THE BALL AND FIELD TEST AS A HELP IN THE DIAGNOSIS OF EMOTIONAL DIFFICULTIES

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One of the tests which Lewis Terman invented when revising the Binet-Simon tests is the so-called Ball and Field test. Terman calls it a test for practical judgment. The instructions run as follows:

> Draw a circle about two and one half inches in diameter, leaving a small gap in the side next the child. Say: "Let us suppose that your baseball has been lost in this round field. You have no idea what part of the field it is in. You don't know what direction it came from, how it got there, or with what force it came. All you know is that the ball is lost somewhere in the field. Now, take this pencil and mark out a path to show me how you would hunt for the ball so as to be sure not to miss it. Begin at the gate and show me what path you would take."[1]

The test was standardized with fifteen hundred children of the age groups 8-9 and 12-13, and Terman presents thirty specimens of successful and unsuccessful solutions of these two age-groups. The spiral or the zig-zag paths are considered successful solutions of the higher age-group. A simple path round the edge of the field and paths which lead from the center or from the entrance of the field to the different sides as well as other solutions of similarly inadequate planning—though lines may be straight—are the plus solutions for the lower age-group. Various types of random scribbling are considered failures.

Since the evaluation was only carried out from the standpoint of successful or unsuccessful *intelligence* performance, those solutions which deviated from the norm received no consideration within the Binet-Stanford tests. We noticed, however, when applying these tests on difficult children that some of these deviations have *diagnostic values*. This suggests the application of the Ball and Field test for purposes other than that of testing intelligence only. It

[1] See the detailed discussion in Lewis M. Terman, *The measurement of intelligence* (New York, 1916), pp. 210 ff.

was found that certain types of solutions are characteristic of *children with emotional problems,* so-called *neurotic* children.[2]

Terman himself noticed that failures or low-grade solutions could be found even among adults of average intelligence, which means that it is not intelligence only that influences the solution of this test. Difficult children of highly advanced intelligence occasionally produce the most negative solutions. This observation induced me to attempt a closer study of these failures. I believe that I have succeeded in showing that the Ball and Field test can be used for diagnostic purposes. In this connection we must, however, rid ourselves of the idea that the Ball and Field test is primarily an intelligence test.

Let us consider for a minute the type of performance that is required of the child when carrying out the instruction. He has to proceed planfully in a practical situation which is, however, a fictitious and imagined one. To solve the problem, he must produce in his mental eye a visual survey over a fictitious space and as a concrete help for visualizing the field we give him a circle supposed to represent the field. Failures may occur for various reasons.

(1) The child may suffer from a defective *ability to visualize.* He may not be able to visualize a field or may forget, while he is drawing, that he is supposed to be walking on a field. It seems that especially the younger children had great difficulty to keep their task in mind and retain it in their imagination. Solutions in which the child draws various lines to the edge of the field, starting every time from the center of a middle line (positive eight years solution according to Terman), or concentric circles (positive twelve years solution according to Terman; not quite rightly we feel) completely ignore the point of view that the path on which one walks over a field must necessarily be continuous. One would have to jump to get from one concentric circle to the next. It is impossible to walk in concentric circles and cover the field (see Fig. 1).

The same lack of ability to visualize the task that seems general with younger children—the greatest number of the positive eight years solutions seems to point to this fact—remains as a characterological feature with a certain number of people also in later years. Even when grown up they cannot visualize such a task.

(2) Another possibility of failure is the inability to work sys-

[2] I am told that the same discovery has recently been made by one of the coworkers of Dr. Henyer in Paris, but I have not been able to secure details for comparison.

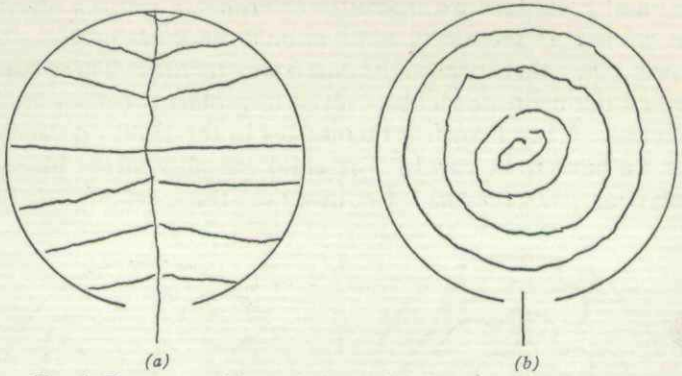


FIG. 1. Terman positive solutions: *(a)* No. 20 and *(b)* No. 2.

tematically, to plan and to organize. The ability to organize is one of the criteria of practical intelligence, and as such a criterion of maturation. Terman did not find systematic approaches to the Ball and Field test before the age of eight. Apart from this, however, *inability to plan* is a characterological feature which many people retain all through their lives; some because of lack of intelligence, others because of emotional disturbances.

Inability to plan, caused by emotional disturbances, can never be diagnosed with one test only. We have, however, already several tests at our disposal which, if applied *together,* reveal the state of a child's emotional life with a fair amount of accuracy. I wish to emphasize that, as far as my experience goes, one test alone never yields reliable criteria for the diagnosis of emotional difficulties. As we shall see in discussing the Ball and Field test, there are always neurotic children who will be able to carry out one or the other of these tasks in a systematic and normal fashion, whereas on the other hand, there are normal children who, from lack of imagination, or from some other reason, fail in one or the other of these tests. The reason for these irregularities must be found in the fact that every test solution is a complex performance and not the activity of a single isolated function. The great advantage of these tests, on the other hand, is that the child is tested in the natural situation of play and task. It has never happened, however, in my experience that a neurotic child has succeeded in all three or more of the emotional tests which I used or that a normal child has failed in all three emotional tests so completely as to allow these failures to be confused with symptoms. Symptoms of the neurotic child which are revealed in

the Ball and Field test are: *inability to organize, getting stuck in the middle, giving up the work, random and futile attempts* on the one hand, or on the other, *obsessions and inadaptability*. These symptoms arise when the neurotic child involved in problems becomes inhibited and helpless. They manifest themselves in the child's performances.

But we have to be careful. A child can also forget his task and start playing. *Ornaments* (for instance, those of Fig. 2, but also

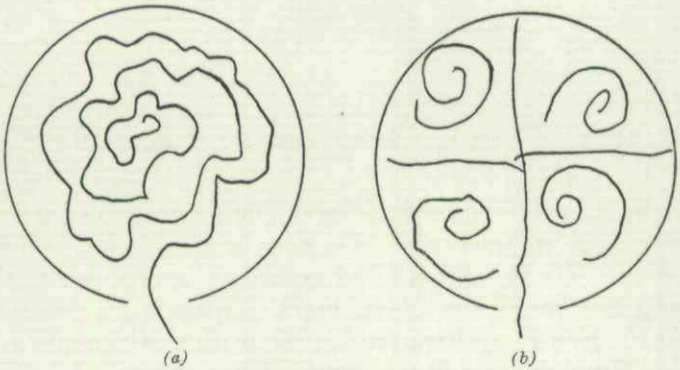


FIG. 2. Terman solutions: *(a)* No. 10 and *(b)* No. 18.

less regular ones) can also be made for fun. That is why a single test solution does not allow any conclusions except by comparison with others.

To survey the innumerable *variety of solutions* that lie before us we have to look for a more systematic classification than the one attempted by Terman. I can unfortunately reproduce only a very small number of solutions in this study. But in taking a sufficiently large number of groups I shall try to classify all types of solution that occurred to me in practical work. Only those solutions of the Ball and Field test are included in this study which were made by children well known to me from my clinical work in London and Vienna. In each case we have an exact diagnosis of the child's development as well as a complete history. Solutions obtained in group tests are not included. At present I have at my disposal 165 solutions of Austrian and English children all well known to me. The age distribution is shown in the following table.

TABLE 1. NUMBER OF BALL AND FIELD TEST SOLUTIONS ACCORDING TO AGE AND SEX

Age	Boys	Girls	Total
7 - 8 years	11	5	16
8 - 9 "	6	6	12
9 - 10 "	14	10	24
10 - 11 "	14	6	20
11 - 12 "	18	6	24
12 - 13 "	14	11	25
13 - 14 "	10	6	16
14 - 15 "	5	7	12
15 - "	4	12	16
Total	96	69	165[3]

[3]In eight cases I have two solutions from one child so that I have 165 solutions from 157 children. The children were cases from my Kinder Psychologisches Institute, Vienna, or from my Parent's Association Institute, London, tested in 1936-37.

TYPES OF SOLUTIONS

Normal

Concerning the types of solutions I should like to distinguish *a sequence of normal solutions* leading from the simple path into the field and out again to the spiral solution, from a *variety of abnormal individual performances.*

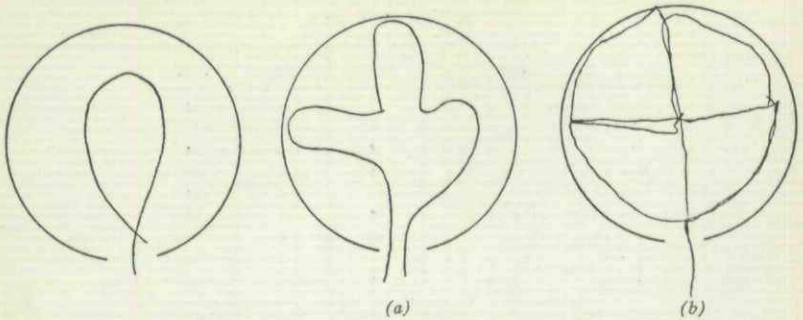
Among those solutions that show a systematic approach to the task one can clearly recognize a sequence leading from primitive to more and more thoughtful planning.

The most primitive plan is to *run straight* into the field, to stop and look around. This solution, completely omitted by Terman, appears in five of my cases. Two are normal children of seven and nine years, two are retarded ten years old and one is a feeble-minded child of twelve. This type of planning corresponds approximately to the Terman ten year solution number twelve. I shall call it the A-solution.

The next step in planning seems to be a *path into the field with a simple walk round* inside or only a walk round immediately at the entrance. This solution is a quite adequate reaction to Terman's instruction. As a matter of fact, I do not consider Terman's instructions sufficient to secure the best possible result, and I always add, "The field is very large and you can't possibly see the edge of the field from the middle." Only when this addition is made, the simple walk round is inadequate. I call this solution-B (Fig. 3).

The next step is a type of solution in which the child has already realized that he has to get to the middle of the field as well

FIG. 3 FIG. 4



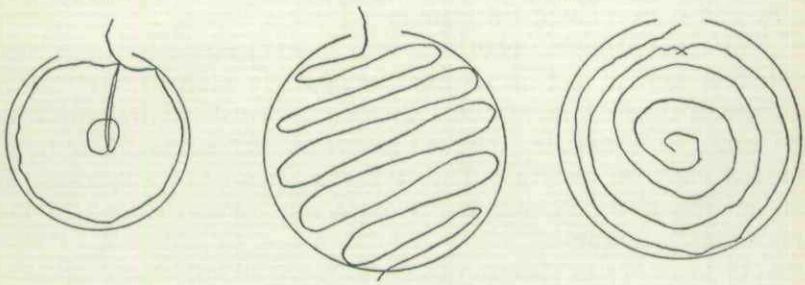
(a) (b)

FIG. 3. Sample of B-solution. B 54 E, Bryan, 14; 8, neur.[4]
FIG. 4. Samples of C-solutions. *(a)* G 27 E, Rose, 9; 3, int.
(b) M 4031 A, Ilse, 9; 10, int.[5]

as to the edge and that neither the one nor the other alone is sufficient. These are the solutions where the path leads *through the middle and is combined with either a walk round or other paths branching off from the middle.* This step I call C (Fig. 4).

An attempt to *walk round the middle as well as round the edge* is the next step. I call it D (Fig. 5). This step comes very near to the best planned last step of the perfectly organized and correct solutions.

FIG. 5 FIG. 6



(a) (b)

FIG. 5. Sample of D-solution. G 45 E, Audrey, 13; 0, unint.
FIG. 6. Samples of E-solutions[6] *(a)* K 4024 A, Franz, 12; 6, neur.
(b) G 203 E, June, 13; 7, norm.

[4] *Explanation of symbols:* Boy no. 54, English case; pseudonym Bryan; age 14 years, 8 months; diagnosis, neurotic child.

[5] *Explanation of symbols:* (a) Girl no. 27, English, pseudonym, Rose; age 9 years, 3 months; diagnosis, normal intelligent. Mädchen (= girl) no. 4031, Austrian, pseudonym, Ilse; age 9 years, 10 months; diagnosis, normal intelligent.

[6] *Explanation of symbols:* K = boy (Knabe); norm. = normal child of average intelligence.

The last step is the *spiral* or the *zig-zag path.* Here is found the most practical method to cover the entire space without ever touching the same point twice, either by walking round and round the field or by walking from one side of the field to the other. I call this solution E (Fig. 6). It is the most frequent one with older children and appears in 40 per cent of all the cases, though with some interesting variations that will be discussed later. I have included in this group No. 7 of Terman's eight years solutions which appeared once or twice. I do not consider myself justified to call this an eight year solution. Whether the spiral path runs a little more irregular or smooth is due more to chance or imperfection of the drawing than to lack of planning.

The first group of deviations that I have before me is akin to the normal solutions insofar as some plan is perceptible. The child wishes to run round the field in circles or to cover it from the center. But, while drawing his lines, the child *loses the visual picture of the field and no continuous path is produced.* Instead the child draws concentrical circles or lines which radiate from the center. Terman (samples 2, 6, 14-20) considers these solutions successful. I do not agree with him in this because the task of making a *path* is being forgotten. This solution is produced partly by the type of child with *difficulties in visualization,* partly by people who grasp the task *only approximately.* I call the solution *no continuous path.*

Problematic

The next three groups, however, are most peculiar and problematic. In contrast to everything discussed so far, they have in common an element of irrationality. They are inexplicable from the point of view of systematic or rational behavior. These solutions show lack of understanding of the task such as we have found in the failures produced by younger children who made a few strokes probably because they did not know what was required of them (Terman solutions 25-30). The first of the three groups that we can distinguish among the problematic solutions can be described as follows: There is a *leading idea* from the start, *confusion* seems to arise and *blind running here and there* follows. Utmost *uncertainty* and *helplessness* must stand behind this *random confusion* of lines, which is shown in the following figures. There is first a path through the middle or round and then a confused up and down of lines in angles or half circles. We call this solution *helplessly confused.*

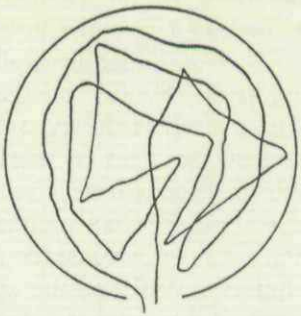


FIG. 7. Sample of *helplessly confused.*
B 209 E, Edmund, 10; 2, neur.

More problematic are the next two groups. There is one type of solution where the child starts to walk into the field and up and down in a random fashion, then seems to *give up* the whole thing suddenly, by stopping *helplessly* somewhere in the middle. Fig. 8 shows three of these peculiar solutions. I call them *given up helplessly.* The characteristic feature of this type of solution is that only half of the field is covered.

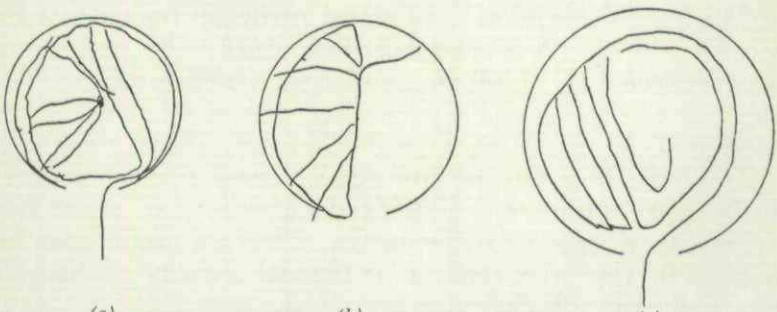
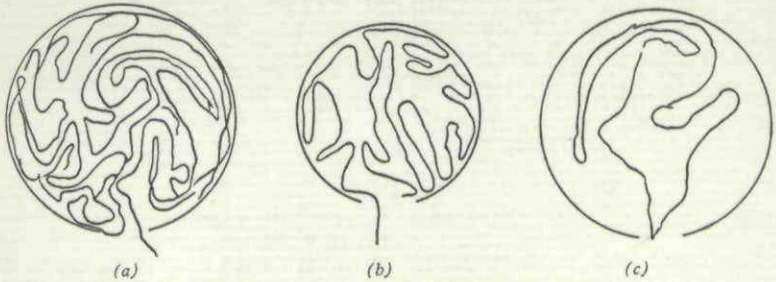


FIG. 8. Three samples of *given up helplessly.*
(a) G 5 E, Laura, 9; 0, neur.
(b) G 26 E, Eve, 8; 7, M.D.[7]
(c) B 11 E, George, 11; 0, neur.

The most interesting is the last group which cannot be called systematic or unsystematic, but possesses a new quality that points to something entirely different. The children cover the field in a way which appears partly *playful* partly *forced.* They make strange *ornaments.* There are various kinds of these ornamental solutions of which we enclose several specimens. They do not give us the

[7] M.D. = mentally deficient or abnormally retarded.

impression of helplessness but, on the contrary, that of an *artificial* attitude. The child seems to be "playing about." The first type of these ornamental solutions (Fig. 9) is characterized by peculiarly curved lines that make it appear almost like a knitting design. We shall call this group *involved ornament.*

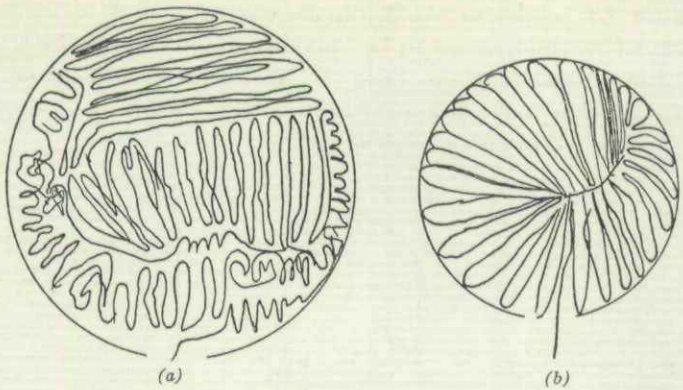


(a) (b) (c)

FIG. 9. Three samples of *involved ornament.*
(a) B 213 E, Hamish, 7; 2, int.
(b) G 50 E, Joy, 11; 9, neur.
(c) K 4017 A, Theobald, F; 4, neur.

The three above and two following solutions which are typical examples of twenty-seven similar ones have in common the fact that one cannot possibly talk of paths through fields any more. The idea of a path is completely forgotten. But there are no random attempts to run up and down the field either, nor evidence of the child giving up at a certain point as in the solutions previously discussed. There is no suggestion of a path nor of a field left. There is only a circle and to fill this circle in a playful or ornamental fashion seems to have a kind of fascination for this group of children. Two ways of filling the circle can be distinguished. Some children make involved ornaments; others try to fill every corner of the circle. They do this with a peculiar formalism and with a kind of *obsession,* neglecting at the same time the ornamental character of the design. We called the above *involved* and shall call the following a *formalistic* solution.

The *involved* type of solutions is distinguished from the *formalistic* one and from the *helplessly confused* one through the line forming peculiar hooks and curves which suggest the comparison with an embroidery design. The lines in the helplessly confused solutions are straight. The formalistic solutions are distinguished from all others by the *painful accuracy* with which every corner of the field is filled up with lines. An inclination towards this type of formalism

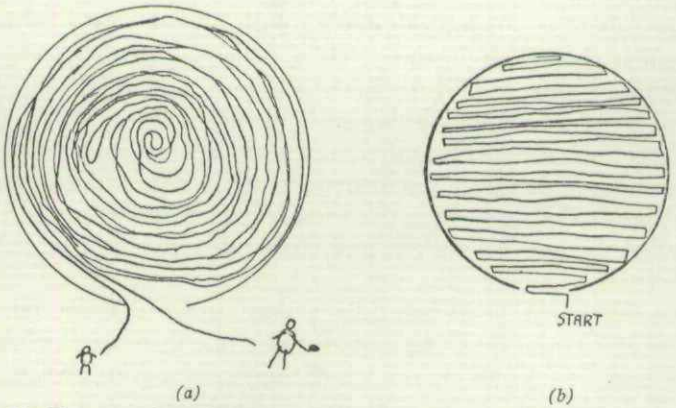


(a) (b)

FIG. 10. Two samples of *formalistic* solutions.
(a) B 1 E, Cuthbert, 9; 10, neur.
(b) B 270 E, Adrian, 11; 4, neur.

can also be found in some of the correct solutions of group E (Fig. 11).

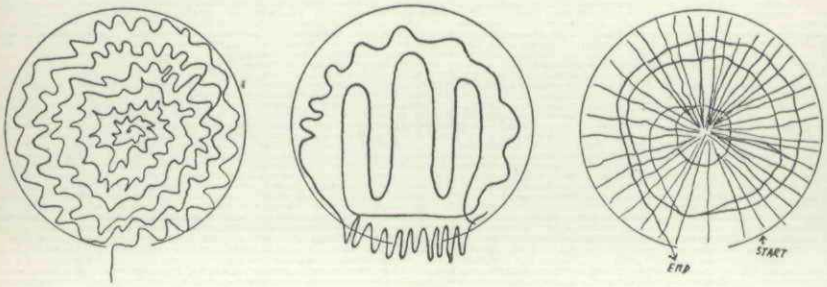
There are children who while drawing their spiral or zig-zag lines show the same type of anxiety to fill the space as the children who produce the negative formalistic solutions. In these formalistic spiral or zig-zag drawings the real task must also have been forgotten more or less while the child carried out the task. For no real path can run as the figures show (Fig 12).



(a) (b)

FIG. 11. Two samples of positive E-solutions with formalistic tendencies.
(a) B 149 E, Benjamin, 12; 0, int.
(b) B 117 E, Bernhard, 14; 9, neur.

The same must be said of the playful ornamental additions with which some children adorn their correct solutions. We may call this subdivision *artistic.*



(a) (b) (c)

FIG. 12. Three samples of *artistic* E- and *helplessly confused*-solutions.
(a) G 203 E, Jane, 13; 7, norm.
(b) B 146 E, Geoffrey, 10; 7, int.
(c) B 181 E, Christopher, 13; 0, norm.

It is not always easy to draw a line. The most accurate and formalistic solutions, however, can be distinguished easily enough from the more "easy-going" ordinary solutions where the child is satisfied to solve his task in a simple fashion and without any additions. We shall discuss this point later.

DISTRIBUTION OF SOLUTION-TYPES

After having described the various types of solutions of the Ball and Field test we shall now in the second part of this little study investigate the *distribution of these types of solutions according to age, sex, and temperamental features of the children.* So detailed a discussion of the different varieties of solutions would be without purpose if we did not expect a relevant correlation with certain peculiarities of the children tested. Such a correlation does in fact exist. Let us first investigate the simplest correlations, those of age and sex, as well as the numerical distribution of the different types of solutions.

Let us recall our groups once more. There is first the sequence of solutions A to E, further the varieties *no continuous path, helplessly confused, giving up helplessly* and the two ornamental varieties *involved* and *formalistic.* (The last variety again has subdivisions: that of correct solutions with formalistic tendencies, and a further subdivision of *artistic* and *formalistic* solutions, some of

them correct, some of them incorrect. These formalistic positive solutions are shown only in Tables 3 and 4 and are not included in the totals.)

TABLE 2. DISTRIBUTION OF THE VARIOUS TYPES OF SOLUTIONS

	Positive Solutions							Failures—Negative Solutions					
Sequence	A	B	C	D	E	Total I	No continuous path	Helplessly confused	Given up helplessly	Involved	Formalistic	Total II	Total I and II
Boys.....	3	8	5	3	46[8]	65	5	5	1	15	4	30	95
Girls.....	2	6	4	5	29	46	2	8	4	8	2	24	70
Total...	5	14	9	8	75	111	7	13	5	23	6[9]	54	165

[8] 10 boys.....zig-zag
36 boys.....spiral
24 girls.....spiral
5 girls.....zig-zag

Solutions with an artistic tendency only appear 4 times plus 2 times. Four are E solutions, 1 formalistic, 1 lack of visualization.

[9] Additional correct E-solutions with strong formalistic tendency 4 plus 1, not included in this column, but in the E column.

Two-thirds of all the solutions are correct. Approximately half of all these solutions are the best possible. Only the one-third made up by failures will occupy us more in detail. Girls more frequently produce the *helplessly confused* failures, boys more frequently the *formalistic* type of failures.

TABLE 3. TYPES OF SOLUTIONS IN RELATION TO AGE

	Positive Solutions						Failures[10]							Positive Solutions Which Are:	
Age	A	B	C	D	E	Total I	N. c. p.	H c.	H. g. u.	I. o.	F.	To-tal	Total I + II	F. They Are Types of E.	Art.
7 - 8...	1	2	..	..	5	8	..	..	1	6	1	8	16	..	..
8 - 9...	..	..	1	..	3	4	1	1	2	4	..	8	12	..	..
9 - 10...	1	1	4	3	7	16	1	3	1	2	1	8	24	..	1
10 - 11...	2	1	..	..	10	13	..	2	..	3	1	6	19	2	1
11 - 12...	..	2	..	1	14	17	1	1	1	3	1	7	24	2	1
12 - 13...	1	2	3	1	13	20	1	3	..	2	..	6	26	1	2
13 - 14...	..	1	..	1	9	11	3	..	..	1	1	5	16	..	1
14 - 15...	..	2	..	2	5	9	..	2	..	..	1	3	12	1	..
15 +...	..	3	1	..	9	13	..	1	..	2	..	3	16	..	..
Total ..	5	14	9	8	75	111	7	13	5	23	6	54	165	6	6

[10] *Abbreviations:* N.c.p. = no continuous path; H.c. = helplessly confused; H.g.u. = helplessly given up; I.o. = involved ornament; F. = formalistic; Art. = artistic.

The E-solution which ought to increase and constitute from twelve years on the normal solution, does not, in our small material, quite show the regular developmental tendency which we would wish to see. Table 4 will show with independent values the development of E-solutions. We used the contingency coefficient which is the most suitable in this case.

TABLE 4. E-SOLUTIONS IN INDEPENDENT VALUES CORRELATED WITH AGE

Age	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Contingency coefficient.....	—32	—35	—37	—22	+29	+12	+21	— 1	+49

We thought that the many neurotic children influenced the developmental aspect. Table 5 was thus constructed showing the E-solutions of only normal children. But the result is not much clearer.

TABLE 5. THE E-SOLUTIONS OF EIGHTY NORMAL CHILDREN IN INDEPENDENT VALUES CORRELATED WITH AGE AND COMPARED WITH OTHER SOLUTIONS

Age	A-D solutions	Independent figures	E-solutions	Independent figures	Failures	Independent figures	*Total*
7 - 8.....	3	4	3	—42	4	114	10
8 - 9.....	1	— 13	1	—52	2	166	4
9 - 10.....	7	121	4	—30	0	—100	11
10 - 11.....	2	38	3	14	0	—100	5
11 - 12.....	2	41	10	46	1	— 58	13
12 - 13.....	4	7	6	—12	3	23	13
13 - 14.....	2	30	5	—47	3	60	10
14 - 15.....	0	—100	4	52	1	7	5
15 +.....	2	— 22	6	27	1	— 40	9
Total.....	23	...	42	....	15	...	80

If, however, in view of the very small figures, we group together three age-groups, we get a better result as can be seen in Table 6.

TABLE 6. E-SOLUTIONS OF ALL CHILDREN IN INDEPENDENT VALUES, IN THREE AGE GROUPS

7–10	–35
10–13	+11
13–15+	+24

We now approach the most interesting question, that of the *emotional problems*. We have to distinguish the following groups:

(1) *Normal children of average intelligence.* These children have no temperamental peculiarities; they came to our consulting rooms because their parents were interested in the work or in the general development of their children. (2) *Normal children of advanced intelligence.* These were children whose I.Q. when tested with the Terman tests or the National Intelligence tests proved to be above normal. (3) *Mentally slow normal children* whose I.Q. was somewhat below normal, although they could still be considered normal. (4) *Mentally deficient* children with an I.Q. of 0.70 and under. (5) *Neurotic children.* This term was applied to all children with *emotional problems* who could not cope with themselves or their surroundings and who tried to escape from their actual life situation through *unusual* or *abnormal behavior,* from obstinacy, abnormal shyness or inhibition to untruthfulness, stealing, running away from home, etc. A more scientific definition of neurosis will be given elsewhere.[11] For the purpose of this short study the above description may suffice.

Among the neurotic children there were some very intelligent ones, others of average or subnormal intelligence. We shall neglect differences when discussing the child with emotional difficulties, although the effects of intelligence and emotion overlap. Our main issue in this study, however, is not to show the correlation between the Ball and Field test and intelligence—this was done by Terman—but to show that the test can be used as a help for the diagnosis of

TABLE 7. DISTRIBUTION OF THE TYPES OF SOLUTIONS MADE BY NORMAL, FEEBLEMINDED, AND NEUROTIC CHILDREN

CHILDREN	POSITIVE SOLUTIONS					Total I	FAILURES					Total II	POSITIVE SOLUTIONS WITH TENDENCY	
	A	B	C	D	E		N. c. p.	H. c.	H. g. u.	I.	F.		F.	Art.
NORMAL														
Average.....	2	5	3	3	20	33	2	1	1	1	1	6	1	2
Intelligent.....	..	..	5	..	15	20	2	..	..	2	1	5	..	2
Unintelligent....	2	1	1	2	13	19	2	1	..	2	..	5	1	1
ABNORMAL														
Feebleminded...	1	4	..	1	2	8	..	1	2	1	..	4	..	..
Neurotic.....	..	4	..	2	25	31	1	10	2	17	4	34	4	1
Total.....	5	14	9	8	75	111	7	13	5	23	6	54	6	6

[11] See Ch. Bühler, *Developmental problems of normal children* (in preparation).

neurosis. That is why we were particularly interested in solutions of the Ball and Field test produced by neurotic children when compared with normal and feebleminded children.

We show this table once more in independent values with the contingency correlation because it is the most important of our tables.

TABLE 8. INDEPENDENT VALUES OF THE DISTRIBUTION OF SOLUTIONS MADE BY NORMAL, FEEBLEMINDED, AND NEUROTIC CHILDREN

Children	Positive Solutions					*Total* I	Negative Solutions—Failures					*Total* II
	A	B	C	D	E		N.c.p.	H.c.	H.g.u.	I.	F.	
Average.....	+ 70	+ 43	+ 40	+ 59	+ 12	+ 26	+ 21	— 68	— 15	— 82	— 30	— 52
Intelligent	—100	—100	+194	—100	+ 32	+ 19	+ 87	—100	—100	— 42	+ 1	— 38
Unintelligent..	+173	— 59	— 23	+ 71	+ 19	+ 17	+ 96	— 47	—100	— 40	—100	— 36
ABNORMAL												
Feebleminded....	+ 15	+292	—100	+ 70	— 63	— 1	—100	+ 6	+ 46	— 40	—100	+ 2
Neurotic.....	—100	— 27	—100	— 36	— 15	— 29	— 64	+ 95	+ 1	+ 88	+ 74	+ 60

This table is very interesting. It shows us: (1) Positive correlation of the whole group of normal children with the positive solutions and negative correlation of the abnormal children with the positive solutions. The opposite is true for the negative solutions. (2) The average children correlate best of all with the positive solutions, though not best with the highest type of the positive solutions, (E); the neurotic children correlate best of all with the negative solutions. The feebleminded children correlate least of all with the E solutions. (3) The negative solution "no continuous path" (N.c.p.) has nothing to do with emotional problems but with a lack of visualization and is therefore that type of a negative solution which is characteristic for normal children. (4) The neurotic child does not produce negative solutions because of lack of visualization, but it produces mainly the *confused,* the *involved* and the *formalistic* solutions. It is interesting to note that the intelligent children show a slight tendency towards formalism which later leads frequently to emotional problems. (5) The negative solution of the type *helplessly given up* is most characteristic for the feebleminded child.

With the exception of some irregularities due to very small figures, the table shows clearly the very strong positive correlation of the confused, involved, and formalistic solutions with emotional

problems and an equally negative correlation of these types of solution with the average child. *Of all the helplessly confused, involved, and formalistic solutions 73 per cent came from neurotic children. They might well be considered of symptomatic value for emotional difficulties.* The *artistically* formalistic positive solutions are, however, again characteristic of the normal child. Five out of six of such solutions have been produced by normal children.

We may finally ask whether *age* has an influence on the degree and type of the negative solutions of the neurotic child. In Table 9 we shall split up the solutions into all types of solutions, ages, and types of children. The figures are very small, yet we can see that age has no influence on the neurotic child's type of solution, or at least we can say that there is no clear correlation so far.

TABLE 9. CORRELATION BETWEEN TYPE OF SOLUTION TYPE OF CHILD AND AGE

	Positive Solutions						Failures											
	Normal		Neurotic		Mentally Deficient	Total I	Normal					Neurotic						Total II
Age	A-D	E	A-D	E	A-E		N. c. p.	H. C.	H. g. u.	I.	F.	N. c. P.	H. C.	H. g. u.	I.	F.	M. D.	
7 - 8..	3	3	..	2	..	8	..	..	..	3	1	..	..	1	3	..	..	8
8 - 9..	1	1	..	2	..	4	1	..	..	1	..	..	1	..	3	..	2	8
9 - 10..	7	4	1	2	..	16	..	..	..	..	..	1	2	1	1	1	2	8
10 - 11..	2	8	1	2	..	13	..	..	..	..	..	..	2	..	3	1	..	6
11 - 12..	2	10	1	5	..	18	1	..	..	..	..	..	1	1	3	1	..	7
12 - 13..	4	6	1	6	3	19	1	1	..	1	..	..	2	..	1	..	..	6
13 - 14..	2	5	..	4	..	11	3	..	..	..	..	..	..	..	1	1	..	5
14 - 15..	..	4	3	1	1	9	..	..	..	..	1	..	2	..	..	..	..	3
15 +..	2	6	..	3	2	13	..	1	..	..	..	..	..	..	1	..	1	3
Total .	23	47	6	27	8	111	6	2	0	5	2	1	10	3	16	4	5	54

The neurotic children's H.c., I. and F. solutions are on each age level about equally either half or a third of all their solutions.

If we look at the nine normal children who solved the Ball and Field test after the fashion characteristic for the neurotic ones, we find that among these children there are three seven-year-olds who might have looked at this task as a game and solved it in a playful manner, three unintelligent children and two girls in the *negative phase,* a period in which, as we know from experience, children are inclined to show temporary neurotic symptoms. There was only one *completely normal child* older than eight in this group. If we count the two girls who had temporary emotional difficulties among

the neurotic children and eliminate the seven-year-olds and the unintelligent children because of their lacking understanding for the task we can conclude this study by stating *that the confused, the involved, and the formalistic solutions of the Ball and Field test are brought about in 78 per cent by emotional problems, in 20 per cent of the cases through lack of understanding of the task. They were found in only 2 per cent of all the cases with completely normal and average children. They have, therefore, to be considered of symptomatic and diagnostic value for emotional problems in children.*