sions, that must be admitted to be very different in their practise, is unique in the whole educational system of Germany. It constitutes an inherent contradiction, and has gradually become an unsurmountable obstacle which will in all probability wreck the system that was to be built on the foundation of the law of 1906. The system of training that has been described above has created the peculiar situation that all young people who have a leaning towards any one of the numerous branches of the civil service, whether by family tradition, ideals, or special capacity, are forced, even against their inclination for science, to devote themselves completely to a legal training in order to pass the first law examination, as this provides practically the first documentary evidence obtainable for admission to a civil service career in the empire, the states, the communities, and many other posts. This route is closed to the graduates of other faculties—for instance, of all the experimental sciences—by the provisions of the above-mentioned Prussian law and of similar laws in the other German states, as well as by the custom that is developing in consequence of this law of appointing lawyers for administrative work.

In consequence of the preponderating influence that technical questions and the requirements of industry have to-day on all branches of public life and the increasing participation of the provinces, communities and towns in technical and scientific enterprises, civil servants are called upon to deal with problems the expert solution of which calls for just the type of mental equipment that is provided by the technical high schools. The greater part of the education at these institutes is not based on retrospection and definition, but is directed forwards and designed with a view to productive activity. An education among such surroundings must give at least as good a training for a civil service career as an education the principal aim of which is to classify the particular requirements of life according to legal conceptions. The knowledge of law and administration that is required by civil servants can be acquired to-day in every technical high school.

SCIENTIFIC BOOKS

The Measurement of Intelligence. By Lewis M. Terman. Houghton, Mifflin Co., New York. 1916. Pp. 362.

In the past few years the practise of what is termed "clinical psychology" has tended to outrun itself, in the sense that measurements of intellect have been demanded in all quarters, while methods were still tentative. Binet conceived the idea of measuring mental development by age levels, but he died before he could perfect his work. Binet's tests were not valid above the twelve-year level of intelligence. The tests which he offered above this level were almost universally discarded by clinical workers, as failing in their purpose. Another difficulty with the original scale lay in the fact that directions for giving the tests were not standardized. Inasmuch as the directions in giving a test constitute a very important part of the test itself, this seriously impaired the scientific value of the results obtained in testing. Moreover, in the original system no means was provided for comparing the intellectual quality of a young child with that of an older child. Obviously, for example, a retardation of one year in a child three years of age has a different meaning for diagnosis and prognosis than has a retardation of one year in a child twelve years of age. Stern had suggested the use of a relative measure of mentality, *i. e.*, the quotient obtained by dividing "mental age" by actual age, but this method never came into general use in America in connection with the original system. It is true, also, as Thorndike, Brigham and others have shown, that there were discrepancies between certain of the age levels as determined by Binet, and the "true" age levels. These discrepancies were due, no doubt, to the fact that Binet had not been able to standardize his tests on a sufficient number of subjects.

Goddard, Kuhlmann and other American elaborators of Binet did not advance much beyond the first work in these particulars. More recently Yerkes, Bridges and Hardwick in their point scale have eliminated many of the original crudities, and in their mental co-

efficient have proposed a relative measure of intelligence.

The present volume embodies the results of long and patient labor in overcoming and correcting the imperfections in the original Binet-Simon scale. Standardized tests are provided through average adult and superior adult levels, making the scale valid for the detection of "borderline cases." Standardized directions (admirably simple and natural) are given for every test. The method of scoring has been refined, so that the individual's mental status is determined by months, and the Intelligence Quotient becomes the measure of ability. This is obtained by dividing the "mental age" by the actual age. One would predict that this Intelligence Quotient (I. Q.) will be made the subject of much discussion and investigation during the next few years.

Six tests are provided for each year up through ten years, instead of four or five, as in the Goddard Revision, which has been most widely used in this country. The Stanford Revision, as the author modestly chooses to designate his work, is by no means a mere rearrangement of the old, familiar tests. The new scale is rich in original contributions, such as the vocabulary test, and the ball-in-the-field test. For these many cleverly conceived tests Terman gives much credit to his collaborators.

The time devoted to an examination according to the Stanford Revision is considerably greater than in the case of the former revisions. This will be a good thing from the point of view of everybody except administrative officers. The number of psychological examinations now expected daily of psychologists working in various public capacities, is little short of a scientific scandal.

The wide usefulness into which this volume has already come testifies to its timeliness as a treatise on the subject. The book is so written and so organized that it serves almost equally well as a text, as a manual, or as a reference. The first half is taken up with a discussion of the technique and method of measuring intelligence, and with the history of graded tests. The subject is clearly and simply presented in non-technical terms. The second half is given over to a presentation of the revised tests themselves, with the directions for giving and the method of scoring each. The necessary test material may be purchased from the publishers of the book.

It would seem inevitable that the Stanford Scale will, in general, replace all revisions of the Binet-Simon Measuring Scale for Intelligence hitherto in use in clinics and in institutions, because it is more scientific and more complete than any other which has been made available. The method of scoring by years and months of "mental age," however, may and probably will prevent its adoption by those psychologists who believe that the method of scoring by "points" is preferable.

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Telegraphy. By T. E. HERBERT. London and New York, Whittaker and Co. Third Edition. 985 pages, 630 illustrations. Cloth, nine shillings net.

This is the third and a thoroughly revised edition of an excellent handbook on British telegraphy, designed to meet the needs of the technical student and the requirements of departmental technical examinations of the staff.

The mathematics employed are quite elementary, so that no difficulties need be apprehended by the technical student in this direction. The telegraphic apparatus and plant of the British post-office system are well described and explained. A strong feature of recommendation for the book is that it enters at some length into the technique of the apparatus described, and gives practical directions as to best adjustments.

The text is divided into twenty-three chapters, respectively dealing with the following topics: Introduction, Primary Cells, Circuit Calculations, Current Measurements, Battery Testing, Resistance Measurements, Single-current Systems, Condensers, Differential Duplex, Quadruplex, Wheatstone Automatic, Bridge Duplex, A B C and Recording Instruments, The Hughes, The Bandot, The Murray,