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WILLIAM MARTIN PROCTOR

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EDITOR'S INTRODUCTION

When Professor Terman's book on *The Intelligence of School Children* appeared, it became evident that Leland Stanford Junior University was the center of a surprisingly extensive investigation of human mentality. It was clear that records were being made, not once, but repeatedly, with reference to the same children and that many of these children were being kept under observation throughout their school careers and even beyond. In other words, the common curse of our educational inquiries, in virtue of which nothing is studied hard enough and long enough to reach fundamental results, seemed to have been lifted from the efforts of the Stanford group of men and women.

One of the members of the Stanford group is Dr. William M. Proctor, the author of this book. He has given particular attention to high-school pupils and to underclassmen in college and it is to these groups that he has applied his tests.

These tests are for the most part such as may be given to large numbers of persons simultaneously. Instruments of this kind have been appropriately called group tests, in contradistinction to the individual or interview tests in the use of which one examiner handles only one person at a time. The history of the development of these group tests to their present status has been sketched in a number of places. It is generally and correctly understood that the prototype of all the present group intelligence tests is the collection of examinations loosely termed the Army Tests.

From the Army Tests, either in direct descent or by collateral branches, has sprung a large progeny in the form of group intelligence scales or tests. The use of these tests has already become enormous. To a certain extent the persons who have devised them have become victims of this popularity. When the school people will buy and use these tests by the millions, there is a temptation for authors to rush them into print without sufficient preliminary analysis and without extensive trial in practical situations.

Of course, this is only a temporary condition. Out of the competition among different tests and the trials of two or more of them on the same individuals will come a critical literature which will surely bring untrustworthy instruments into disrepute. This sort of literature is only just now coming through. The development of group intelligence tests has been so rapid that books on their use have not had time to appear. Magazine articles involving the use of one or two of them have been published. Dr. Holley's monograph on the use of mental tests appeared during the past autumn. The present book is another of much the same sort. It deals with the Binet Scale, the Army Examinations *a* and *b*, and the Army Alpha Test.

But Dr. Proctor's book, although incidentally concerned with the validity of the different scales, is primarily devoted to the practical uses to which the results of intelligence testing may be put. For example, upon testing the same pupils after an interval of two and a half years, Dr. Proctor is especially interested in the fact that "the person who made the original tests . . . would have been in a position to give very helpful advice to all of the pupils tested by him; also that his predictions as to the possible educational future of each of these pupils would have deserved serious consideration by parents and teachers." Again, when it becomes possible to compare the success in high school of two groups of pupils of which one has received guidance on the basis in part of intelligence testing while the other has received no such guidance, Dr. Proctor is especially interested in this practical demonstration. About a third of the unguided pupils, but only one-fifth of the guided pupils, failed in one subject. None of the pupils who had received the benefit of guidance failed in two or more subjects, while rather more than one in ten of the unguided pupils failed to that extent.

In other directions his interest in the practical use of intelligence tests leads him into the field of vocational guidance. Here he makes good use of the work of the army psychologists by which the intelligence of recruits belonging to different occupations was revealed. These he relates to the occupational preferences which he obtained from over nine hundred high-school pupils. The lowest intelligence score made by the middle 50 percent of professional workers among the Army recruits was 98. On the other

hand, 50 of the high-school pupils who expressed their intention of becoming professional workers scored less than 90. Again, he points out the fact that over 60 percent of the high-school pupils aspired to join the ranks of the professional class while, according to the United States census, less than 5 percent of the gainful workers of the country belong to that class. Dr. Proctor, therefore, although not neglecting the theoretical and scientific aspects of his subject, gives particular attention to the practical bearings of it. Indeed, we should say that his monograph is a good example of a method of treatment, which, while it is competent from the point of view of research workers, is also of special interest to public school workers.

With respect to vocational guidance Dr. Proctor's material supports his view that those who seek a ready means of determining whether pupils should be telephone operators or photographers, bakers or blacksmiths, farm workers or barbers, are likely to be disappointed. Nothing in our general intelligence tests will enable us to be specific to this degree. If, however, occupations are divided into five or six general classes, the data at hand regarding the range of intelligence among people belonging to these classes are such as to permit us to say something definite concerning the class of work in which a given pupil may, so far as intelligence is concerned, be successful. Perhaps even here we can say with greater certainty what the class of occupations is in which the pupil will *not* be successful. For example, if a pupil's intelligence quotient is 90, we can be sure that his intelligence is not sufficient for professional work but that he may (if other conditions are favorable) successfully pursue some occupation belonging to the class of skilled labor. Whether that occupation shall be that of a bricklayer or a painter, a plumber or a carpenter, cannot be determined on the basis of intelligence. Such a determination will depend upon individual aptitude, preferences, and opportunities. In other words, we may with some safety advise pupils as to classes of occupations, but we cannot assume—at least on the basis of general intelligence—to advise them with respect to particular occupations within the occupational classes.

Those, therefore, who are looking to the intelligence test to determine whether a boy should be a bookkeeper or a telegrapher

may as well know at the outset that these tests offer no basis for such determinations. This comes about from the very simple fact that the same degree of general intelligence is required and is now being exhibited by both bookkeepers and telegraphers. In other words, the difference between the qualifications for workers of these two sorts is not intellectual in the general sense. Perhaps we shall subsequently develop trade and occupational tests which will differentiate more sharply than is now possible between the aptitudes pertaining to occupations in the same class. Indeed, we can already mark out in a general way the lines along which such investigation will proceed. There will be, in the first place—to stick to our bookkeeper and telegrapher—an analysis of the bookkeeper's job and the telegrapher's job for the purpose of finding out what these workers have to do. From these data some inferences may be made as to the specific abilities required in learning and performing the operations incident to the occupation. Having determined these abilities, or the most important of them, tests may perhaps be devised for measuring such abilities. Many trials of these tests and a checking of the results obtained from them against the ultimate success of persons who have become bookkeepers and telegraphers will be required in order to refine the tests to the point where they will be valid instruments. Meanwhile, one ought to point out that trade tests are quite different from guidance tests. For example, we have certain trade tests which have been developed in the army. We also have tests for clerks and stenographers. But all these tests are given to determine the ability of persons already belonging to the occupation or claiming to belong to it. A test to determine whether a person, prior to studying about an occupation or entering upon it, has the ability to pursue it successfully is quite another matter.

Dr. Proctor's chapter on the application of the Army Tests to freshmen upon entrance to college is especially interesting. It is worth noting how the different educational levels correspond to different intelligence levels. Dr. Proctor found, for example, that, expressed in terms of the intelligence quotient, the typical first-year high-school pupil has a mentality of 105. Three or four years later, when elimination throughout the high school has had its effect, the typical intelligence of high-school graduates

has gone up 6 points—namely, to 111. If the reader will recall Professor Terman's classification of intelligence quotients, he will observe that this means that more than half of the high-school graduates belong in the classification called "superior" or in a higher classification. Between graduation from high school and entering college another sharp elimination apparently takes place in virtue of which the mentality of typical students now moves up 4 points so that the median intelligence quotient for students entering college is 115. As Dr. Proctor points out, if the same process of selection takes place in college as in high school, "we should expect the median intelligence quotient of college graduates to be 120 or over." This means that students of no more than average intelligence will be likely to be eliminated from college before the senior year.

In conclusion, we should like to point out that Dr. Proctor makes no inordinate claims for the intelligence test. Some of the results—particularly the correspondences between intelligence scores and teachers' estimates and between intelligence scores and official ratings—would be higher if better tests had been at his disposal. The Army Alpha Test was not intended for high-school or college students. On this ground, and also because it was a pioneer and is capable of improvement, it is to be expected that future workers will secure even more significant correspondences than Dr. Proctor found. But whether this is true or not, the spirit of the author would no doubt remain the same—the spirit of scientific conservatism which refuses (to use his own words) "to place undue confidence in the results of a single psychological examination, however thoroughly it may have been standardized."

B. R. BUCKINGHAM

January 22, 1921