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THE STUDY AND TREATMENT OF RETARDATION:
A FIELD OF APPLIED PSYCHOLOGY.

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No valid distinction can be made between a pure and an applied science. That "the final test of the value of what is called science is its applicability" is the opinion of a former president of the American Association for the Advancement of Science. This thought impelled me as long ago as the meeting of 1896, to lay before the members of the American Psychological Association an outline of a field of applied psychology. Under the designation of practical work in psychology was included: (1) The direct application of psychological methods to therapeutics and to education, whether by professional psychologists, practicing physicians, or educators. (2) Such psychophysical investigation of mental conditions and processes as may serve to throw light upon the problems presented in the practice of medicine or teaching. (3) Instruction in psychology containing the promise of usefulness to students of medicine and education in their respective professions.

Thus the plan had a view to the professional practice of psychology, to research and to instruction, as these stand related to the two professions of medicine and teaching.

During the twelve years which followed the first announcement of this plan of practical work, the Laboratory of Psychology at the University of Pennsylvania has been engaged in prosecuting original research along these lines, and in training investigators capable of carrying on independent work. Sufficient time has now elapsed to present a statement of what has been accomplished.

In the prospectus to which I have referred, I suggested the necessity of a psychological clinic, or dispensary, which I had recently organized at the University of Pennsylvania, and which has since been

continued, receiving children from the public schools, from the juvenile court, charitable organizations, and from physicians. This work has grown year by year until at the present time we are seeing from six to ten new cases each week. In the examination and treatment of cases referred to the psychological clinic, I am assisted by three medical associates and a number of psychological assistants, including Dr. Holmes, who is specializing in the direction of the moral training of adolescents, and Miss Town, who is resident psychologist at the Friends' Asylum for the Insane.

Although the necessity of keeping these children under observation and prolonged training had led me to recommend the establishment of schools or homes for those children needing expert psychological and pedagogical treatment, it was not until July, 1907, that I was able to establish on a satisfactory basis what I originally called a hospital school, but more recently the Orthogenic School. This school is conducted by the Psychological Laboratory, as a medical school conducts a hospital, both for private and free cases. Through the psychological clinic, but chiefly in the orthogenic school, a number of cases have been under such prolonged observation and training that it is now possible to present reports which will show the mental and physical status of the child at the time he was received into the school, the methods of training and physical treatment employed, and the results which followed such treatment. Primarily for the purpose of reporting these cases in a satisfactory manner, the publication of a journal called *The Psychological Clinic* was undertaken in March, 1907.

I have recently proposed the word *orthogenics* as the name for that branch of science which investigates retardation and deviation and the methods of restoring to normal condition those who are found for one reason or another to be retarded or deviate. Through the reporting in this journal of our work at the University of Pennsylvania, and of such independent work as that of Dr. Margaret K. Smith, of New Paltz, New York, and of Dr. Sterling, of Baltimore, we believe we are contributing to the establishment of a clinical psychology as a department of orthogenics.

The characteristic features of the clinical method in psychology are :

1. Its concern for the individual, which makes it in effect an individual psychology ; and
2. The application of remedial or orthogenic treatment to individual cases of retardation or deviation, and even to the hypothetically normal child.

A comparative psychology may be based upon a study of indi-

viduals or upon a study of groups of individuals; that is to say, upon the clinical method primarily or the statistical method primarily. Accomplishments of the statistical method are admirably shown in such investigations as have proceeded from or been inspired by Cattell and Thorndike. But the statistical method is susceptible of great error, as Thorndike has pointed out in his report on elimination. He claims that to settle the question of elimination from the grades, it would be necessary to follow a large number of individual children through the eight grades of the school and through the high school. In other words, he proposes to develop a statistical result on the basis of an individual psychology and from an application of the clinical method. The germ of this method is undoubtedly to be found in the remarkable investigations initiated by Dr. Hall through the employment of a syllabus. At the University of Pennsylvania we realized the necessity for obtaining statistical data through the clinical method as soon as we sought to determine the number of backward children in the public schools. This work has produced results of value and has led to a restatement of the problem of retardation.

It is well known that Séguin was the first to subsume idiocy under the concept of retardation. He defined idiocy as an arrest, or retardation of development. He himself distinguished between idiotism as the mental state and idiocy as the brain defect upon which idiotism might rest, a distinction which suggests the possibility that idiotism may be a mental status not resting upon an incurable brain defect. As soon as a civilized community begins to enforce compulsory education it is discovered that there are a number of children unable to make normal progress through the grades. How many such children are there in the public schools?

This question cannot be answered by a clinical examination alone. It must be solved, in the first instance, by what is essentially the statistical method, as this has been developed by Cattell and Thorndike. I am led, therefore, to distinguish between psychophysiological retardation and pedagogical retardation. Physiological retardation may be defined in two ways, either as a failure of the child to reach the supposed normal level of development for his chronological age, or as a failure of the child to reach the development indicated by his natural endowments. Any child who reaches adult age without having had his brain developed up to the full limit of its capacity has suffered from retardation and will manifest throughout his life an arrest of development. It is possible that the brightest member of a class may be more retarded than the dullest. I believe that these two definitions

of retardation should be kept separate, but neither of these is a satisfactory definition with which to approach the problem of retardation in the schools. Our standard of the hypothetical normal child is inadequate and unsatisfactory, and our opinion as to whether a child at a given stage of development is as far along as he ought to be must necessarily be a matter of conjecture. To fix the standard of retardation I undertook to define pedagogical retardation with reference to the number of years that a child was behind the grade for his age. This involved a statistical classification of the children of a public school system by grades and ages.

Superintendent Bryan undertook this investigation for the city of Camden, N. J. He found that 26 per cent. were two years or more behind the grade in which their age should have placed them; that 12.7 per cent. were three years or more behind the proper grade, and nearly 5 per cent. were four years or more behind grade. Indeed, backwardness or retardation, measured in terms of school progress, is manifested by a surprisingly large percentage of children. Thus, Dr. Cornman shows for five cities of the United States, comprising one fifth of the elementary school population, that from 21.6 per cent. to 49.6 per cent. are one year or more behind the grade in which the school and the public expects these children to be; that from 7.3 per cent. to 26.3 per cent. are two years behind the proper grade; that from 2.1 per cent. in one city to 12.7 per cent. in another city are three years or more behind grade; and in one city as high as 5.1 per cent. are four years or more behind the grade in which these children should be.

A great deal of confusion exists in the mind of the people, and also in that of our educational authorities, as to exactly what a backward child is. Just as soon as the discovery is made that some children manifest backwardness or retardation in their school work, and special classes are formed to facilitate the progress of these children, we find these classes filled up with children who are incurably feeble-minded, who cannot be trained in public day schools and who should be sent for training and care to some special school like that at Elwyn. Thus, I have brought to me at the University of Pennsylvania for examination and suggestion as to educational treatment, children who have been rejected from the Pennsylvania Training School for Feeble-minded Children, because they were below the level of children who could be educated in that school. And yet these children were applying for admission to the public schools, and in some instances were to be found in the grades for normal children.

This failure to recognize that there is a difference between feeble-minded children who cannot be educated in public day schools and other children properly designated backward, who can be trained in day schools and some of whom can be restored to normal condition, results in the calling of many incurably feeble-minded children, 'backward children.' However justifiable this may be to save the sensibilities of the parents, it simply confuses the problem of remedying the backwardness which is found throughout the grades in many of our city schools.

Independently, Dr. Falkner, while Commissioner of Education for Porto Rico, and Mr. Ayres, while Superintendent of Schools at San Juan, came upon this problem from the standpoint of a superintendent. Endeavoring to compare the schools of Porto Rico with those of the United States, they could find no statistics which would enable them to determine whether the pedagogical retardation of children in the Porto Rican schools was greater or less than that prevailing in city school systems in the United States. It was not until they obtained the statistics of Bryan and Cornman that they had the material data for a preliminary statistical comparison and analysis of conditions. They are now in the position, Dr. Falkner as statistician for the Immigration Commission, and Mr. Ayres as Director of the Backward Children Investigation of the Russell Sage Foundation, to contribute results which will be determinative for the schools of this country. Mr. Ayres is employing the clinical method also, in connection with his statistical investigation.

Recently, the Russell Sage Foundation persuaded Dr. Gulick also to devote himself to this work, and we look to this Foundation to do as important a piece of work in connection with the problem of retardation in the public schools, as the Rockefeller Institute is expected to accomplish in the study and treatment of disease. In our work and the work of Twitmyer, Bryan, Cornman, Heilman, Thorndike, Gulick, Ayres and Falkner, we see the foundations of a new science. It is strictly an applied psychology. It may be designated also as experimental or scientific pedagogy in the proper sense of that word.

From the cultivation of this field of applied psychology we expect results of value to psychology and education for the following reasons: (1) The investigation of retardation, which measures the amount by which individual children fall short of obtaining a standard public school education, is an approach to the problem of education from the right direction. These investigations will furnish standards of reference which will enable us to determine to what extent we fail to really

educate the rising generation in this country. (2) These investigations are demonstrating to educators the necessity of calling upon the psychological expert to assist in solving their peculiar problems. In Philadelphia merely publishing the fact that 12.7 per cent. of the children of Philadelphia had been more than two years in grade in June, 1907, reduced the number of such children in June, 1908, to 6.6 per cent. (3) It offers to superintendents, through both the statistical and clinical methods, and to grade teachers, through the clinical method alone, an opportunity to do practical work, as a result of which they may become original contributors to the science of psychology and to education. (4) This will ultimately make the profession of teaching a scientific profession, which it is not at present, because educational practice remains to-day largely a matter of opinion. Medicine is a scientific profession because of the invention of instruments of precision like the thermometer and because of the development of exact methods of observation and report. I look forward to the day when the educator will also be looked up to as a scientific authority whose opinions will either no longer be questioned by a foolish parent or some ignorant member of a school board, or else, if questioned, can be supported by an appeal to unanswerable facts. (5) The development of an applied psychology assures the future of psychology as a pure science, for in the final analysis the progress of psychology as of every other science will be determined by the value and amount of its contributions to the advancement of the human race. Let us hope that we are even now escaped from beneath the pall of such debilitating opinions as the one attributed to William James: "Perhaps you will ask me what are the practical benefits conferred on the world by this interesting science. So far as I am able to discern, absolutely none." (6) Through applied psychology, in training psychological experts for our public school systems as well as for institutions for the insane and the training of feeble-minded children, we shall find another outlet for our students than that which leads them to the gateway of an academic career.