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## REVIEWS AND NOTICES

**The Development of Intelligence in Children (The Binet-Simon Scale).** By Alfred Binet, Sc. D., and Th. Simon, M. D. Translated by Elizabeth S. Kite. Pp. 1-336. Publications of the Training School at Vineland, New Jersey, Department of Research. No. 11, May, 1916.

**The Intelligence of the Feeble-Minded.** By Alfred Binet, Sc. D., and Th. Simon, M. D. Translated by Elizabeth S. Kite. Pp. 1-328. Publications of the Training School at Vineland, New Jersey. Department of Research. No. 12, June, 1916.

These two volumes bring together in translation all the important writings of Binet and Simon concerning mental diagnosis and mental development. The content of each is of a more miscellaneous nature than the title indicates, but the same central interest runs through both and gives the different articles a sufficiently coherent character to be brought together in this way. The translation should bring the results of the authors' studies to the attention of a large body of readers not

familiar with the French language who are eager to know them first-hand, and to a few psychologists who evidently have not taken the trouble heretofore to acquaint themselves with the original. The unprecedented success of the Binet-Simon tests has interested scores of psychologists, physicians, and others in the test method of mental diagnosis, the great majority of whom in all probability would not have given this subject a second thought had not Binet and Simon shown possibilities in this field that were never even dreamed of before. With the authors' success have come the critics, and with the critics an over-anxious group of workers straining to produce a superior method, and at times, it seems, even to depreciate and destroy the work of those who have shown them the way to unbounded opportunities. Science is not interested in human motives, but only in the results that may flow from them. It may therefore welcome the present interest in the mental test question. But it cannot welcome the way in which some are going about it to hasten progress, simply because their procedure cannot lead to progress, but only to confusion, which is already all too evident. Binet's studies which led to the publication of the 1908 series of tests passed through several stages of development, in which his general method of approach in the diagnosis of grades of intelligence was completely revolutionized. Some of the present students of this subject, somewhat intoxicated from a borrowed success, see only the final stage of this development, a highly practical system of mental tests, and are endeavoring to lead the way to higher stages by beginning where Binet began twenty years ago. The bringing together of Binet and Simon's writings and their translation in the present two volumes should not have been necessary to prevent this procedure, but now that we have their results in this handy form, may it be hoped that the last excuse for it is removed. Psychology is deeply indebted to Miss Kite for this translation. As the editor notes, "It never was more needed than now."

The first volume embodies five articles. (1) Upon the necessity of establishing a scientific diagnosis of inferior states of intelligence. (2) New methods for the diagnosis of the intellectual level of subnormals. (3) Application of the new methods to the diagnosis of the intellectual level among normal and subnormal children in institutions and in the primary schools. (4) The development of intelligence in the child. (5) New investigations upon the measure of the intellectual level among school children. Of these five articles it is the first two especially that should be read by everyone interested in the diagnosis of grades of intelligence. They give the key to the success of the tests, and show the inadequacy of earlier procedures. Among the important conclusions they have arrived at the following especially are disregarded by and perhaps unknown to many who are engaged in the practical work of mental diagnosis, or in the scientific task of producing better methods. (1) It requires psychological methods and a psychologist to diagnose grades of intelligence accurately. Etiology, physical pathology, past history, and curability are of little or no aid in establishing a diagnosis of the present mental condition of a case. (2) The method and results must be objective, and not merely an impression, or judgment of the examiner. (3) The classification as to grade of intelligence must have reference to the normal, and not simply indicate vague and arbitrary degrees of defect. (4) Mental tests, before they can have any value for diagnostic purposes, must have established

norms; it must be known exactly what scores normals will make with them.

The last part of the second article gives the 1905 series of tests. The fourth gives the 1908 system and their discussion, and the fifth discusses changes embodied in the 1911 revision.

The second volume treats of three topics. Part I: The intelligence of the feeble-minded. Part II: The language of the feeble-minded. Part III: Feeble-mindedness and dementia. The method of study is throughout empirical, and largely experimental. While the results remain far from giving us a psychology of feeble-mindedness, they embody many ingenious methods and brilliant interpretations.

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**The Measurement of Intelligence. An Explanation of and a Complete Guide for the Use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale.** By Lewis M. Terman, Professor of Education, Leland Stanford Junior University. Pp. XVIII+362. Houghton Mifflin Co., 1916.

The first one hundred pages of this book deal with "Problems and Results." The several chapters in this part discuss the uses of intelligence tests, sources of error in judging intelligence without tests, description of the Binet-Simon method and the present revision, the intelligence quotient, and reliability of the Binet-Simon method. It makes an excellent introduction, with which everyone who intends to use any system of tests should be familiar. The second part gives the tests with detailed directions on how to give them and how to score responses. Each test is followed by remarks as to the placement of the test in the age-group, mental processes involved in the test, or other characteristic feature. The present review will deal chiefly with matters concerning the nature of the revision, the method used, and the classification of the children on the basis of its results.

The revision is the result of several years of work, involving the testing of about 2,300 cases, by a number of trained assistants and the author. After eliminating foreign born children there were left 905 from 5 to 14 years. The final revision below 14 years is based on the testing of 30 business men, 150 "migratory" unemployed, 150 adolescent delinquents, and 50 High School students. In this testing the tests were used in a provisional arrangement based on the results found in the literature, and some preliminary results of his own. Forty new tests were used with these for a try-out. The attempt was then made to so arrange the tests in the different age-groups, or to so change the standards of scoring the different tests that the median age of each age-group of children was the same as the median mental age of the group as found by the tests. Only such children were chosen in the public schools as were within two months of their birthday, and all such in each school were tested. The third rearrangement attained the end sought, and "as finally revised, the scale gives a median intelligence quotient closely approximating 100 for the unselected children of each age from 4 to 14." To test the value of each test individually the children were divided into three groups, the first with intelligence quotients below .90, the second with I. Q.'s from .90 to 1.09, and the third

with I. Q.'s above 1.09. The value of the individual test was then judged by the rate of increase in the percentage of children passing it, going from the lower to the higher I. Q.'s. The revised scale left six tests in each age-group for the ages of 3 to 10, eight tests for the age of 12, six tests for the ages of 14, 16 and 18, with a few extra tests, which are placed in some of the age-groups as alternates. No tests are given for the ages of 11, 13, 15, and 17. This arrangement eliminated 3 of the Binet-Simon 1911 tests, shifted 32 into other age-groups, and left 19 in their original positions. The remainder are the new tests added.

The rule for determining the mental age of a case from the given test results is as follows: "(1) Credit the subject with all the tests below the point where the examination begins (remembering that the examination goes back until a year group has been found in which all the tests are passed); and (2) add to this basal credit 2 months for each test passed successfully up to and including year X, 3 months for each test passed in XII, 4 months for each test passed in XIV, 5 months for each success in 'average adult' (XVI), and 6 months for each success in 'superior adult' (XVIII).

"A distribution curve is given on the percentage of the 905 children from 5 to 14 years for different intelligence quotients, the latter grouped in ranges of ten. This shows the following:

I. Q.....	56-65	66-75	76-85	86-95	96-105	106-115	116-125	126-135	136-145
Percent	.33	2.3	8.6	20.1	33.9	23.1	9.0	2.3	.55

Separate distributions for each age are not given in this volume, but the author assures us that "the distribution was found fairly symmetrical at each age from 5 to 14. . . . The symmetry for the separate ages was hardly less marked for all ages 4 to 14, considering that only 80 to 120 children were tested at each age."

Children with I. Q.'s below 70 are regarded as definitely feeble-minded; with I. Q.'s from 70-80 as border-line defectives, sometimes classifiable as dull, often as feeble-minded; 80-90 as dull, rarely classifiable as feeble-minded; above 90 as normal. As to the reliability of the I. Q. as an index of general ability, he concludes that "We have no hesitation in saying that there is not one case in fifty in which there is any serious contradiction between the I. Q. and the child's performance in and out of school."

Readers who have followed the progress of the work of revising and improving the original Binet-Simon tests will appreciate this contribution, the result of the most extensive and most carefully planned study so far published by any one author. The original scale has long been known to measure somewhat too high at the lower end, and too low at the upper end. Terman's revision apparently corrects this. He has added a sixth test to each age-group, which makes the scale more reliable in each individual case examined. He has also given detailed directions for giving the tests and for scoring responses, which is a very essential feature but was lacking in the original, although this had already been done by other authors. The plan followed in making the revision, with reference to the selection of the children tested, the testing of the value of each individual test, etc., takes advantage of the best in discussion and criticism. The discussion of the I. Q. as the best method of grading intelligence on the basis of results with these tests should leave no excuse for continuing the more inaccurate procedure of grading on the basis of number of years retarded.

The revision is to be regarded in every sense as a marked step in advance. The magnitude of the undertaking is, however, such as to

necessarily leave a number of things still to be improved upon. Among these the following suggest themselves to the reviewer:

1. A more thorough standardization for age III, IV, and possibly V. Non-selected children of these ages and younger are difficult to find in groups available for examination.

2. The selection of cases above XIV is unsatisfactory, and the number of normal cases rather small.

3. The number of tests beyond age X is too small to give a high degree of reliability in the examination of the individual case. Tests should have been found for the intermediate ages of XI, XIII, XV, and XVII. The absence of tests at the ages of XI and XIII is at the most critical point of the scale, inasmuch as they are needed here especially for the examination of borderline cases of these ages and older. As they stand, however, the tests undoubtedly give more reliable results at this point than did the original scale.

4. Many of the new tests introduced as well as old ones retained involve in a high degree the judgment of the examiner as to how the response of the child is to be scored. This difficulty is overcome in a measure by giving copious illustrative responses and their scorings, which on the other hand increase the burden of details of procedure to be memorized.

5. It would have added greatly to this volume to have given results on each individual test showing the increase in percentage of children, from younger to older, passing it. By far the most important thing about any system of tests is the reliability of the result of the individual examination, not the agreement of average age with average mental age. This reliability depends on the number of individual tests used and applicable in the individual examination, and on the rate of increase in the percentage of children, from younger to older, passing each test. Perhaps this will be given in the monograph on the details of the results that is promised.

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**Schools and Classes for Exceptional Children.** By David Mitchell  
Dept. of Psychology, University of Pennsylvania. Pp. 122  
The Survey Committee of the Cleveland Foundation, Cleveland, Ohio.

This report is one of the twenty-five sections of the report of the Educational Survey of Cleveland, conducted by the Survey Committee of the Cleveland Foundation in 1915. The monograph on schools and classes for exceptional children is a brief history and constructive criticism of the provision made for such children in the public schools of Cleveland. This city has met the demands of compulsory education by well directed but not always well organized efforts to adjust the schools to the various atypical children who could not be forced into the scheme arranged for the so-called average child.

As early as 1876, Cleveland took the first steps toward providing special training for the children unsuited to the regular grades, when forty "truant and incorrigible boys" were enrolled in the Special Unclassified School for Boys. A school for the deaf, special classes for defectives, so-called "steamer" classes for foreign children, classes for epileptics, a school for crippled children, industrial centers, classes for the blind and an open air school followed.

In 1915 there were twelve different kinds of special schools and classes, enrolling more than 2,500 children under the care of 140 teachers. The exceptional children have been grouped with reference to the probable future relation of the individual to society. Children different from the majority, but who will probably become self-supporting units of the community, are classified as socially competent and educated as far as possible in the same schools with normal children. Thus children of normal mentality, who are suffering from physical defects, will be trained to take their places in society on the same terms as individuals not so handicapped. On the other hand, children who, by reason of mental defect, will always require social assistance, are segregated in special schools and fitted to become as nearly self-supporting as possible, in the community life of an institution.

As an instance of the plan for the education of the socially competent exceptional children, take the "Cleveland plan" for the education of the blind. Insofar as possible, the blind children are taught in classes with seeing children, the special teachers for the blind being "tutors for the group" rather than regular grade teachers. There are two kinds of classes, those for the blind and for the semi-blind, in which fifty-eight children were cared for under the direction of six teachers, in 1915. In caring for the deaf, the segregation plan has been followed. The survey committee strongly recommends that the same plan be followed for their education that has been so successfully carried out with the blind. The so-called "restoration classes" aim to tutor children who, for remediable causes have fallen behind their regular grade and to "restore" them to that grade as soon as possible. Where failure to advance is due to illness or to home conditions which make regular attendance impossible, children are given special individual attention for a sufficient period of time to bring them up to standard. That another group of children, who require intensive training and study to determine the cause of retardation, be included in this group is very strongly recommended. Such careful training and study would be exceedingly valuable in the diagnosis of doubtful cases of feeble-mindedness.

The Cleveland public schools have assumed the responsibility for two classes of the socially incompetent, the epileptics and the feeble-minded. It is admitted that at least one of these classes, the epileptic, presents so unsatisfactory a pedagogical problem as to warrant elimination. The medical and educational treatment, which these cases require, makes them proper subjects for an institution only.

The author defines feeble-mindedness as social incompetency. "No one who can manage his own affairs so that he will not need supervision can ever be called feeble-minded" and conversely "when one has shown his lack of ability to maintain himself independently of others, an incontestable diagnosis is made." However, the sociologist's definition of feeble-mindedness will not altogether satisfy the psychologists' requirements, nor will it cover the case for him. Exceptions to the rule constitute one of the psychologist's most perplexing problems; individuals with apparently average intelligence, whose lack of those qualities of emotion, will, and judgment that are necessary to their social competency will incapacitate them to maintain existence without supervision and, on the other hand, individuals of a low type of mentality who will be just able to eke out a meagre existence under the simplest conditions.

It is, never the less, the problem of the pedagogical psychologist to discover whether a child will be able to maintain himself without social assistance and to plan that child's training according to his ability. T