TWENTY-THREE SERIAL TESTS OF INTELLIGENCE AND THEIR INTERCORRELATIONS

By Lewis M. Terman and Mrs. Mary B. Chamberlain

During the school year 1915-1916 the seminar in intelligence tests at Stanford University undertook to gather preliminary material which it was hoped would serve as a point of departure in the working out of a new intelligence scale. The ultimate aim was to devise a scale which would be equally usable as a point scale and as a mental age scale.

The first task was to assemble tests which would correlate with other measures of intelligence and which would lend themselves to the principle of serial arrangement. The first half of the school year was devoted to the assembling and modification of promising tests which others had used and to the devising of new ones. The result was a group of twenty-three serial tests, each including from five to fifty items. The next step was to try out these tests on a number of school children who had been Bineted and regarding whose school success complete data were available. This was undertaken by one of the writers, (Mrs. Chamberlain). Forty-one children were tested; five in each of the eight grades, and one additional in the sixth grade by mistake.

It was the original intention to sift out the poorer tests on the basis of these results, to revise and supplement the better ones, and to proceed during the following year to the standardization of the test for a new scale for individual testing. Later it was decided to hold this in abeyance in favor of a plan for group testing. We were led to this decision chiefly by the ingenuity of Arthur S. Otis in devising suitable methods for giving and scoring group tests.

The work of Mrs. Chamberlain has not, however, been without results. In the first place it contributed directly to the selection and arrangement of tests for the Otis Scale. Later a number of items of the tests were incorporated in the psychological methods used in the army. The intercorrelations found for the tests, (see Table I) have also proved of value in a number of connections. The tests and the correlations are here presented in the hope that they may have at least some suggestive value to other workers.
It is not deemed necessary to describe in detail the procedure and the methods of scoring. The experiment was carefully planned, the tests were made under the most favorable conditions, and the procedure and scoring were rigidly uniform. The subjects were chosen by school grade (five from each grade), and not by age or mental age. All were given the Stanford Revision of the Binet scale. Counting the Binet test, from three to four hours, and as many sittings, were required for each pupil. The attitude of the children was everything that could have been desired. The "mental ages" of the subjects by the Stanford Revision were fairly evenly distributed from 6 to 16 years. The twenty-three serial tests which were given to these forty-one children were as follows:

Test 1. Picture Naming. (Devised by Mr. Otis).

Three cards, 8½ x 11, each containing a large number of small pictures of familiar objects. The pictures were cut from a catalogue of a mail order firm and pasted on the cards. They were reasonably distinct. The subject was simply asked to name the object. The following pictures were used:

**Card I**
- knife, spoon, axe, screw,
- feather, water tap, brush, comb,
- scales, chair, wheel, man, shoe,
- shirt, baby buggy, comb, umbrella, auto,
- flag, pipe, collar, dog, razor, belt,
- saw, monkey wrench, padlock, knife and fork, ring.

**Card II**
- violin, clock, stockings, gloves, table,
- horn, bracelet, spy glasses, suit case, book,
- bottle, hat, vessel, hammock, tennis racket, basket ball,
- plow, sewing machine, lanterns, stove, suspender,
- fountain pen, scissors, hoe, bucket.

**Card III**
- camera, watch chain, hand bag, sweater, bed,
- trunk, buggy, lounge, watch,
- dress, saddle, coat, flute, telephone,
- pincers, paint brush, hinge, hammer.

Scoring.—One point for each object correctly named.

Test 2. Oral Reading. (Gray)

For this test the W. S. Gray oral reading scale was used, unchanced except for the omission of "Passage a" and "Passage j." The method of giving and scoring was that described by Thorndike in The Teachers' College Record, 1914, pp. 67-69.

---

**Test 3. Origin of Familiar Things**

1. Where do eggs come from?
2. Where does butter come from?
3. What are cigars made of?
4. Where do leather come from?
5. Where does cotton come from?
6. Where does wool come from?
7. Where does cheese come from?
8. What are bricks made of?
9. Where does lard come from?
10. What are razors made of?
11. Where does silk come from?
12. Where does kerosene (or coal oil) come from?
13. Where does sugar come from?
14. How do they get salt?
15. What is glass made of?
16. What is paper made of?
17. What are dishes made of?
18. Where does rubber come from?
19. Where do oysters come from?
20. Where do corks for bottles come from?
21. Where does ivory come from?
22. Where does linen come from?
23. Where does a sponge come from?
24. Where do pearls come from?
25. Where do diamonds come from?
26. Where does camphor come from?
27. Where does quinine come from?
28. What is soap made of?
29. Where does asbestos come from?
30. How do they get brass?

Scoring.—One point for each successful answer.

Test 4. Orientation in Time. (Arranged by Terman)

1. When is it night? When is it day?
2. When is it morning? When is it afternoon?
3. What do we mean by yesterday? Tomorrow? Today?
4. When is it noon? Midnight?
5. Name the days of the week. (Check as in Stanford Revision.)
6. Name the seasons. What season comes before spring? Before autumn?
7. In what season is it hot? Cold? In what season do the leaves fall off?
8. In what season are the longest days? The shortest days?
9. What day of the week is it today?
10. What day of the month is it? (Allow error of three days.)
11. What year is it?
12. Name the months of the year (no error). (Check.)
13. Tells time (c need only be correct within one minute).
   a) Hands at 3:00.
   b) Hands at 10:35.
   c) Hands at 1:48.

1 Arranged by Terman. The test was suggested by Dr. Stanley Hall's study of the contents of children's minds on entering school.
Test 5. Direction Orientation. (Terman)

"Suppose you are in a city where the streets run north and south, and east and west, then," etc.

1. Suppose you are going north, then you turn to your right; what direction are you going now?
2. Going west, then turn to left?
3. Going east, then turn to right?
4. Going north, then L., then R.?
5. Going west, then R., then R. again?
6. Going south, then L., then R. again?
7. North, then R., then R. again, then L.?
8. South, then L., then R., then L.?
9. West, then R., then R. again, then R. again?
10. North, then L., then L. again, then R., then R.?
11. West, then R., then R. again, then R. again, then L.?
12. South, then L., then L. again, then R., then L.?

Scoring.—One point for each, except 14, which receives 3 points.

Test 6. Mastery of Space Concepts. (Terman)

1. a Which way is up? Point your finger up.
b Which way is down? Point your finger down.
2. a Which way is in front of you? Point in front of you.
b Which way is behind you?
3. a Put the little block on top of the big block.
b Put the little block under the big block.
4. a Which block is closer to you?
   (3 trials with blocks in alternate positions.)
b Which block is farther from you?
   (3 trials with blocks in alternate positions.)
5. a Place the big block on the table between the pencil and knife.
   (Present them all in one hand.)
b Place the pencil on one side of the knife and the block on the other side.
   (Present again in one hand.)
6. Right hand ........ Left ear ........ Right eye.
7. a Name the four directions .... North .... go ahead ....
b What are the directions between the ones you named?
8. a In what direction does the sun rise?
b In what direction does the sun set?

Scoring.—Two points for each sentence correctly given. One point if only one word in error.

Test 8. Memory for Digits Reversed

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Scoring.—One point for each series correctly repeated.
Test 9. Mental Arithmetic. (Arranged by Terman)

1. Making change, one purchase.
   a. 10c.—5c.
   b. 20c.—14c.
   c. 25c.—12c.
   d. 50c.—35c.
   e. $1.00—63c.

2. Making change, two purchases
   a. 10c.—4c. and 3c.
   b. 20c.—2c. and 5c.
   c. 25c.—10c. and 6c.
   d. 50c.—12c., 7c. and 8c.

3. Addition.
   
   \[
   \begin{array}{cccccccc}
   1 & 8 & 2 & 7 & 3 & 9 & 2 & 1 & 4 \\
   1 & 3 & 4 & 4 & 5 & 3 & 8 & 1 & 7 \\
   \hline
   1 & 3 & 2 & 5
   \end{array}
   \]

4. A MAN SPENDS 2/3 OF HIS MONEY AND HAS $8 LEFT. HOW MUCH HAD HE AT FIRST?

5. A MAN'S HAT COST $2.50, AND HIS SHOES $2.00. WHAT WOULD IT COST TO GET HATS AND SHOES FOR 9 MEN?

6. IF JOHN HAD 15 CENTS MORE THAN HE HAS HE WOULD HAVE 40 CENTS. HOW MUCH HAS HE?

7. IF A TRAIN TRAVELS HALF A MILE IN A MINUTE, HOW FAR WILL IT GO IN AN HOUR?

8. WHAT NUMBER ADDED TO 16 GIVES A NUMBER 4 LESS THAN 27?

Scoring.—One point for each item under the first three tests and two points for each of the other tests.

Test 10. Finding Similarities. (Terman)

In what way are .......... and .......... alike?

1. A needle and a pin?
2. A pen and a pencil?
3. A nut and a banana?
4. A brick and a stone?
5. A watch and a clock?
6. A table, a chair, and a bed?
7. A hat, a coat, and a shoe?
8. Milk, potatoes, and candy?
9. A pair of scissors, a knife and an ax?
10. A lamb, a calf, and a child?
11. A ship, a bicycle, an automobile, a buggy, and a train?
12. A cat, a fly, a snake, a bird and a fish?
13. Water, blood, oil, milk, and ink?
14. Grass, cotton, an onion, a tree, and a thistle?
15. A dog, a tree, a bee, a fly, a thorn, and an eagle?
16. A farm and a factory?
17. An egg and a seed?
18. The eye and the ear?

Test 11. Giving Differences. (Arranged by Terman)

"What is the difference between," etc.

1. A cat and a hen?
2. A bucket and a basket?
3. The sun and the moon?
4. A hatchet and a hammer?
5. A nail and a screw?
6. A cigar and a cigarette?
7. A book and a newspaper?
8. A river and a lake?
9. A woman and a lady?
10. A lawyer and a judge?
11. A surgeon and an ordinary doctor?
12. A mistake and a lie?
13. Wealth and money?
14. An optimist and a pessimist?
15. A rascal and a thief?
16. An offense and defense?
17. Anger and rage?
18. Joy and satisfaction?
19. A cent and a dollar?
20. A tiger and a cat?
21. A ship, a bicycle, an automobile, a buggy, and a train?
22. A cat, a fly, a snake, a bird, and a fish?
23. Water, blood, oil, milk, and ink?

Scoring.—One point for each.

Test 12. Naming Opposites. (Selected)

1. high 17. injurious
2. rich 18. suspicion
3. day 19. silly
4. north 20. miser
5. love 21. from
6. empty 22. result
7. laugh 23. resemblance
8. less 24. reckless
9. war 25. vertical
10. friend 26. conservative
11. forget 27. impoverish
12. best 28. transparent
13. sure
14. worse
15. succeed
16. unless

Test 13. Absurd Pictures. (Terman)

In 1914 one of the writers devised a set of absurd pictures. He was not at that time acquainted with the Rossolimo test of this kind. The idea of using absurd pictures as a mental test was suggested by a
picture puzzle in a boy's magazine. This picture represented a house and a large number of surrounding objects, many of which were so drawn as to contain an absurdity. A prize was offered for finding all the absurdities. From this as a basis, the following absurd pictures were arranged by Terman with the help of Dr. J. Harold Williams:

1. A cat with only two legs.
2. A man with arms attached to head.
3. A man with feet and hands interchanged.
4. A man with feet pointing backwards.
5. A man with three legs.
6. A horse hitched to cart backwards.
7. A clock face, numbered backwards.
8. A hand with five fingers and one thumb.
10. A schoolroom full of children, all writing with the left hand.
11. A man on horseback, seated facing the horse's tail.
12. A man shooting at a rabbit, pointing the stock instead of the muzzle at the rabbit.
13. A small chick and a hen on opposite ends of balance scales, the chick's end of the balance lower as though the chick outweighed the hen.
14. Doves by a dovecote. The doves far larger than the door of the cote.
15. A dog running away from a rabbit.
16. A man smoking a pipe, the bowl of the pipe inverted.
17. An apple with a pencil thrust through it; all the pencil visible.
18. Profile view of a face, both eyes showing.
19. A man sawing wood, saw teeth up.
20. A man sawing a branch off a tree while seated on the outer end of the branch.
21. A very fat man sitting on a small twig of a tree, the twig not bending.
22. A boy blowing out a candle, the flame of the candle pointing toward instead of from the boy's mouth.
23. Mice playing in a friendly way around a cat.
24. A man swimming, the entire body showing above the surface of the water.
25. A man sprinkling his lawn while it rains.
26. A house burning. The firemen have placed ladders and hose but sit idle on the ladder, one smoking a pipe, the other reading.
27. Two men sitting in a chair-swing. The rope which is supposed to hold up the seat is not attached but is held in the hands of the men seated in the swing.
28. The show window of a clothing store, containing articles labeled with absurd prices (hat, $45.00; suit, $1.00, etc.).
29. The "strong man of the circus" standing on a board and lifting himself in the air by pulling up on the ends of the board.
30. A house; the smoke, the tree tops, and the clothes on the line all being blown in different directions by the wind.
31. A house with a shed roof, the rain trough being (a) on the high side of the roof, and (b) sloped away from the rain barrel.
32. A woman in the rain, holding an umbrella far back over her shoulder while the rain strikes her full in the face.
33. A schoolboy with beard.
34. A girl wearing furs, but barefooted.

TWENTY-THREE SERIAL TESTS OF INTELLIGENCE

35. A man weighing himself while holding a heavy bundle of books under his arm.
36. A man on horseback, carrying on his own shoulder a bag labelled "100 lbs.
37. Sun low, man walking, shadow on wrong side.
38. A man on the road, nearer is a dwelling. The man is taller than the dwelling.
39. A man dragging an elephant. Elephant is braced back but is sliding forward as the man pulls.
40. A white man being attacked by three Indians. Two are near him with tomahawks poised in the air, but the white man is shooting the third one, who is far off.
41. A buggy running through mud, the mud being hurled off the wheels backward.
42. Sun is low, clock on a tower indicates noon.
43. A man dragging a dog forward with a rope around his neck, dog resists but rope is slack.
44. A man and woman sitting out in the yard while it rains. The man is smoking, the woman knitting.

Scoring.—One point for each.

Test 14. Absurdities and Incongruities of Statement
1. I got to the horse just in time to see a mouse chasing the cat out of the cellar. (Terman.)
2. A chicken's feet are nearly always about two inches shorter than its hind legs. (Terman.)
3. Walter now has to write with his left hand because two years ago he lost both his arms in an accident. (Terman.)
4. Because Bessie's eyes are weak and the light hurts them, she has to read her lessons every night in the dark. (Terman.)
5. I saw a nicely dressed gentleman on the street. He had his hands in his pockets and was twirling his cane. (Binet.)
6. A wheel came off of Frank's automobile and as he could not get the wheel back on he had to run his automobile to the shop for repairs. (Terman.)
7. Though armed with nothing but his pocket knife, he killed the robber with a single shot. (Simpson.)
8. While walking backwards he struck his forehead against a stone wall and was knocked insensible. (Simpson.)
9. An Irishman called at the post-office to get his mail. "What is your name?" said the postmaster. "Why," said the Irishman, "You will find my name on the envelope." (Terman.)
10. The storm which began yesterday has continued three days without a break. (Simpson.)
11. An old lady says that God is very good because He always makes the largest rivers flow past the largest cities. (Terman.)
12. One day we came in sight of several icebergs that had been entirely melted by the warmth of the Gulf Stream. (Simpson.)
13. They found the young man locked in the room with his hands and feet tied behind him. They think that he locked himself in. (Huey.)
14. The poor sick man lay flat on his back six weeks in the month of August and suffered terribly. (Terman.)
15. Henry's dog has three puppies, and so when Henry builds a little house for them he will have to make one large door for the mother dog and three small doors for the three puppies. (Terman.)

16. Everyone knows that a pint of cream weighs more than a pint of milk. (Adapted from Simpson.)

17. John was saddling his horse one day and thoughtlessly put the saddle on backwards. When told of his mistake he said: "How do you know which direction I am going to ride?" (Terman.)

18. In some states there are laws to prevent a man from marrying his widow's sister. (Simpson.)

19. As we walked eastward in the moonlight my friend pointed out the North Star clearly visible on our right. (Simpson.)

20. In an old graveyard in Virginia they have discovered a small skull which is believed to have been that of George Washington when he was about ten years old. (Adapted from Simpson.)

21. The worst of all crimes is murder, but it is worse still to torture a helpless babe by burning out its eyes and tongue without killing it. (Terman.)

22. The hands of the clock were set back so that the meeting might surely close before sunset. (Simpson.)

Scoring.—One point for each.

Test 15. Picture Interpretation
1 to 3. The three pictures used by Bobertag.
4 to 6. Three Jingleman-Jack pictures:
(a) Janitor chasing children downstairs.
(b) Farmers building a house.
(c) Plumbers fixing pipe, water breaks loose.
7. Child eating, dog begging food.
8. Dog on the beach, child lying near; dog has just dragged child from water.
9. Children loaded with presents bidding Santa Claus farewell.
10. Children playing at war.
11. Girl at well; has dropped pitcher, which lies at her feet in fragments.
12. Kittens excited at sight of a tail projecting from under some papers on the floor.

Scoring.—0 to 5 points for each, according to amount of description and interpretation.

Test 16. Resourcefulness
(Arranged by Terman. Suggested by Binet "comprehensiu" test.)
1. What's the thing to do when you are tired?
2. What's the thing to do when your face is very dirty?
3. What's the thing to do when you are riding in a carriage and the wind blows your hat off?
4. What's the thing to do if you find some money on the floor of the schoolroom and you don't know whose it is?
5. What's the thing to do if you have no umbrella and it begins to rain hard when you get nearly to school?
6. What's the thing to do if you are throwing your ball and accidentally hit a lady who is passing by?

7. Suppose you live two miles from the schoolhouse and you find when you get nearly to school that you have forgotten your lead pencil. What should you do?
8. What's the thing to do if you are alone in the woods far from home, and a savage bull chases you?
9. What's the thing to do if you go to sleep on the train and do not wake up until you are several miles past the station where you wanted to get off?
10. The cows have been eating the corn in the man's field. Name all the ways you can to stop it.
11. Suppose you have a bucket full of eggs in one hand and an empty basket in the other, and a man offers to give you some nice sweet cider. How could you get it home?
12. What would you do if a person who you know is crazy calls you ugly names?
13. Suppose a boy has earned 5 cents and is carrying it home to his mamma, who is sick and has no money. On the way a little child stops him, cries, and asks for some money to buy candy. What should the boy do?
14. What would you do if you were to get lost in a large forest and did not know what direction to go?
15. A man wants to catch a kitten, but the kitten runs up a tall tree which no person can climb. How can he get the kitten without hurting it?
16. Suppose a man is shipwrecked on a little island where there is nothing to eat, but he manages to save from the wreck a few potatoes, some milk, some nuts and some eggs. He does not know how soon a ship will come to rescue him. What should he eat first? He has a few potatoes, some milk, some nuts and some eggs. (After answer, say "what next?" "And next?")
17. Suppose a doctor while hurrying to see a patient who has been dangerously hurt, comes upon two dogs fighting. What's the thing for him to do?
18. Suppose you are driving along a lonely, deserted road and you find a man who has been dangerously hurt in an accident. The man wants to be taken to the hospital, but your carriage is already so full of people that another one can crowd in. It may be hours before any one else comes along to help, so what would you do?
19. Suppose you are driving a wagon load of lumber and the wagon gets stuck in such a deep mud hole that the horses cannot possibly pull the load out. If there was no way to get help, what would you do?
20. Suppose you were to find a two-year-old child lost on the streets of a large city. You cannot find the parents and you do not know where the child lives. What would you do?
21. Suppose a heavy timber falls on the foot of your playmate and holds him fast. The timber is so heavy you cannot lift it and there is no way to get help. What would you do?
22. Suppose you have to write a letter or be killed. You have paper, but no pen, ink or pencil. What would you do?
23. Name all the ways you can in which a person can get a big reputation.
24. Suppose you find on the street a letter which is addressed, sealed and stamped but has not been mailed. What would you do with it?
25. (E. lays 6 pieces of paper, 1" x 3", on the table in a row facing S, and hands S a pair of scissors.) Cut all these pieces of paper in two just as quickly as you can. (S should cut all at once, not one by one.)

Scoring.—Elaborate rules were worked out for scoring this test. One point was given for each satisfactory response, with half credits for responses below the best.

Test 17. Finding Reasons. (Arranged by Terman)
1. Give all the reasons you can why children should not talk and "cut up" in school.
2. Give all the reasons you can why children should obey their parents.
3. Give all the reasons you can why a young man should not get drunk.
4. Give all the reasons you can why a man who commits a serious crime should be punished.
5. Give all the reasons you can why a young man should not spend all the money he earns.
6. Give all the reasons you can why city streets should be well lighted at night.
7. Give all the reasons you can why most people would rather have an automobile than a buggy.
8. Give all the reasons you can why one should get a good education.
9. Give all the reasons you can why a country should have plenty of railroads.
10. Give all the reasons you can why some people use typewriters which cost $100 when they could get pens, ink, and penholders for only a few cents.
11. Give all the reasons you can why we should not give something to everyone who begs.
12. Name all the things you can that help to make a nation great.
13. Why should we forgive a wrong act committed in anger more readily than a wrong act committed without anger?

Scoring.—To secure a basis for scoring, the "good" reasons were listed for each test. Usually there were from three to six deemed "good." Then a test was scored one point for each good reason given.

Test 18. Sentence Completion. (Trabue, Scale C.)
Given and scored according to author's directions.

Test 19. Sentence Building. (Adapted from Masselon)
1. sky, red.
2. sun, noon.
3. water, hill.
4. teacher, pleased.
5. pen, ink, letter.
6. boy, string, kite.
7. carpenter, house, lumber.
8. pipe, match, smoke.
9. needle, thread, button, coat.
10. hunter, gun, forest, rabbit.

Scoring.—One point for each. One sentence or two coordinate clauses.

Test 20. Disarranged Sentences
1. DOG THE RUNS
2. HOT SUN IS THE
3. HARD VERY IS RAINING IT
4. SHORT LEARNED IS QUICKLY LESSON A
5. DOES ANGRY NOT TO IT GET PAY
6. ACTIONS CAN A WE MAN BY JUDGE HIS
7. WITHOUT NOT IS BECOME TO IT EASY RICH WORKING
8. TO WORSE BEFORE ATTEND IT TROUBLES GET TO THEY PAYS
9. PASSENGERS THE CRASHED ALL SHIP A AND AGAINST DROWNED WERE ROCK THE

Scoring.—One point each.

Test 21. Ball and Field Test. (Terman)
Like the Stanford Revision test, but with five fields, each of a different shape. The first is a circle, the second a square, the third a rhombus, the fourth an ordinary cross, and the fifth a Maltese cross. This method made possible a finer gradation of the performance than is possible in the regular Stanford Revision test.

Scoring.—One point for "inferior plan," two points for "superior plan," for each of the five fields; total possible credit, 10 points.

Test 22. Finding the Shortest Road. (Terman)
Cuts were made representing city blocks and streets. Two distances were shown and the subject was asked to find the shortest road from one of these points to the other. The series contained nine tests. In each the shortest distance was readily discriminated from other possible routes by ordinary observation and single calculation.

Scoring.—One point for each of the nine tests of the series.

The following table shows the correlation of each of these tests with Stanford-Binet mental age and their correlations with one another. The correlations were computed by the Spearman Footrule and then converted into r values by the Pearson conversion table, based on:

\[ r = \frac{\pi}{3} (1-R) - 1 \]

It is believed that the 484 correlations which the table contains should prove of decided interest to those who are concerned about the analysis of mental abilities and their relationships.
|---------------------|----------------|-----------------|------------|---------------|-----------------|-------------------|-----------------|-------------------|-----------------|----------------|----------------|----------------|---------------------|----------------|----------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|