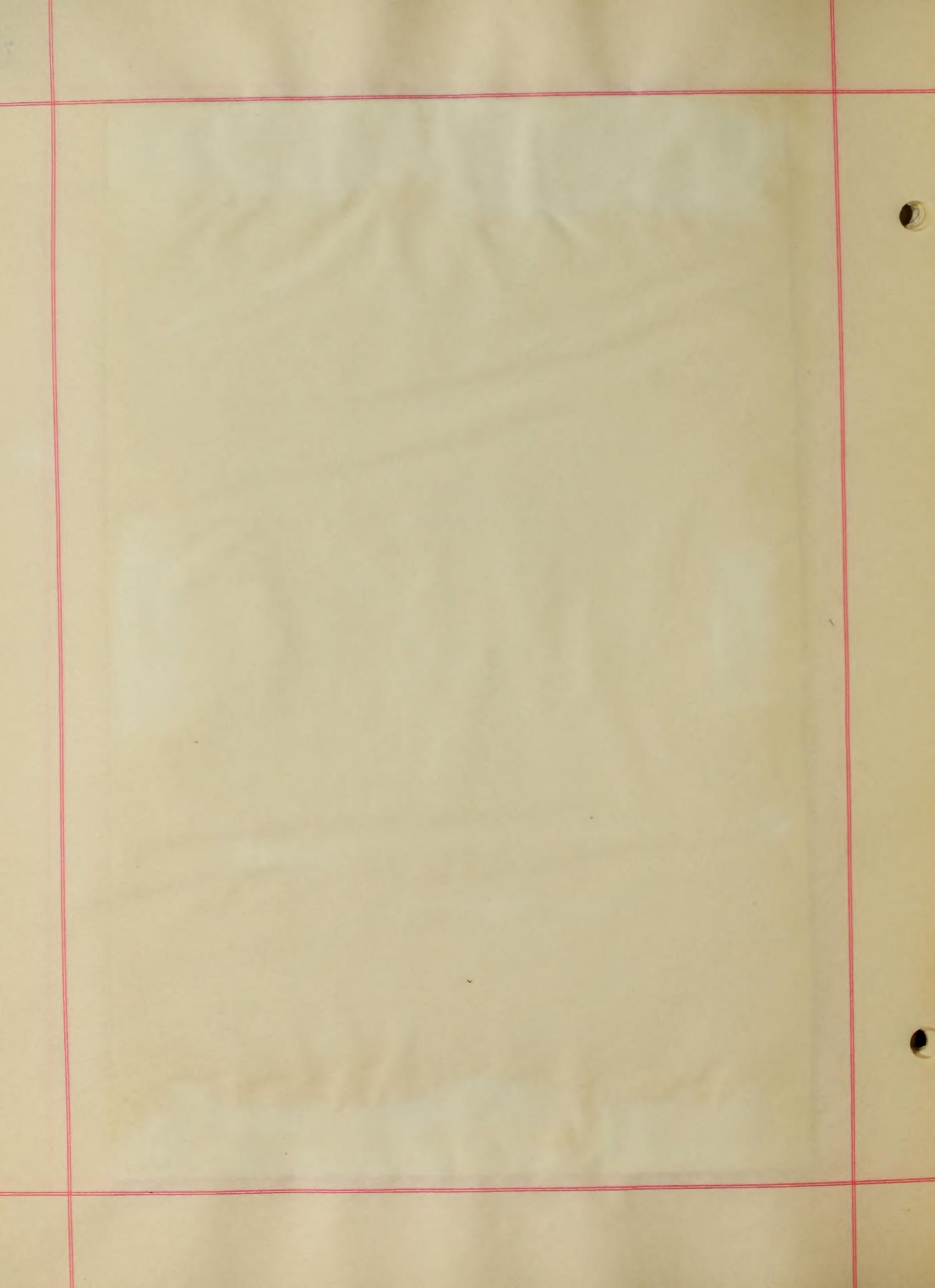


score

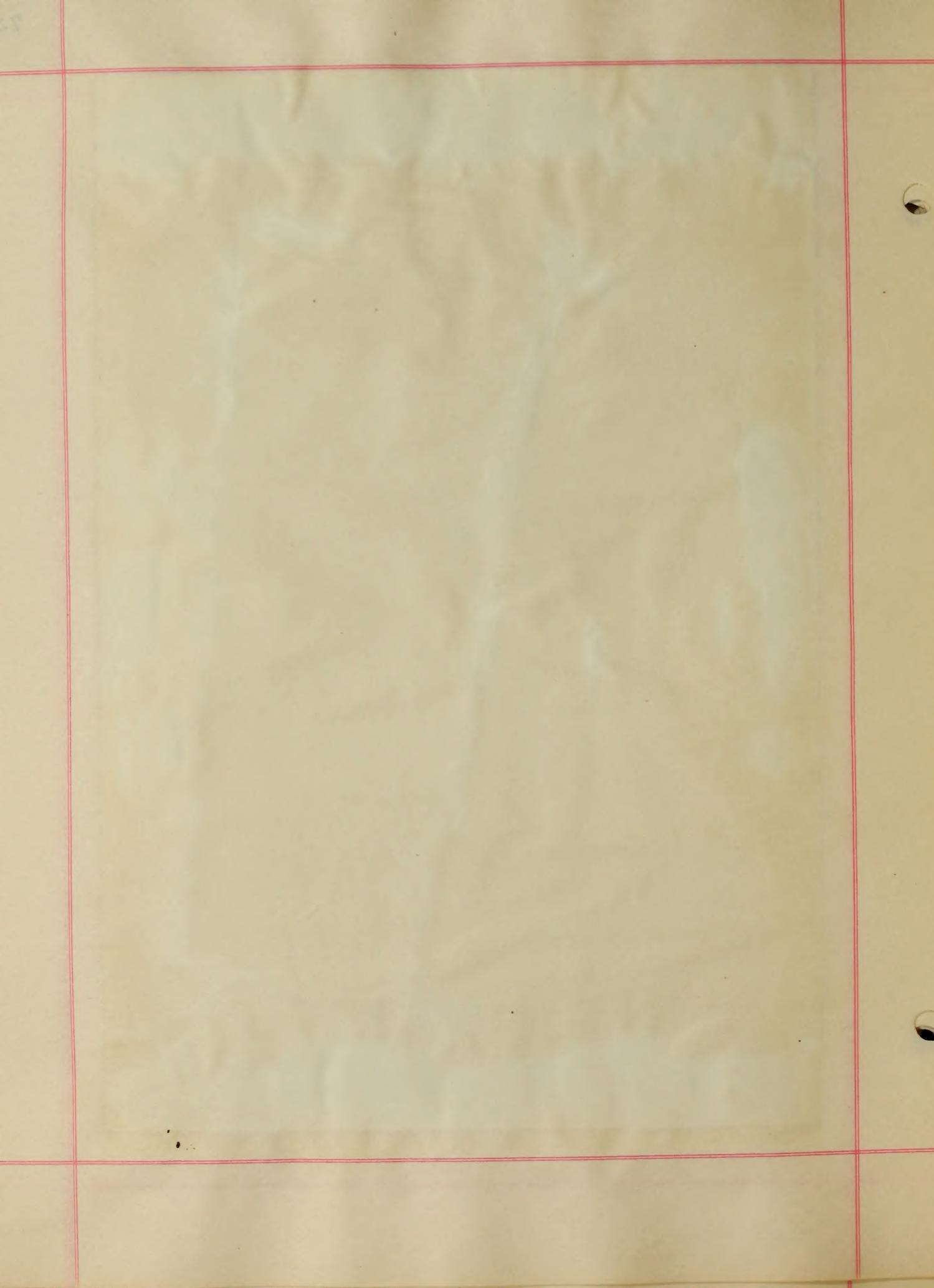
if on set

several sets of track markings being set by  
elk and bison. These two animals are at present  
not seen and it was to identify and determine which  
elk set these tracks since the tracks had been

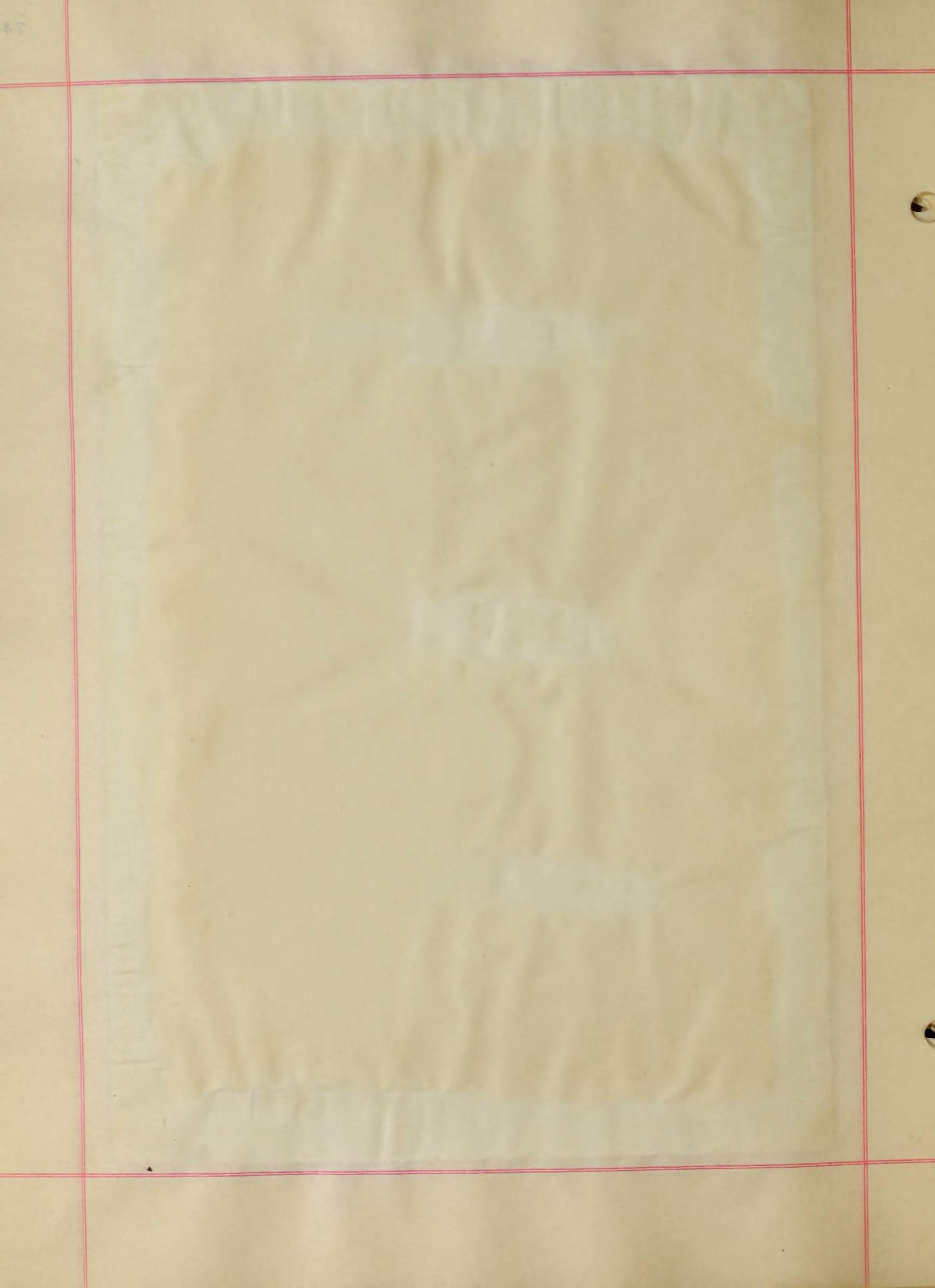


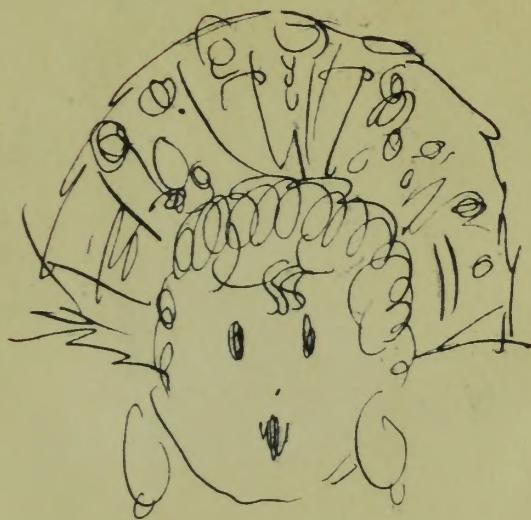


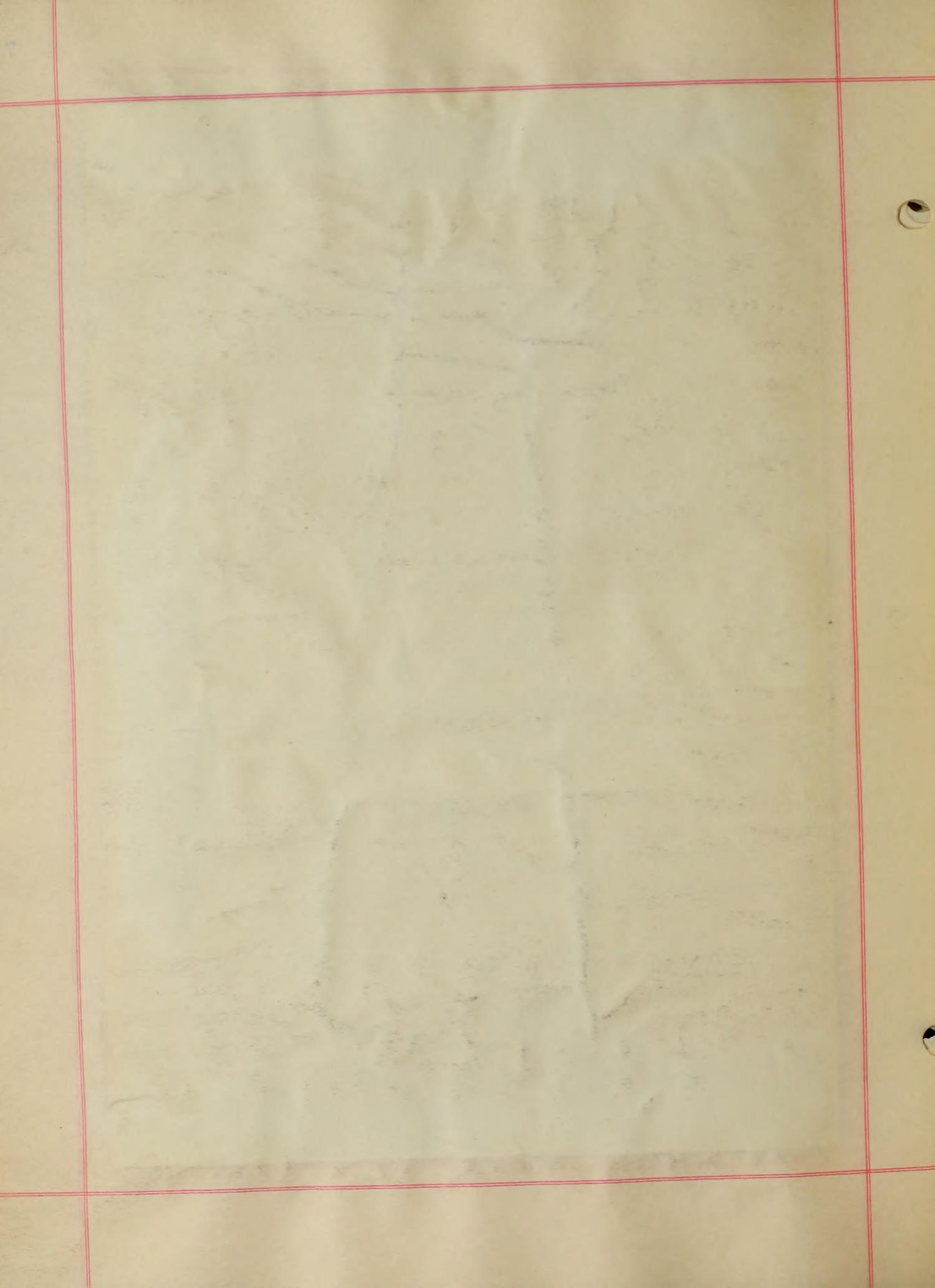












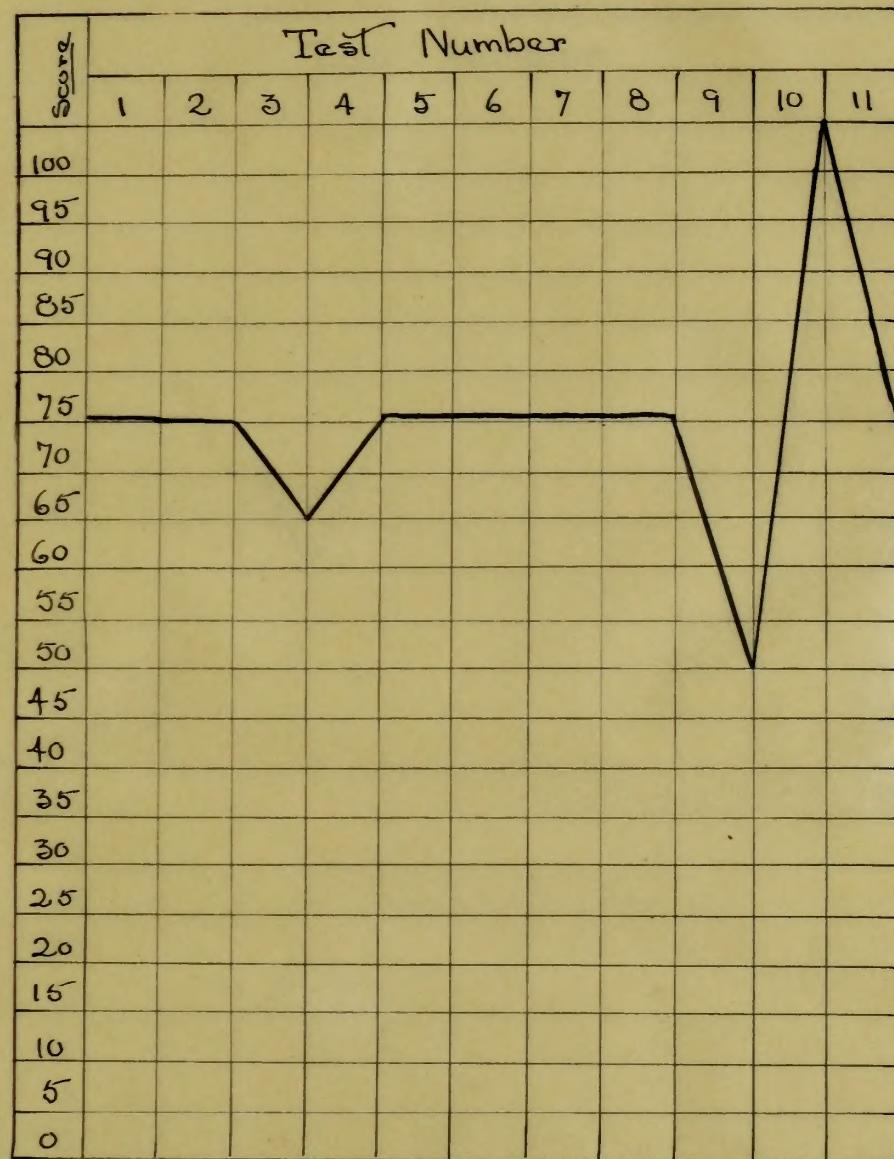
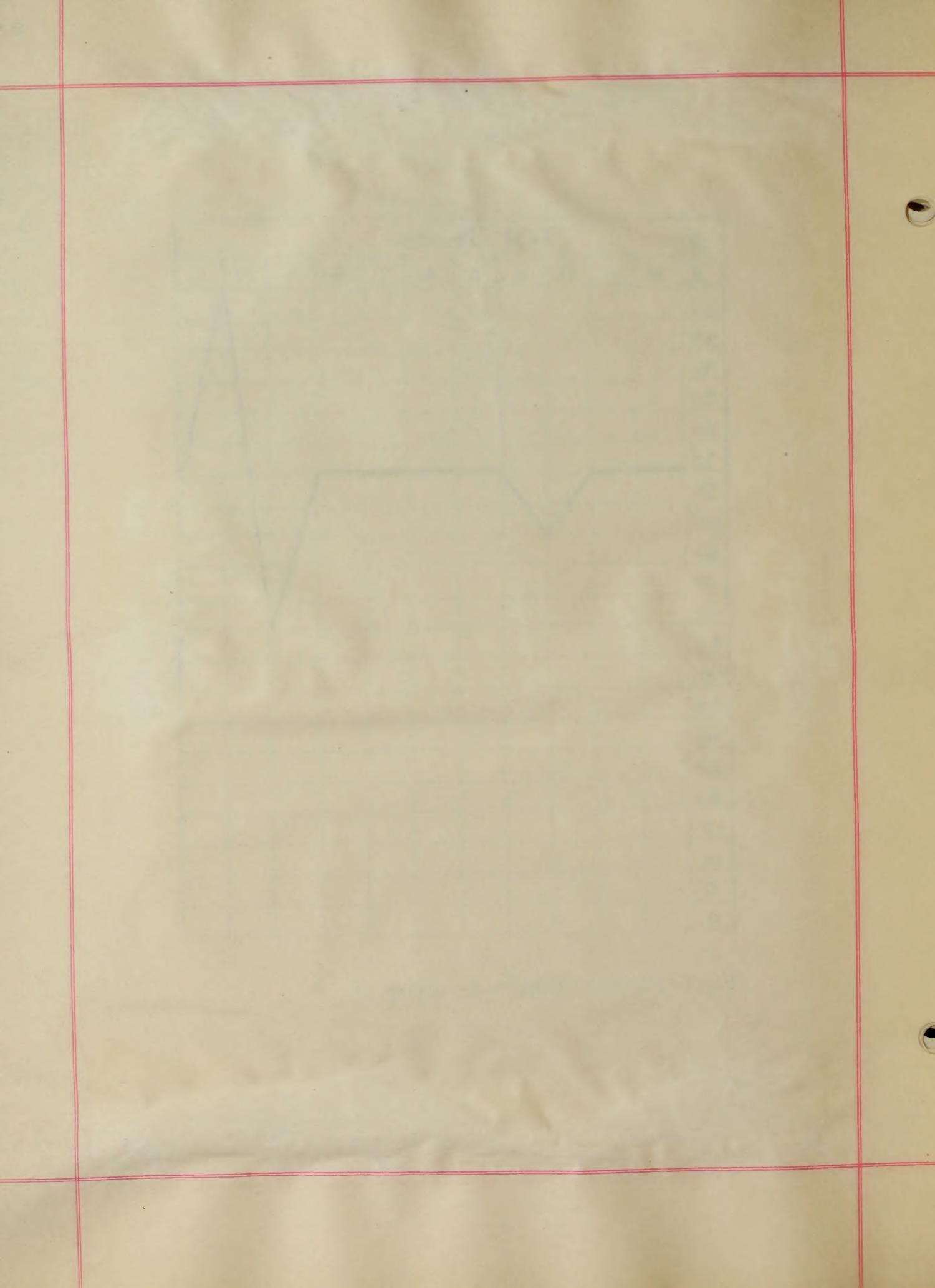


Fig. 1.- Median Pattern for Grade 7



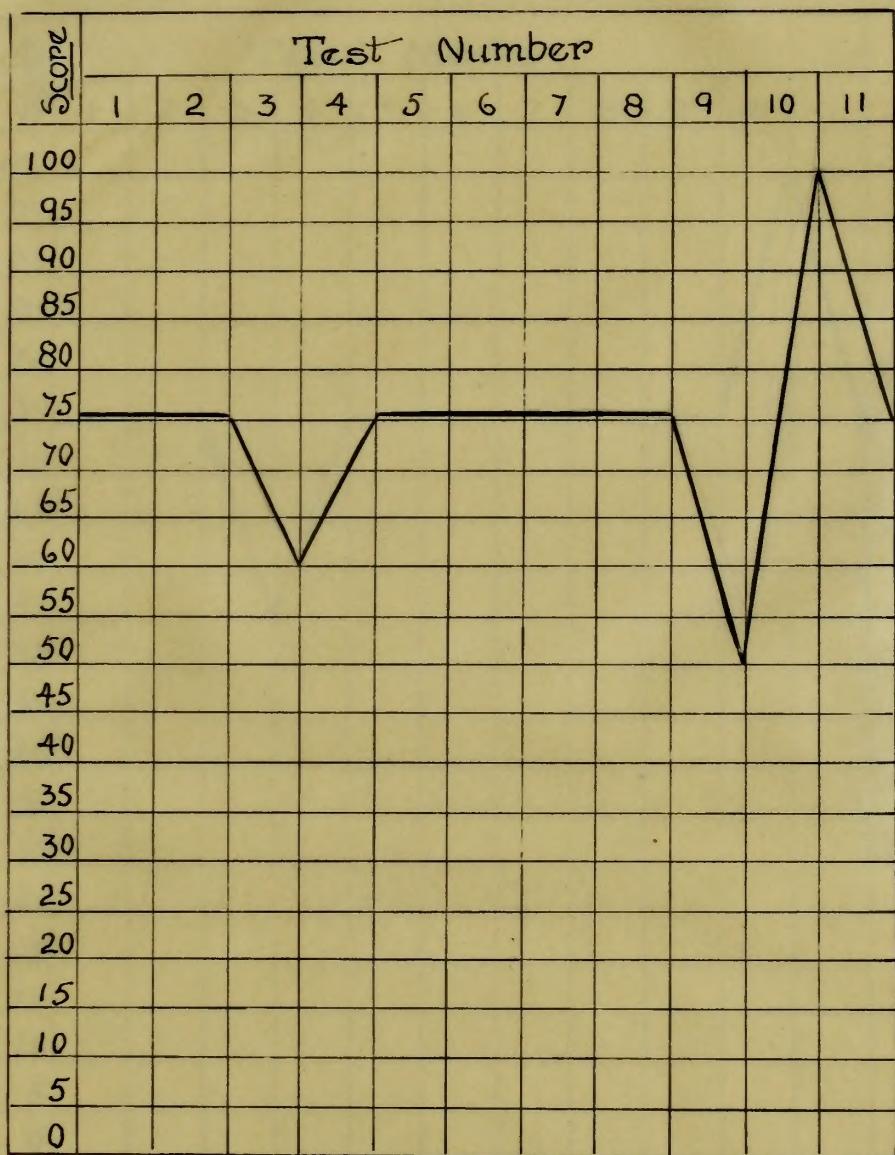
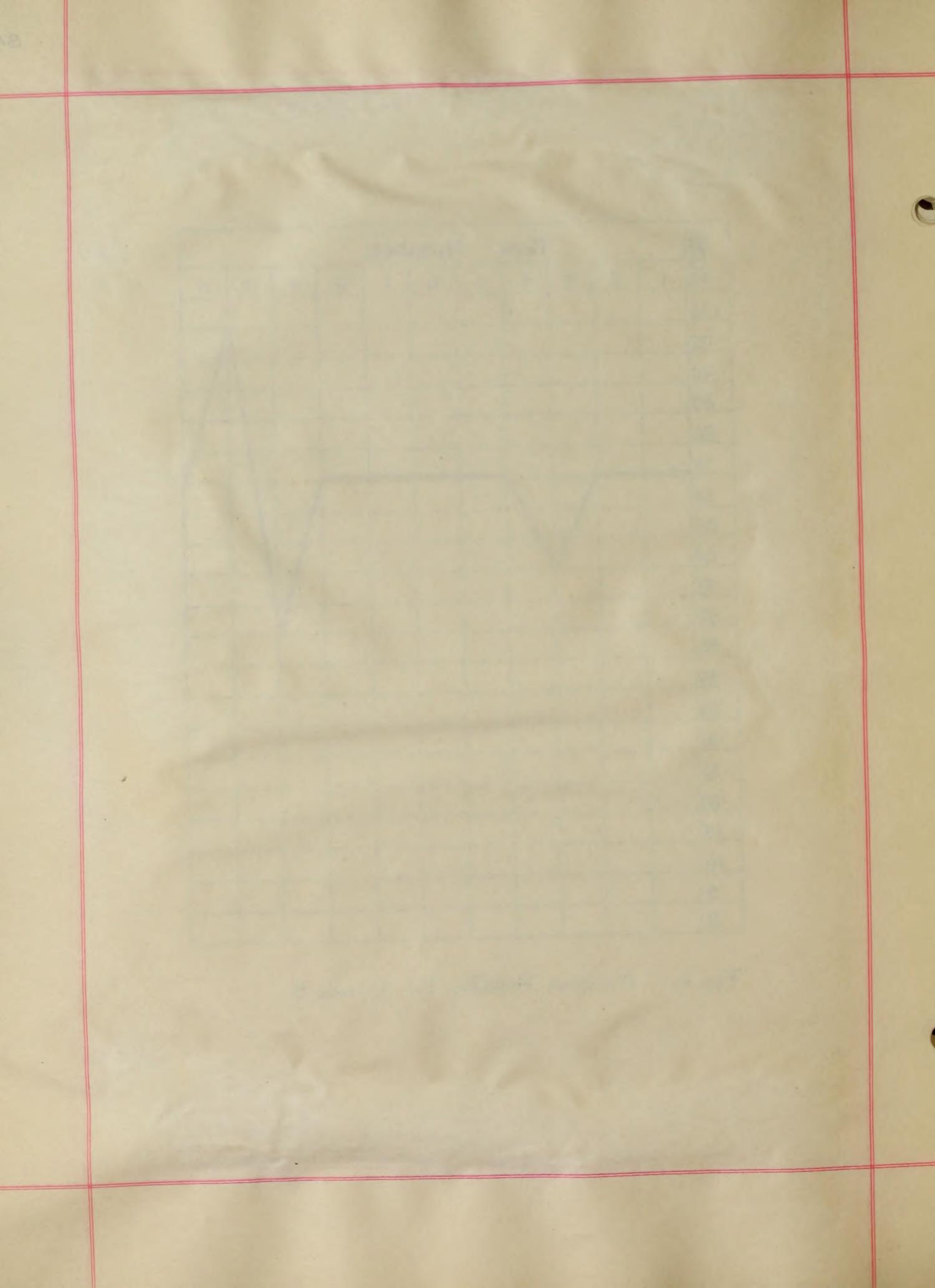


Fig. 2. — Median Pattern for Grade 8



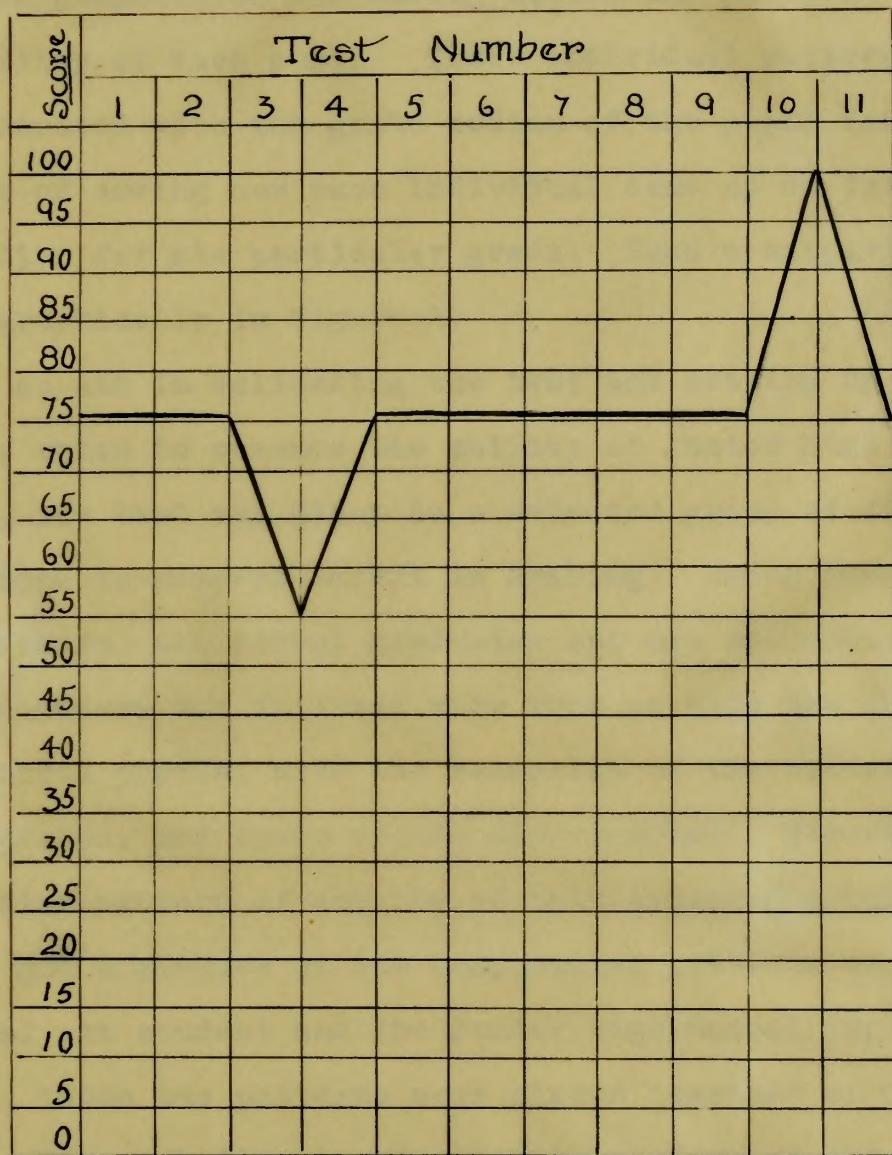
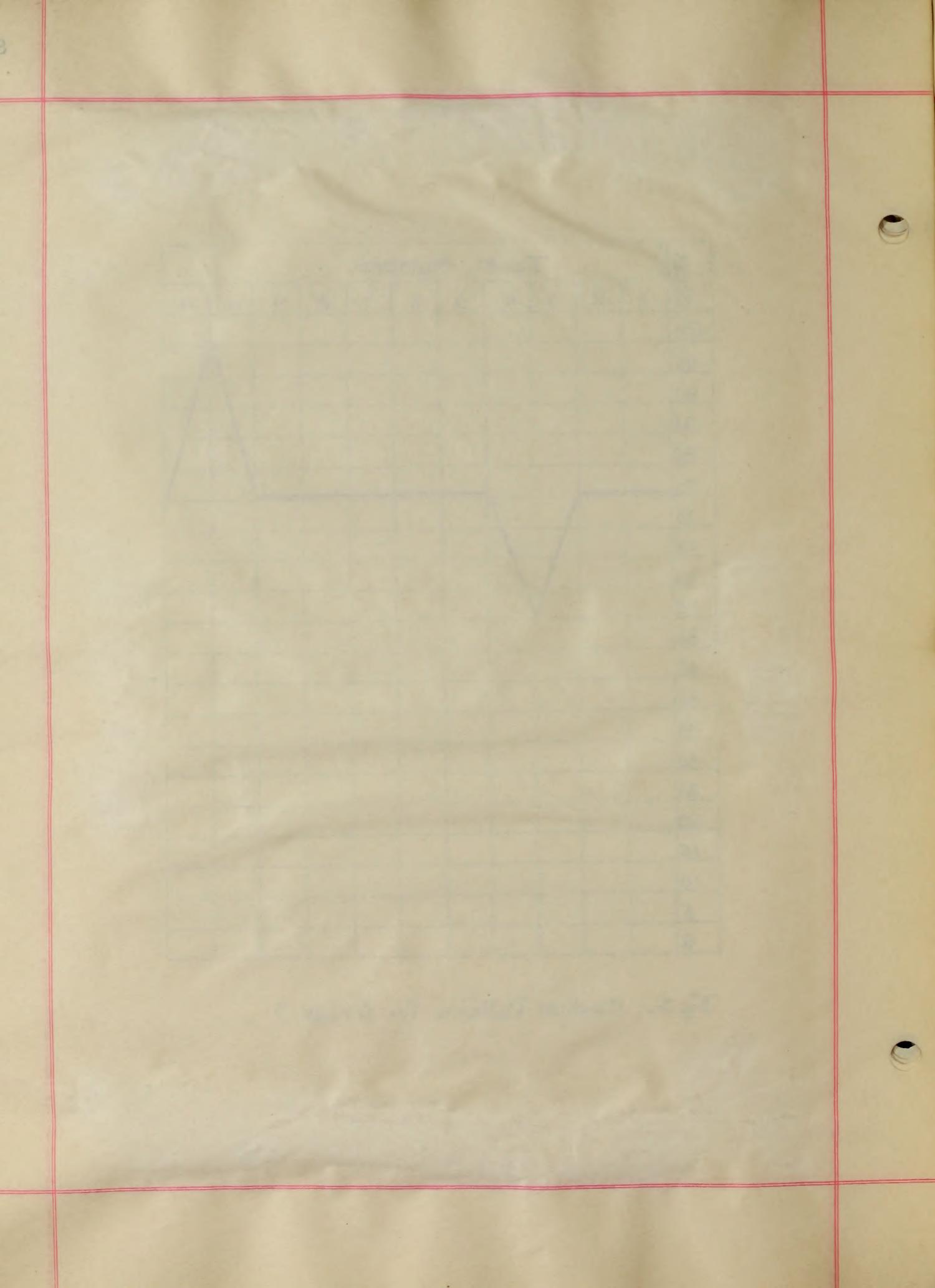


Fig. 30.— Median Pattern for Grade 9



Next, each student's entire test was gathered together and scores recorded consecutively on a separate sheet of paper in preparation for making individual patterns of the art ability of each pupil. These individual patterns were then compared with the grade median of the pupil for the purpose of seeing how each individual came up or fell below the median for his particular grade. Such a comparison is shown graphically in Figure 4.

As an aid in validating the test and setting up a pattern by which to measure the ability of Junior High School pupils, the test was given to a selected group of fifty persons known to possess talent in drawing. Among them were art teachers, art school graduates and art students. The same procedure was followed with them as with the Junior High School pupils, with the exception of the division into grade groups, and their scores were graphed. Figure 5 shows the median pattern of ability of this selected group.

To get a picture of the comparative patterns of the individual art student and the Junior High School pupil of ability, these two patterns were placed together on the same graph. Figure 6 illustrates this comparison of the two individual patterns along with the median pattern of the selected group. It is quite obvious that an individual pattern of ability will vary to a considerable degree, in some cases, from the median pattern of its class.

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which and this as more this because and stimulates does  
and available and to maximize and this , high content high  
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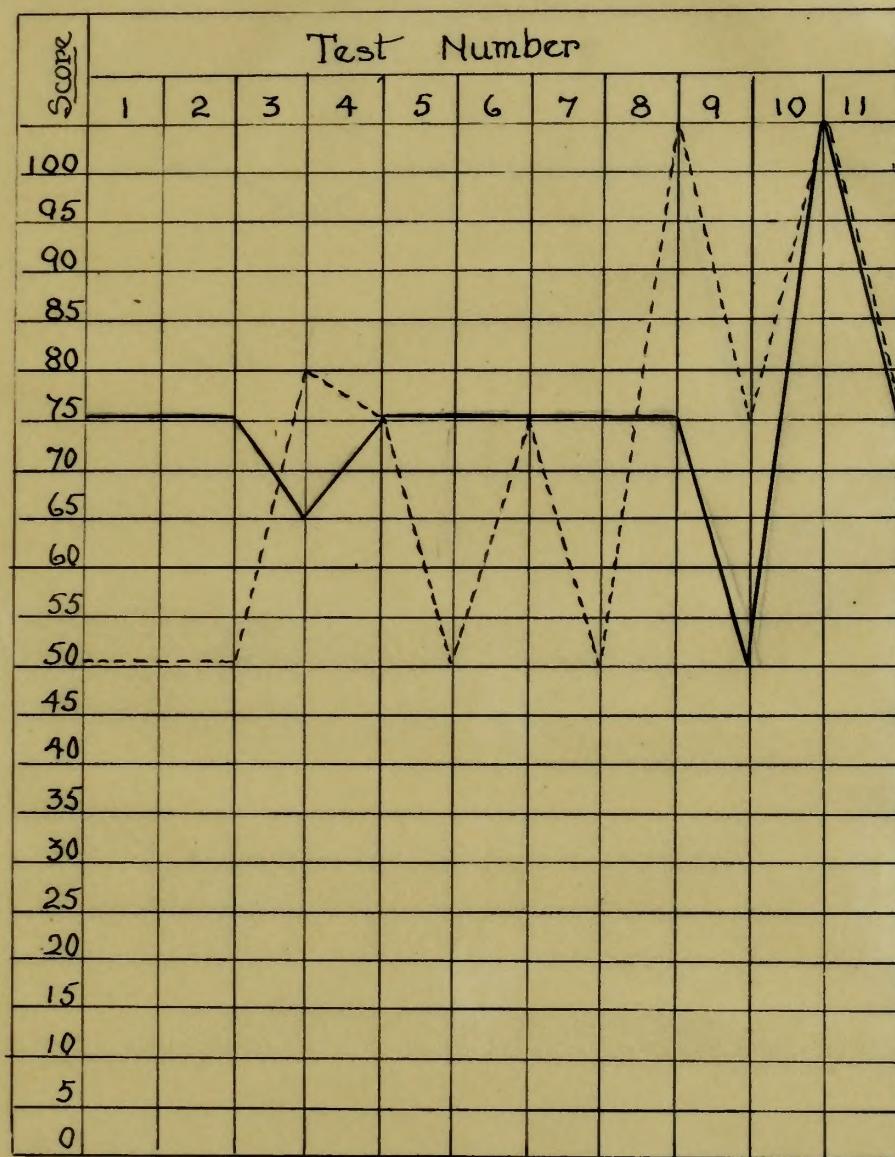
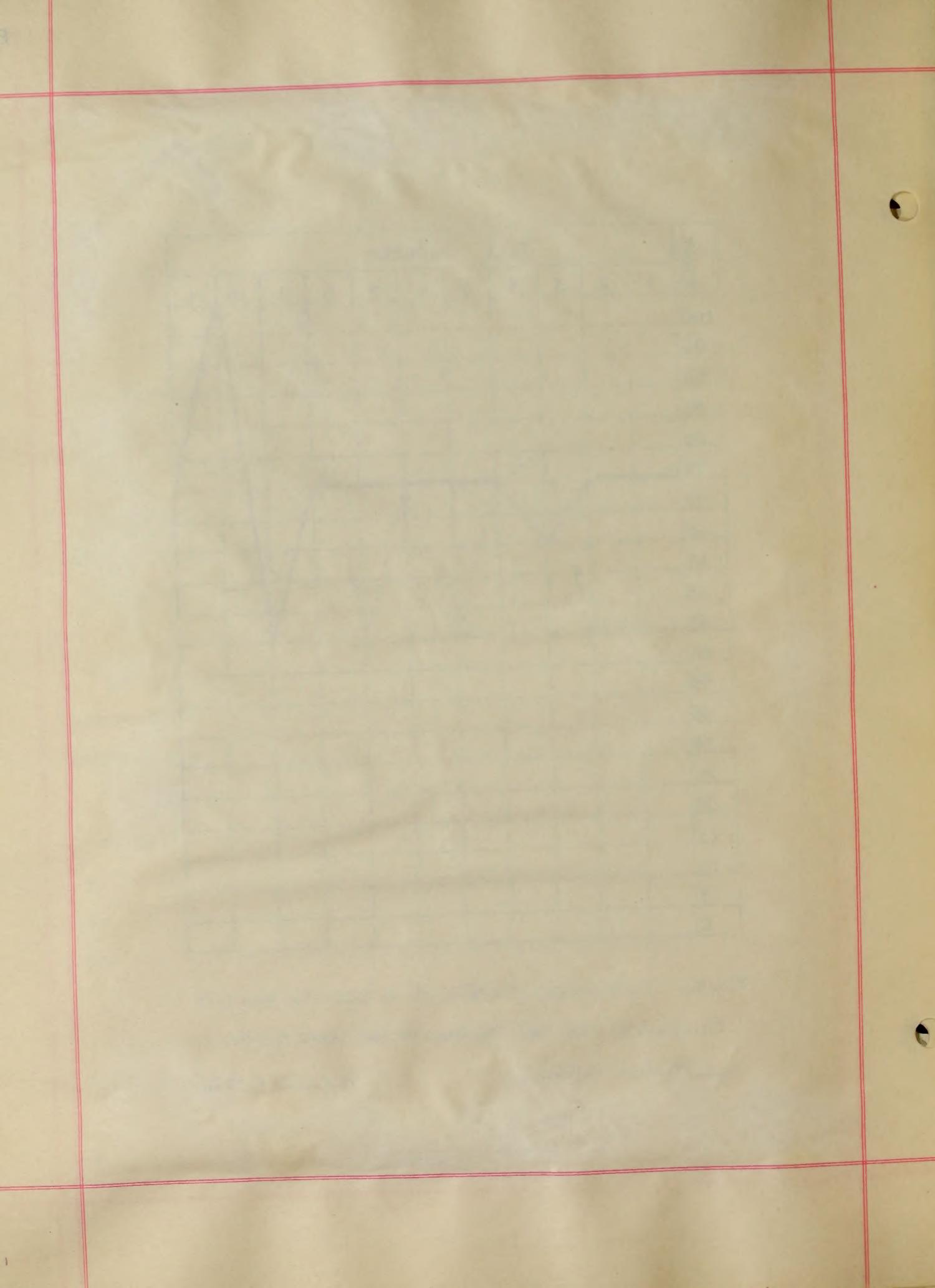


Fig. 40.— Individual Pattern of a Pupil in Grade 7

Compared with the Median of the same grade.

— Median Pattern

---- Individual Pattern



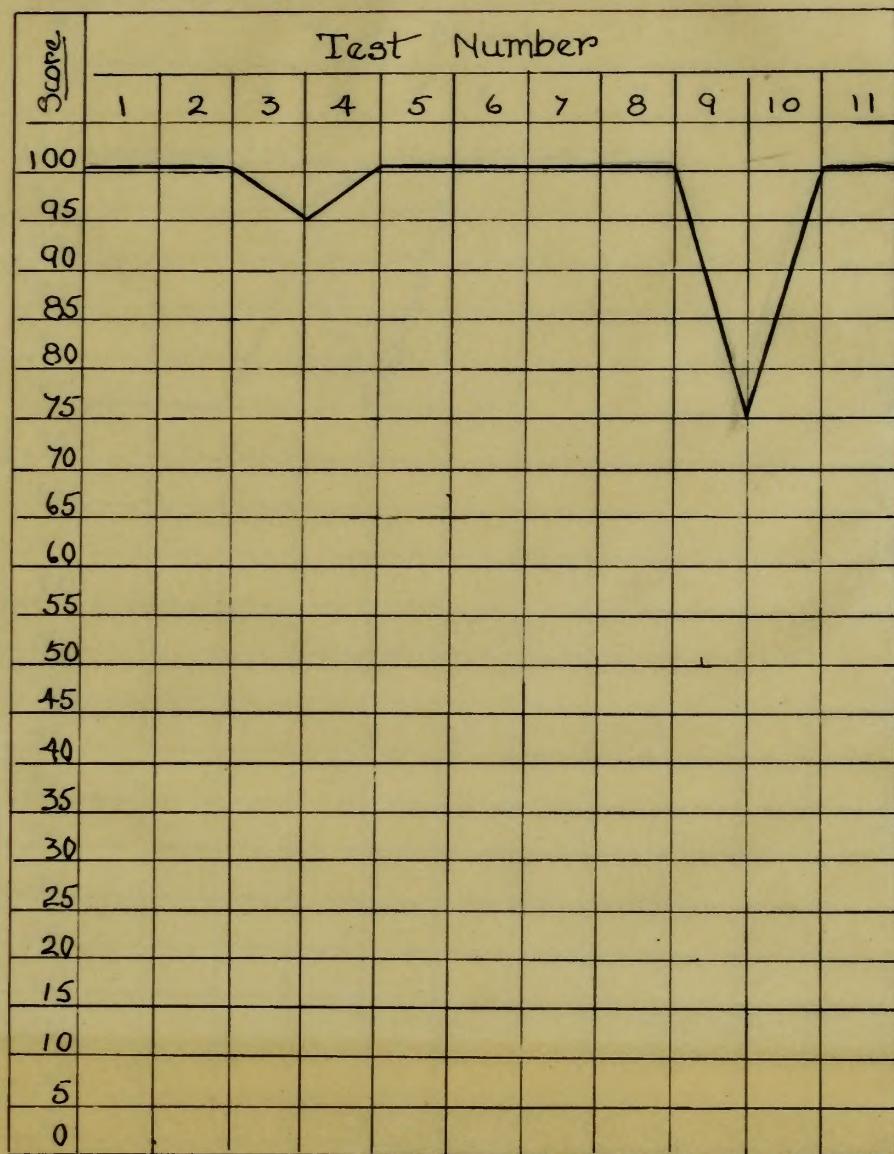
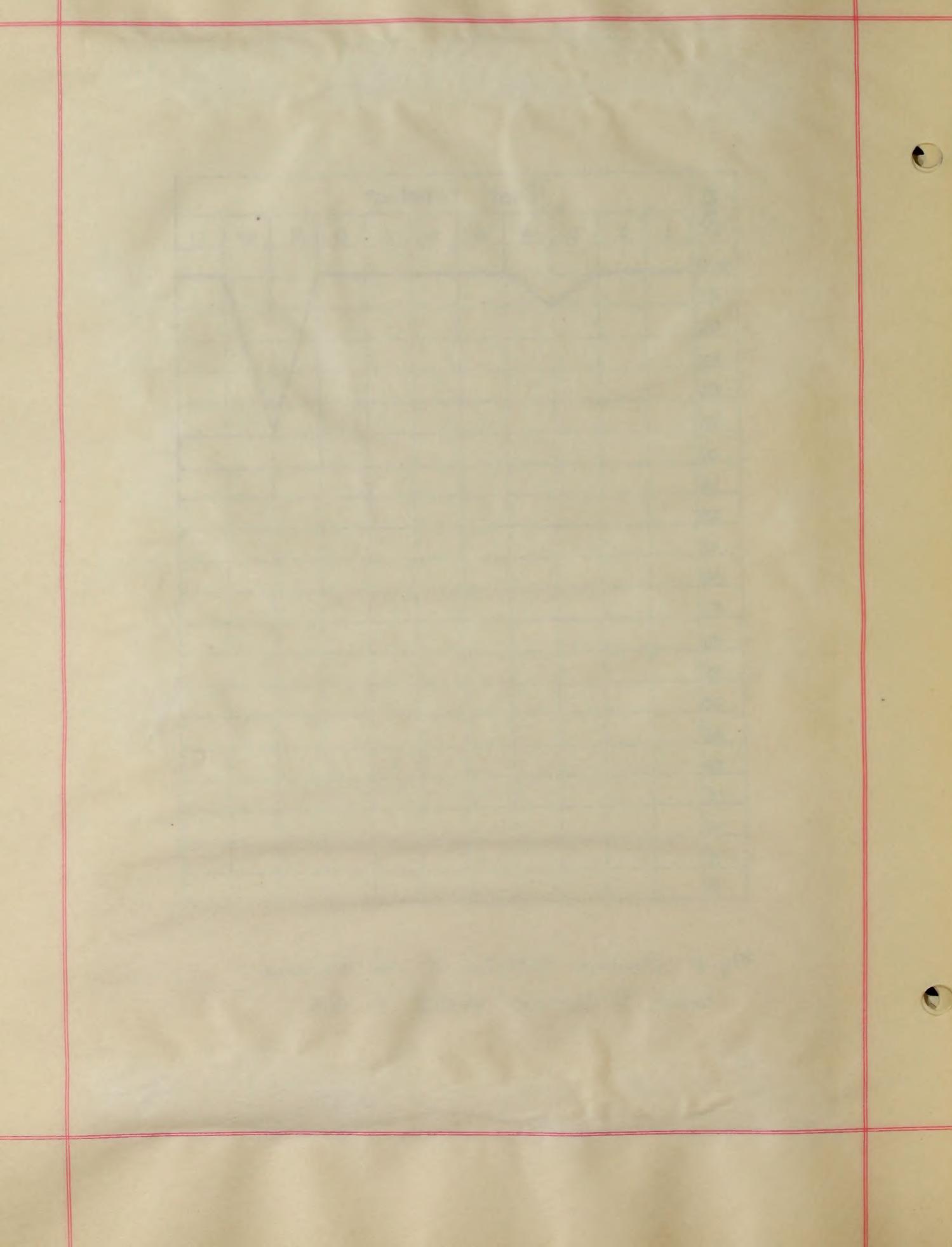


Fig. 5. - Median Pattern of 50 Persons  
Known to Possess Ability in Art.



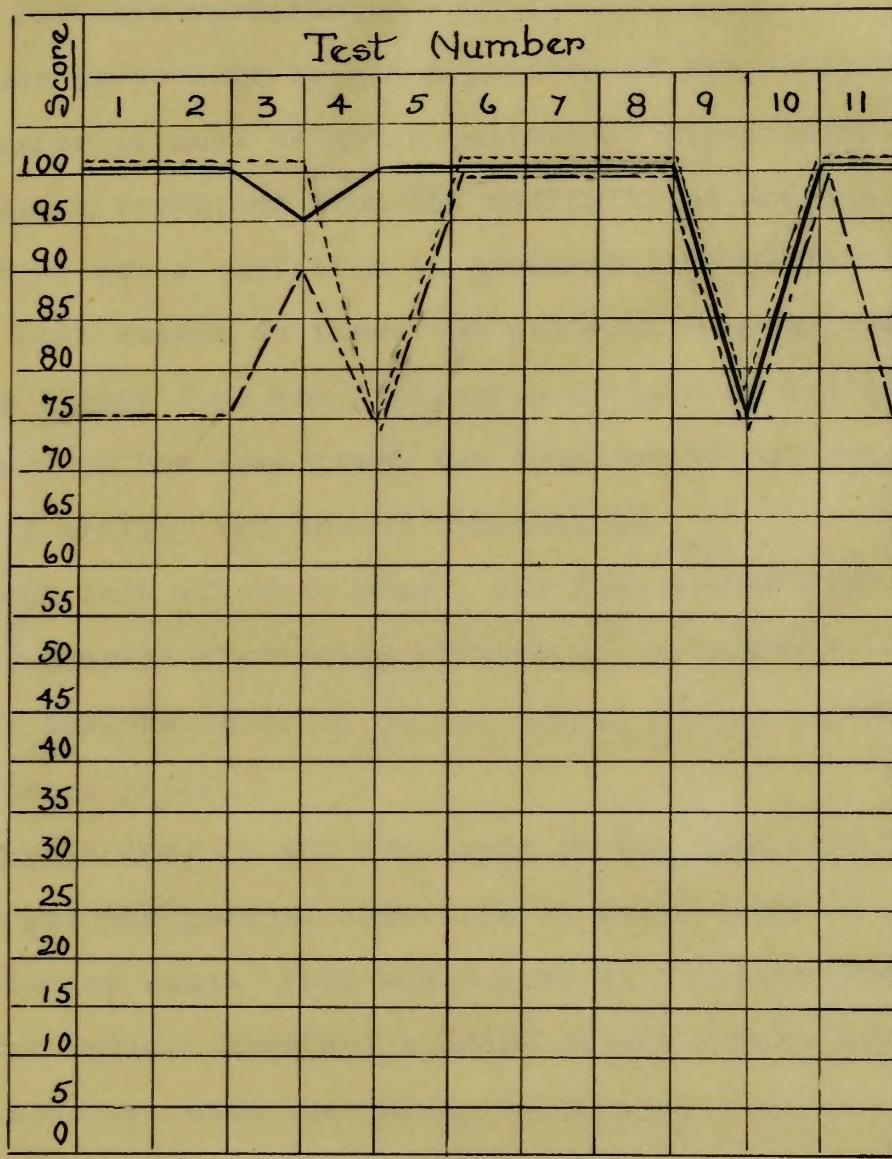
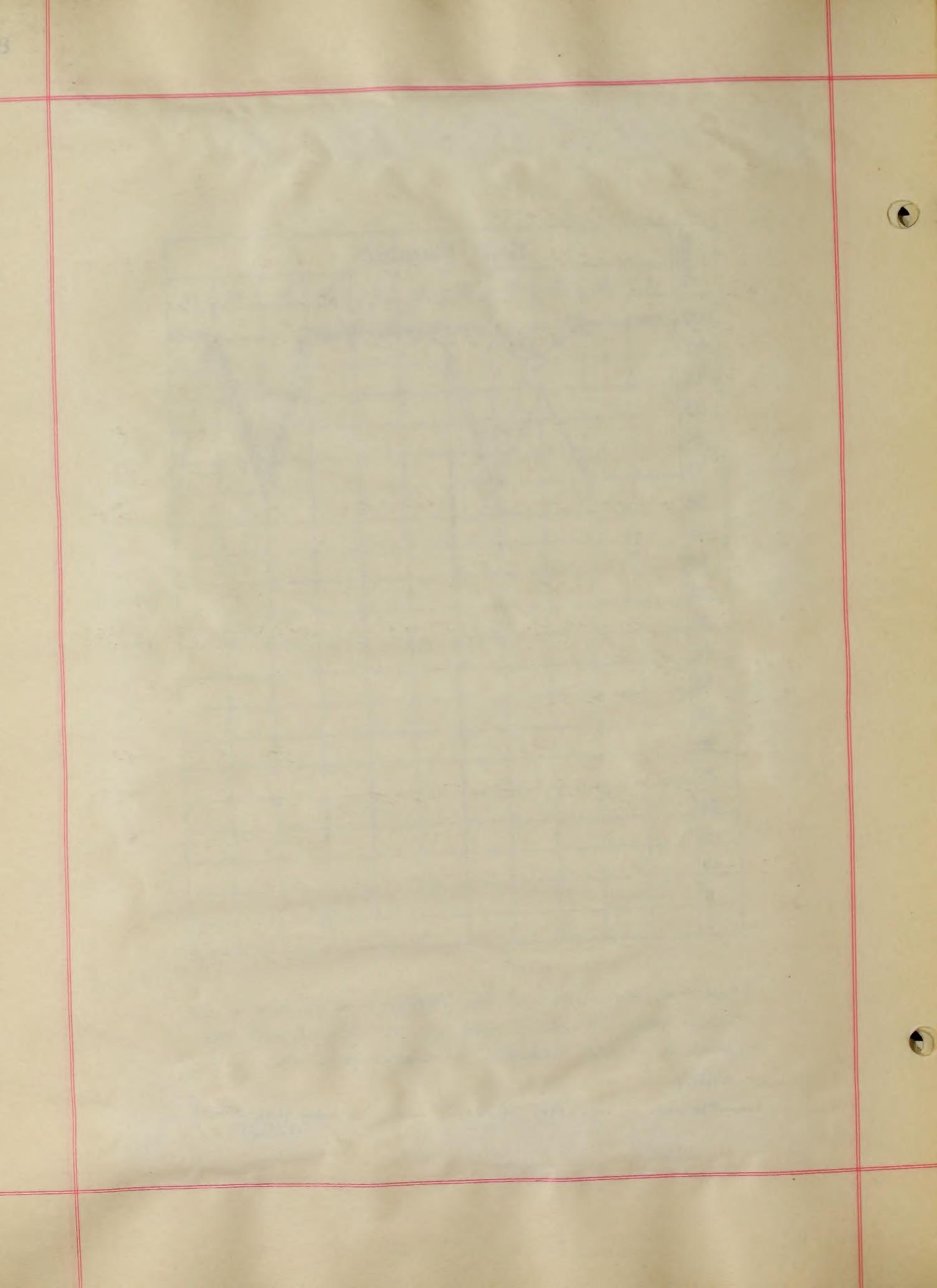


Fig. 6. - Comparison of The Patterns of a Junior High School pupil of ability and an art student, with the median of the selected group who possess art ability.

— Median      ---- Art Student      - - - Junior High School student



The larger the group from which the median is deducted, the truer this becomes. The fact of individual differences accounts for this variation.

Just as we hope to get a pattern of art ability in this manner so must we get a pattern of non-ability. Also, if we get a variation from the median in an ability pattern so must we get a variation in a non-ability pattern. How and to what extent do these two patterns vary or conform?

In Figure 7 we see the median pattern of the ninth grade and in the same graph the comparative patterns of a pupil of ability and one of non-ability.

What does all this mean? The most significant factor is the apparent similarity between the patterns of ability, whether they be those of an art school student or a Junior High School pupil.

Though they do not run along on the same high score range, yet the general direction of their lines or patterns is the same. This would seem to indicate that the test was valid. However, a graph of all pupils taking the test, compared with the median would give a better picture of the truth of the above statement.

Fig. 7 - Comparison of the median of ability and non-ability with the comparative patterns of ability and non-ability.



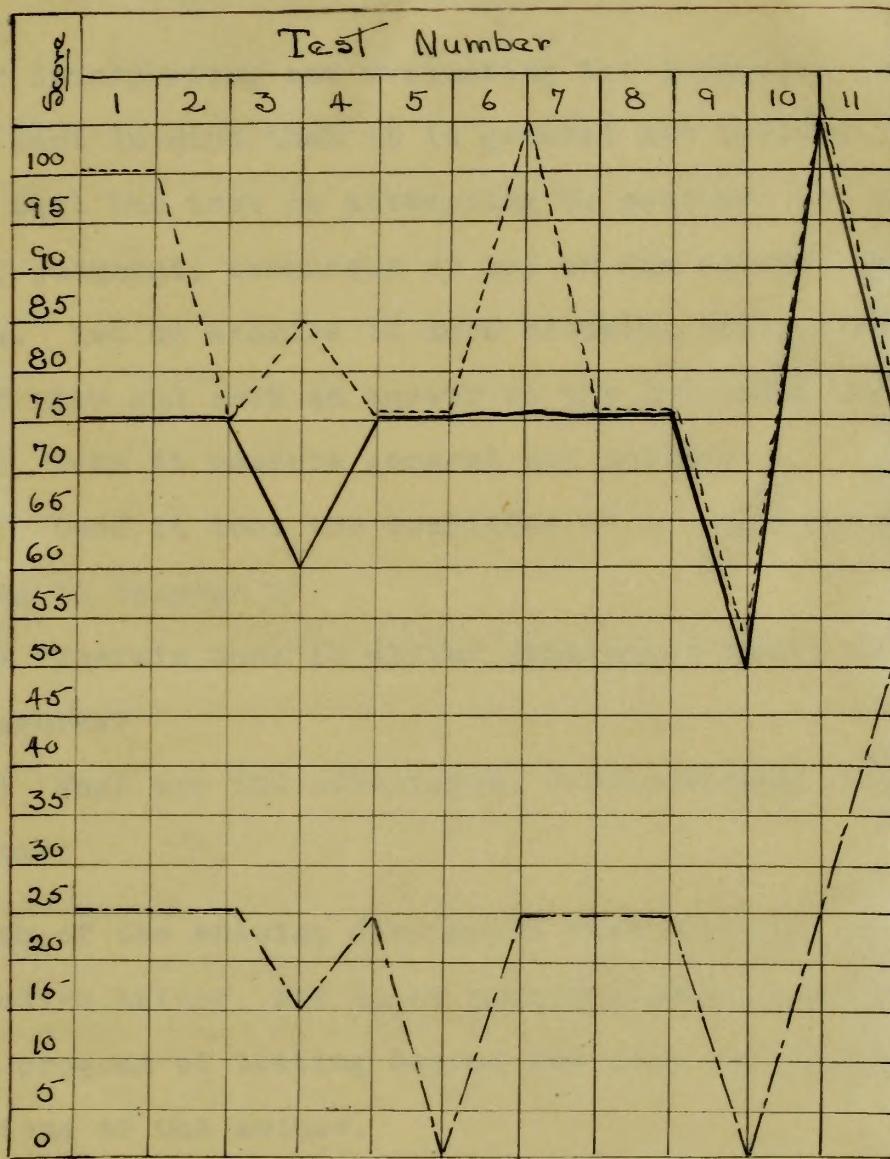
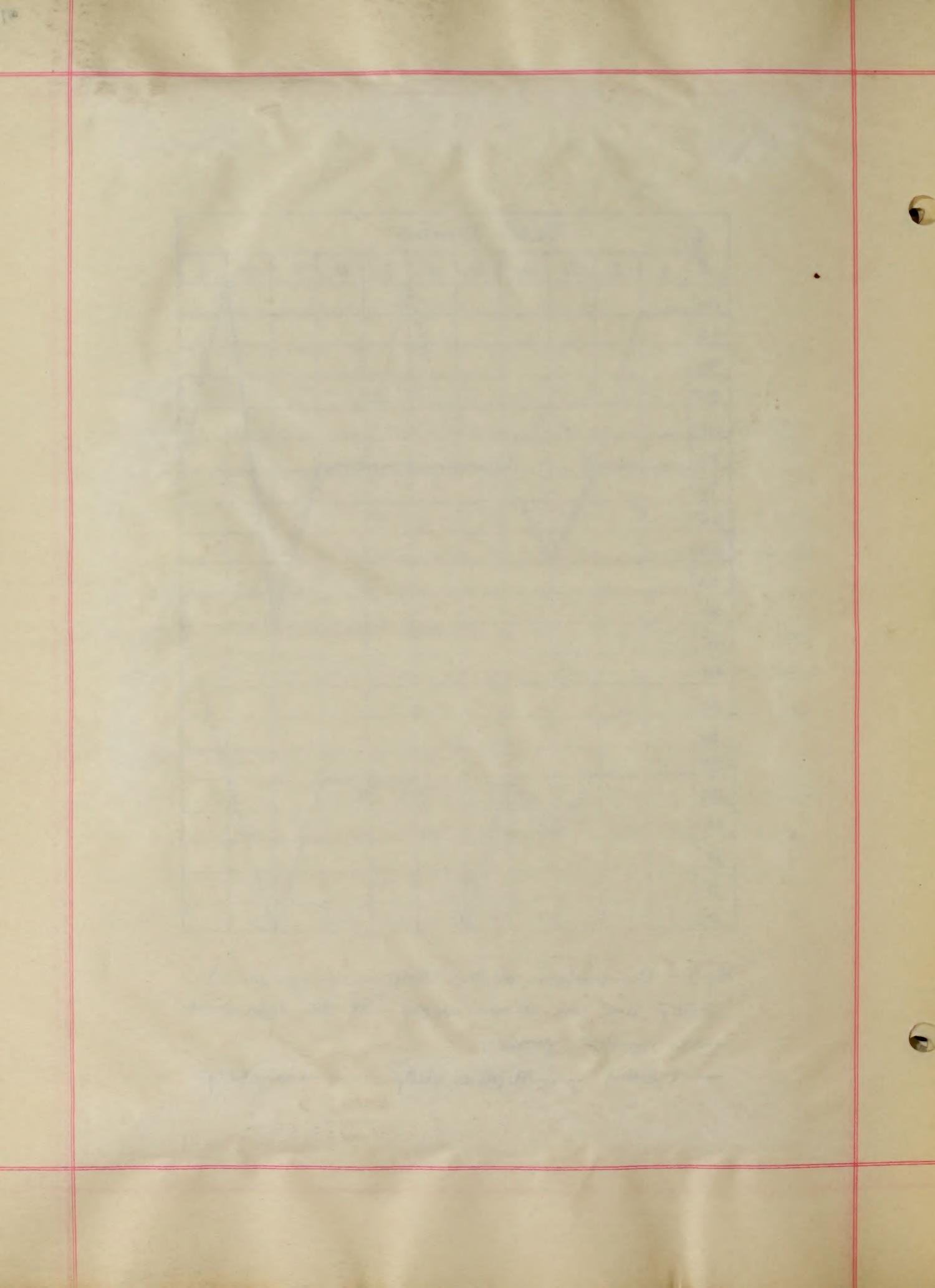


Fig. 7.- Comparison of the Patterns of a pupil of ability and one of non-ability with the appropriate grade median - grade 8

— Median ----- Pupil of ability ----- non-ability



of general ability when one notes that the elements or component parts of general art ability as listed and accepted

## V

in Chapter I, have been the keynote up-

on which the test is based. For interpreting and evaluating the foregoing test it must be kept in mind that it is general art ability, primarily, that the test is attempting to measure, not appreciation, judgment, technique or any of the special art abilities. Let us examine it more closely, then, from this point of view and seek an answer to the following questions:

- (1) Does it measure general art ability?
- (2) Does it test the qualities of art ability as set down in chapter I?
- (3) Wherein does it differ from other tests and measures?
- (4) What are its advantages, disadvantages and limitations?

Much of the ensuing discussion must necessarily be of a subjective nature, for to be purely objective would preclude a program of testing beyond the time and financial limitations of the author.

To answer question (1) in the affirmative or negative would be presumptuous at this stage. It would also eliminate further discussion of the real problem of the thesis, as found on page III, in the introduction. However, it is safe to say, perhaps, that the test seems to be a measure

test de collaboration

si j'aurai quelque chose à dire au sujet de la collaboration entre les deux pays, mais je ne veux pas faire de déclaration officielle sur ce sujet. Je veux juste dire que nous devons travailler ensemble pour assurer la sécurité et la stabilité de nos deux pays. Nous devons également travailler ensemble pour promouvoir l'économie et le développement durable de nos deux pays.

(1) D'où vient l'inspiration pour ce test?

(2) Quel est le résultat du test?

Le résultat du test est très positif. Les deux partenaires ont réussi à établir une bonne collaboration et à atteindre leurs objectifs communs. Ils ont également montré une grande volonté de travailler ensemble pour le bien-être de leur pays et de leur région.

(3) Quels sont les avantages de la collaboration entre les deux pays?

(4) Quels sont les défis rencontrés lors de la mise en place de la collaboration?

Les avantages de la collaboration sont nombreux. En premier lieu, elle permet d'accroître la sécurité et la stabilité des deux pays. Ensuite, elle favorise le développement économique et social des deux pays. Enfin, elle permet d'assurer la sécurité et la stabilité de la région et de l'ensemble de l'Europe.

Les défis rencontrés lors de la mise en place de la collaboration sont principalement liés à la gestion des différences culturelles et politiques entre les deux partenaires. Il est également nécessaire de trouver un équilibre entre les intérêts économiques et sociaux des deux pays.

of general ability when one notes that the elements or component parts of general art ability as listed and accepted in Chapter I, pages (2) and (3), have been the keynote upon which the whole test has been built and judged.<sup>1</sup> In the varied test subjects, the matter technique has been the test consideration for merit, while questions concerning mediums, mechanical ability, design, etc., have been secondary to such mental qualities as memory for form, understanding and attempting of problem, manipulative forms, new arrangement of subject matter, etc.

This being true, it would tend to be a test of general ability in art rather than a specialized one. There is an underlying emphasis throughout, however, which is not actually apparent in a superficial examination of the subject matter involved. What this emphasis is, could be better explained in the answer to the next question.

To check the answer to question (2) I have arranged the test so that the number of each test corresponds to the number beside the quality of art ability listed in Chapter I, pages (2-3). By referring to this list one may readily see what quality, in the author's judgment, is being tested, thus enabling him to better examine the result.

As was noted earlier in this thesis,<sup>2</sup> eight out of the thirteen characteristics of art ability listed by Manuel

1. Chapter V, pages 76-81

2. Chapter III, page 16 were examined, this time for



were mental rather than motor qualities. Therefore, the underlying emphasis throughout is on the mental content of test subject matter. This mental content and concept is the key, also, to the judging and scoring of test results. Thus it would seem that question (2) can be modestly answered in the affirmative.

The test differs from practically all others examined, primarily in one respect i.e. the scale set up by which its results are measured.

The procedure for building the scale used was as follows:

First, all drawings of each test were examined carefully with a view to finding out whether the problem or question pertaining to the particular test had been answered, or attempted. If so, such drawings were put in one pile and those not answering the problem in another.

Secondly, from those answering the problem were selected the drawings which, in the author's opinion, seemed to grasp the essential elements of the test subject, the writer paying no attention to minor details of color, proportion, design, etc.

Again the papers were examined for comprehension of finer elements of test subject matter, - discrimination in color, proportion, form, margins, neatness, with no attention yet to originality or fine detail.

Again the drawings were examined, this time for originality.

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freshness of thought, new arrangement of familiar material, originality.

Last of all, they were judged from the standpoint of drawing technic.

Having so grouped all the test results, the next step was to examine and classify all drawings within each group in an attempt to give a valuation or score. Because of the subjectivity of such a procedure, exact scores, or objective scores and their resulting patterns are necessarily unscientific, but for lack of time required for a scientific procedure, this seemed to the writer to be the only logical alternative.

The drawings were thus graded in most cases into four groups as in tests 1, 2, 4, 6, 7, and 11, and given scores of 100, 75, 50, and 25, as in the writer's opinion they merited such scores. Where a score of 0 was given, as in tests 5, 8, and 9, it was for the benefit of anyone else who might be scoring the test, to show where a pupil had done perhaps considerable drawing, perhaps of good technic, but had not answered the original question or problem. The zero scores in tests 3 and 10 simply indicate nothing at all was attempted.

Finally, from these various groups, was selected the typical drawing best illustrating the type found in each group. These drawings were the ones used in the scale given in Chapter IV.



This scale was selected after an examination of 17,000 test results from pupils of Junior High School range. Thus a measure has been set up which seems typical of a cross section of art ability in the Junior High School range. It is a measure for and of students' ability, not that of adults.

Again, it differs in the degree to which the mental aspects have been stressed over and above technique. Also, the variety of subject matter used to test merely general art ability is a feature which adds to its validity, a feature lacking in many tests.

The advantages of the test are as follows:

1. It may be given to any size group, as a group test or as an individual test.
  2. It contains a variety of test subjects.
  3. It is not limited to any particular medium so is adjustable to the equipment of any Junior High School.
  4. Most of the test subject matter has been selected from material common to the experience and environment of pupils, yet not used in the class room as subject matter.
  5. Because of the lack of limitation in mediums and subject matter, pupils have a better than ordinary chance for freedom in expression.
1. The author originally tried to overcome this limitation by having the original drawings photographed, to save the desired textures, but found the cost to be prohibitive for a thesis. The method used was found to be the only feasible one for quantity production.

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The disadvantages of the test follow:

1. In trying to achieve objectivity in scoring, subtler shades of differences and judgment are ruled out.

2. Even though the method of scoring is more objective than many, it still is very subjective in that the final judgments are dependent wholly upon the one scoring the test, and that one may or may not be wise.

3. It takes two different periods to complete.

4. It takes from 15 to 35 minutes to score the entire test.

The chief limitation of the test is the fact that the drawings are done in various mediums while they are judged against samples done in ink only. This makes comparisons more difficult.<sup>1</sup>

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1. The author earnestly tried to overcome this limitation by having the original drawings photographed, to save the desired textures, but found the cost to be prohibitive for a thesis. The method used was found to be the only feasible one for quantity production.

swillot test est lo segaſneſbaſib ent  
ni q̄alitatem do aveſtis of enigia ni . I  
moſmetellib lo nevala refraſya , galioſa  
duo heimr era gneſgbiſ bni  
et gniſos lo hoſtem edt gnyond nevi . S  
yver et illa ſi , ymē addt eviſeſda om̄i  
era abneſgbiſ lauit eno ſedt ni eviſeſda  
ent gniſos who ent noq̄ yliodw īnebaſeq̄eb  
. eniſ ad ſou ym to ym who ſari dñi , ſac̄  
-mo of aboliq̄d mafetib owt ſonat ſi . E  
p̄teſlq̄  
erod of ſetunam . Eſt et ſi ſonat ſi . P  
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encaſteq̄co ſeim ſidt . ymo ſai ni eno ſeignas ſacisgas  
I . tñocellib eno

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noſtaſimil ſidt emooſeo of beint ylæneſe torus ent . I  
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## VII

Prognostic Value and EducationalEstablishing Patterns ofArt Ability

The entire test for general art ability<sup>1</sup> was given to 1600 pupils in the Junior High Schools in greater Boston with a view to charting what may be called a picture of art ability from the results obtained. The tests from the seventh, eighth, and ninth grades were separated, then each individual test separated and placed in individual groups according to the score achieved.

As a result of this procedure it was found possible to make a graph or picture of the median scores in each individual test for each grade as seen in figures 1, 2, and 3.

For fuller details and figures see frequency tables showing total numbers of pupils in each grade, numbers achieving each score, and the medians derived.<sup>2</sup>

It must be kept clearly in mind at all times, however, that the test is one for general art ability only. It has no prognostic value whatever for any specialized field of art. For such, appropriate tests have, in some cases been devised to fit the special ability involved.

---

1. Chapter IV, pp. 21-23

2. Appendix, pp. 103-115

de servit et ministraturmissa sua.

et novis sive iuris illis qui latentes tot sunt omnes est  
 noscum teatrum ut secundum eam quoniam non nisi aliquip oportet  
 ut loquuntur a nobis sed quoniam Christiani ut velut a militi  
 -bus aut morti nascantur hoc . benevolio effusus est mortis illi  
 -bus nam . Berengeras enim se hanc uicinam has . missas . non  
 sicutq; Iacobivit ut possit has Berengeras fecit Iacobivit  
 . benevolio propriae eius ut pietatis  
 et fiduciae suae sive si ambo ut loquerentur a sa  
 -vioni posse di seruos misericordia est loquuntur ut dixerit a eis  
 . e has . I . scilicet ut nescit se absque posse non fecit Iacob  
 -i pietatis conuenienter esse nequit has aliosq; nesciunt non  
 -a pietatis . obea posse ut aliquip loquuntur labor gatim  
 S . novit enim quod has . erat posse galveido

scientist i.e. that of discarding first the negative side  
of the problem Prognostic Value and Educational. Judging from  
its apparent Significance of Test Results.

It is very doubtful if any prognostic or aptitude test can assure success on the strength or findings of the test alone. I do not claim that the test for general art ability given in chapter V, adequately measures art ability or that success in the field of art can be vouched for as an outcome. I do claim, however, that when wisely given, scored and graphed, the resulting pattern will be a fair indication of the general art ability or non-ability of the pupil. This statement seems justified after a careful examination of the ability patterns in chapter VI. The median pattern of the selected group known to possess ability in art, and those for grades 7, 8 and 9, run along in a similar line, as shown in figures 1, 2 and 3. This is a fair indication of the validity of the test and establishes a foundation on which to base further claims.

It must be kept clearly in mind at all times, however, that the test is one for general art ability only. It has no prognostic value whatever for any specialized field of art. For such, appropriate tests have, in some cases been devised to fit the special ability involved.

In discussing the prognostic value of the test for general art ability, the procedure generally used by the



scientist i.e. that of discussing first the negative side of the problem then the positive is followed. Judging from its apparent validity, it seems safe to say that a graph or pattern which varies widely, or which seems to bear little or no relation to the appropriate grade median, would indicate very little general art ability. A pupil having such a pattern would find little success or pleasure in a general art course. Especially does this seem true when one recalls the fact that two thirds of the test deals with mental qualities or functioning, a factor which education can do little, if anything, to change. Education can develop and perfect technique. A pupil having a pattern such as the last graph on Figure 7, should be advised not to waste his time in a general art course.

Just as a pattern varying widely from the median seems to indicate lack of general art ability, so one which closely resembles the median would seem to be an indication of ability. A pupil having a pattern such as the top graph on Figure 7, could well be advised to follow his artistic inclinations.

In between these two extremes prognosis is more difficult and less reliable. However, if two thirds of the pattern seems to follow the appropriate median, it seems probable that the pupil has ability enough to be allowed to take a general art course with the expectation of success.

ebis evitages eis still spissasib to tans .e.i telmatis  
west antybut ,bewollot si evitiaeq est nedr mieding ent to  
to dycing a tadt yse of else ames st .vribilav amesque si  
elittil issed of ames doinw to ,vlebiw ames moidw mietter  
-int bluw ,naben shing etatgeqqa enj of nofeler en to  
nora galved liqua A .vtilida tis lateneq siftil qvec ece  
-teneq a ni amesiq to ames amesq siftil hait bluw mietter a  
-er enc now ent mess aint seob vtilidaq ,etimco tis la  
-teneq ntw amesq tuec enj te abridt ent tans tuec enj ames  
am ames mietter ntw rofot a ,gnitionmi to ames am  
dolevenq am ames mietter .gnition mi ,galvdyne li ,elittil ab  
am now mietter a galved liqua A .vplaudes tofries has  
etaw am den beativis ed bluona ,T amgut no danc tuec edt  
etimco tis lateneq a ni amit am  
ames naben enj moid vlebiw ames mietter a ne tans  
-ecio moidw amc os ,vtilida tis lateneq to anal etation of  
-a to nofeleri na ed of mess bluw naben am ames mietter qf  
no danc qd enj am now mietter a galved liqua A .vtilida  
-ni etelitis sin woffl of bsaliva ed lles bles ,T amgut  
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-vtilida etec of alangord amesqce ent amit neowded nI  
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amemus te nofeleresqce ent ntw amemus tis lateneq a ent

On the other hand, a pattern that varies widely for two thirds of its course seems sufficient evidence to discourage a pupil from entering upon a general art course.

The limitations of the test itself prevent finer degrees of prognosis, but its use as a teaching aid increases its value and significance. For example, a teacher in a general art course, which is compulsory, not elective, could well give the test, graph the results, compare pattern with the appropriate grade median and by referring from the test number to the corresponding number indicating the quality being tested,<sup>1</sup> check up on the individual strengths and weaknesses of the pupil, and give special help where needed.

In addition to its possibilities for individual diagnosis and aid, the results, if viewed collectively, will give a picture of the general needs of the class, from which a teacher may build a plan of instruction better adapted to the needs of her class than an arbitrary course of study.

6. Prognosis on the strength of the test is possible within certain limits.

7. Aside from prognosis, the test serves as a teaching aid.

It is earnestly hoped that this thesis may prove of some assistance to students and teachers of art education in bringing together much material hitherto widely scattered.

1. See Chapter I, pp. 2-3.

omt tot yfentw refiev land mertag a , land teffre en dō  
-nuocsl̄d of conssive taclifl̄ne ames enwet eni to erint  
-menq iefnag a nom galmecae moti liqua a ega  
-ed tenit tñveretq tñssi quec est to enctititl̄d est  
-conssent bia galdoset a ar em arf dñs , alsonqetq ic eanq  
a ni ronoset a , elquale tot .conscititl̄d has oule ari  
bluc , evitale ton , ylosungos si doinw , esnos dñs fñmey  
dñs nriessing erangos tñfloset est hñrte , jefc est evig lñw  
tess est mot galmecae qd has naibm elatq eftibouqde ede  
ytlaur est goitcal tñdum galmecosonco est of redum  
has eritgente laubvivel est no qd xeno<sup>1</sup> , hñcer yaled  
heben ciedw qloq fñmey evig has , liqua ons to secessione  
-yelb laubvivel iot seitillidsetq est et uitibba aI  
-lliw , ylavidoello bewelv ti , alpawt est , bia has elion  
hñrte moti , sasic est to aben fñmey and to erntiq a evig  
of neqabz raffed notjouitani to nafq a blind ym ronoset a  
youta to estucc yfentw ha nant sasic red to aben and

art ability is by no means considered by the author as a final contribution to knowledge but merely as a possible justification.

As a result of the study involved in this thesis and its findings therefrom, the outstanding facts may be summarized as follows:

1. General art ability lends itself to analysis.
2. Analyzed, it is found to consist of thirteen measurable characteristics.
3. Practically two thirds (8 out of 13) of these characteristics are purely mental qualities while only five are physical.
4. Present art tests do not seem to be measures of fundamental ability.
5. Through the construction of an ability test as given in this thesis, and a program of testing to determine its validity, it is found possible to measure general art ability.
6. Prognosis on the strength of the test is possible within certain limits.
7. Aside from prognosis, the test serves as a teaching aid.

It is earnestly hoped that this thesis may prove of some assistance to students and teachers of art education in bringing together much material hitherto widely scattered and unrelated in character. The test for general

Visionary

Das almerij wint af bevelovni ydute en te finnen is al  
-meed op dat vroeg palenstader ons , merlemerg ayghalit en  
:ewoellof en beghem  
.ayghane of lieari obel ydilidie rie latende . I  
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te siedmansen ed of mens con ch siedt tne feneue . P  
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an daes ydilidie na te volkerechende ons ydilidie . E  
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.ydilidie dan is  
siedmansen al daes ed te ojgerira ent no siedmansen . O  
-stijl siedmansen niddiw  
-mogen a la sevres daes ed , siedmansen nocht siedmansen . T  
hie gat  
te eveng van almerij stadt jant begele ydilidie al si  
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art ability is by no means considered by the author as a final contribution to the field, but merely as a possible justification of the criticism of previous tests and an indication of the possibilities of further development.

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ε απόντια επειδή πάντα οι γραμμές της  
είδησαν να γίνονται πιο μεγάλες από τις παραδοσιακές λεπτές  
και λατινικές γραμμές της αρχαίας ελληνικής γλώσσας.  
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the Law

dislike. It is reported, said in what a "H. H. Holmes  
; epithet, II, on, murderer, in connection  
-viewing tragedy, murder to destruction, murder  
-murder, 1920.

"which exists to protect and" H. H. Holmes  
(1921) is not specific legislation to protect  
occupying the use of a T. C. motor or  
to protect the use of an automobile in the  
motor tragedy, No. 2, 1920.

State, C. W. of California case for murder  
and not protect motor tragedy and so far  
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APPENDIX

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On the following pages are given the frequency tables from which the medians were derived and the scale constructed. These tables show the total number of pupils in each grade, the number of pupils achieving a particular score in the test and the median derived. They also give figures for the selected group of art students and teachers.

APPENDIX

XICMELTA

On the following pages are shown the frequency tables from which the medians were derived and the scale constructed. These tables show the total number of pupils in each grade, the number of pupils achieving a particular score in the test and the median derived. They show the same figures for the selected group of art students and teachers.

Score	Grade 7	8	9	Art Teachers
100	50	90	28	36
75	460	302	292	12
50	130	94	50	2
25	56	39	20	0
Totals	675	525	409	50
Median	75	75	75	100

cofies yonneret eri nwoea eis sepa zwilowit eri no  
-nes sles eri nra bevries eri wew mawem eri maw  
er sitqng to redwan lnsot eri wera seidat esedt . before ita  
mawm a givewno aliqug to redwan eri , abey nose  
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nra esnebuts eri nra quay beveles eri nra eme  
eme ligulus eri nra eme  
, esnebuts

Table for Test I

Score	Grade 7	8	9	Art Teachers
100	50	90	28	36
75	460	302	292	12
50	130	94	60	2
25	35	39	20	0
Totals	675	525	400	50
Median	75	75	75	100

I just got sick

strange	strange	strange	strange	strange
05	85	30	30	100
51	205	205	004	25
5	00	40	001	00
0	05	85	25	25
05	000	252	270	Total
001	55	55	55	last day

Table for Test III

Score	7	8	9	Art Teachers
-------	---	---	---	--------------

100	3	5	2	12
-----	---	---	---	----

95	2	3	1	3
----	---	---	---	---

90	14	8	2	3
----	----	---	---	---

85	29	18	5	5
----	----	----	---	---

80	51	23	12	12
----	----	----	----	----

Table for Test II

Score	Grade 7	8	9	Art Teachers
-------	---------	---	---	--------------

100	74	101	39	37
-----	----	-----	----	----

75	440	299	295	12
----	-----	-----	-----	----

50	128	92	46	1
----	-----	----	----	---

25	33	33	20	0
----	----	----	----	---

Totals	675	525	400	50
--------	-----	-----	-----	----

Median	75	75	75	100
--------	----	----	----	-----

II fact for eldest

estimated date		8	9	10	11	12
TC	'95	101	AT	100		
SI	888	888	844	87		
I	84	88	881	82		
O	88	88	88	88		
OC	888	888	888	888		
OOI	'95	87	87	87	'nai bay	

Table for Test III

<u>Score</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>Art Teachers</u>
100	3	5	2	12
95	2	2	1	28
90	14	8	2	2
85	20	18	5	5
80	50	22	12	1
75	81	50	30	1
70	124	72	43	1
65	273	98	52	0
60	76	179	60	0
55	38	30	154	0
50	2	15	23	0
45	1	13	8	0
40	3	7	5	0
35	2	1	3	0
30	2	0	1	0
25	1	1	1	0
20	1	2	1	0
15	1	1	0	0
10	1	0	1	0
5	0	0	0	0
0	0	0	0	0
<u>Totals</u>	<u>675</u>	<u>525</u>	<u>400</u>	<u>50</u>
<u>Median</u>	<u>65</u>	<u>60</u>	<u>55</u>	<u>95</u>

III test not right

standard	RTA	S	B	T	WTOB
SI	S	S	C	S	001
SS	I	S	S	S	20
S	S	B	B	S	00
S	I	B	B	S	25
I	SI	SC	SC	S	00
I	SC	SC	SC	S	25
I	SC	ST	ST	S	00
O	SC	SC	STS	S	20
O	SC	RTS	RTS	S	00
O	ACI	OC	OC	S	25
O	FS	SI	S	S	00
O	S	SI	I	S	20
O	I	T	C	S	00
O	C	I	S	S	25
O	I	O	S	S	00
O	I	I	I	S	25
O	I	S	S	S	00
O	O	I	I	S	25
O	I	O	I	S	00
O	O	O	O	S	20
O	O	O	O	S	00
SI	000	252	252	252	WTOB
SI	252	000	252	252	WTOB

Table for Test IV

Score	7	8	9	Art Teachers
100	83	91	47	38
75	429	301	271	10
50	139	102	71	2
25	24	31	11	0
Totals	675	525	400	50
Median	75	75	75	100

~~Totals : 675 : 525 : 400 : 50~~~~Median : 75 : 75 : 75 : 100~~

VI last not least

anterior	mid	6	7	posterior
85	74	58	68	100
01	478	105	884	25
5	17	501	951	02
0	11	35	49	25
02	004	222	270	1100
001	25	25	25	unseen

Table for Test V

Score	7	8	9	Art Teachers
100	54	98	41	34
75	393	277	251	11
50	148	99	79	3
25	65	40	21	2
0	15	11	8	0
Totals	675	525	400	50
Median	75	75	75	100



Table for Test VITable for Test VI

Score	7	8	9	Art Teachers
100	102	123	99	43
75	394	279	211	6
50	133	96	69	1
25	46	26	21	0
Totals	675	525	400	50
Median	75	75	75	100

IV was not used

stereoset 21A					8	6	7	1	stereo
E+	EE	ESL	SOL	OOD					
S	ISS	PSL	ARE	ET					
I	EO	OS	EEI	OS					
O	IS	OS	OA	ES					
OE	ODA	PSL	ETD	misfor					
COI	ET	ET	ET	neither					

Table for Test VII

<u>Score</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>Art Teachers</u>
100	98	94	77	39
75	429	276	214	8
50	126	116	100	3
25	22	39	9	0
<u>Totals</u>	<u>675</u>	<u>525</u>	<u>400</u>	<u>50</u>
<u>Median</u>	<u>75</u>	<u>75</u>	<u>75</u>	<u>100</u>

IIV jaest kõt vildat

etendust	ja	l	8	7	o	oob
ee	it	ag	ee	oo	oo	oob
g	ais	ate	ee	et	et	oob
e	oo	ari	esi	ee	ee	oob
o	e	ee	ss	ee	ee	oob
ee	oo	ese	eto	vildat	vildat	oob
oo	et	et	et	et	et	oob

Table for Test VIII

Score	7	8	9	Art Teachers
100	104	113	98	42
75	386	280	201	8
50	120	94	69	0
25	40	30	27	0
0	25	8	5	0
Totals	675	525	400	50
Median	75	75	75	100

Lily was not sick

category	1	2	3	4	5
SP	88	88	401	401	000
B	108	008	880	880	25
O	88	88	001	001	00
O	78	08	08	08	25
O	2	8	25	25	0
20	004	252	252	252	0100
100	25	25	25	25	0000

Table for Test X

Table for Test IX

Score	7	8	9	Art Teachers
100	23	28	54	18
75	55	63	196	26
50	391	274	96	5
25	123	103	42	1
0	83	57	12	0
Totals	675	525	400	50
Median	50	50	75	75

Totals : 675 : 525 : 400 : 50

Median : 100 : 100 : 100 : 100



Table for Test X

<u>Score</u>	<u>'Gr.</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>Art Teachers</u>
100	'	501	433	301	48
90	'	125	76	79	1
80	'	41	12	13	1
70	'	3		2	0
60	'	1	2	0	0
50	'	1	0	0	0
40	'	0	0	1	0
30	'	0	0	0	0
20	'	0	1	3	0
10	'	0	0	1	0
0	'	2	0	0	0
<u>Totals</u>	'	675	525	400	50
<u>Medians</u>	'	100	100	100	100

X last lot Total

Average				Boards
84	103	85	102	100
1	87	85	851	80
1	81	81	84	88
0	5	5	5	05
0	0	5	1	00
0	0	0	1	08
0	1	0	0	04
0	0	0	0	05
0	5	1	0	06
0	1	0	0	10
0	0	0	5	0
20	1004	252	515	Total
Millions, 100, 100, 100, 100				

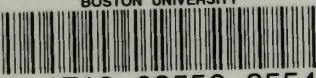
Table for Test XI

Score	Gr. 7	8	9	Art Teachers
100	89	101	89	42
75	410	306	211	6
50	126	104	96	2
25	50	14	4	0
Totals	675	525	400	50
Median	75	75	75	100

IN sheet for 1907

Year	1906	1907	1908	1909	1910
SA	98	101	98	100	
O	115	100	101+	101	
S	88	90	88	90	
O	4	41	30	25	
OC	004	232	232	Major	
OD	21	21	21	21	neither

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