

III

EDUCATIONAL TESTS AND
MEASUREMENTSSTATISTICS; BOOKS OF MERIT IN INTERPRET-
ING AND APPLYING THE RESULTS
OF TESTING

Underlying the recent development of the use of standard tests is the science of statistics. It is as fundamental to the past and future development of this field as is mathematics to engineering or chemistry to medicine. At the beginning of the scientific testing movement which is now scarcely more than ten years old, it was the practice in our leading schools of education to insist on a detailed study of this science before one undertook a study of standard tests. The present tendency is to conceive the needs of different groups of people concerned in the matter and to suit the study accordingly, just as there is or should be, one brand of mathematics for the future engineer, another for the future clerk, and another for the future home-maker.

Teachers have learned that the usual textbook in testing is sufficient for their general needs. Some of the best books available in this field are: Wilson and Hoke, *How to Measure*; Monroe, *Measuring the Results of Teaching*; Monroe, De Voss and Kelly, *Educational Tests and Measurements*. In these and similar treatises, sample tests are given, as well as instructions for giving, tabulating, and interpreting the results. In simple and general terms the typical measures of central tendency or averages, and of deviations from the average, are explained so that the teacher may apply their use to other tests and other studies.

The administrator has another problem. He must go a step further and be able to put the results of his investigations in a way that will appeal to his reading public and the average citizen and taxpayer. He must as we have been saying of late "sell his program of education". The reports of city and state superintendents and indeed of the Federal Commissioner of Education are usually thought of as tables of dry-as-dust statistics that no one but the student of research is interested in. Dr. Alexander in his *School*

*Statistics and Publicity*¹ has therefore done a splendid service for the school administrator. He points out the typical inadequacies of school reports in this line, treats in some detail the methods of accurate statistical computation and then gives two splendid chapters, one on Presenting Tabulated Statistics to the Public and one on Graphic Presentation of School Statistics. These chapters alone entitle the book to be one of the first five on the superintendent's professional book-shelf and make the book unique in its contribution. This part of the text like the remainder bristles with an abundance of concrete illustrations. Among the graphical methods shown are the bar graph in different forms, the circle graph, map graphs, the curve of distribution, and various concrete devices for comparing data. Chapter bibliographies, and exercises, as well as the excellent workmanship of the printer also make their appeal. It is to be hoped that the work will have a wide circulation.

A still different purpose from that of the student of statistics is served by Marshall's *Graphical Methods for Schools, Colleges, Statisticians, Engineers, and Executives*.² This book is intended to supplement such treatises as Bowley's *Elements of Statistics*, King's *Elements of Statistical Method*, and Brinton's *Graphic Methods*. The bias of the author who is himself an engineer is clearly seen. The student of education will find its value largely in the introductory chapters which deal with the general functions of graphs, kinds of graphs, and types of co-ordinate paper, and in the numerous illustrations of graphing, some few of which are of educational statistics. The latter chapters deal in detail with nomography and the more advanced statistics that are of interest chiefly to engineers of various types.

The two companion volumes of the World Survey of the Interchurch World Movement³ represents one of the finest applications of the use of graphing and statistics in the widest variety and with the greatest

¹*School Statistics and Publicity*, by Carter Alexander. New York: Silver, Burdett and Co. 1919. 332 pages.

²*Graphical Methods*, by William Marshall. New York: McGraw-Hill Book Co. 1921. 253 pages.

³*World Survey*, American and Foreign Volumes, by Interchurch World Movement. New York City: Interchurch Press. 1920. 317 and 222 pages respectively.

effectiveness that it has been the writer's privilege to come upon recently. This monumental investigation of religious conditions, and their correlative educational and social and economic problems, is a veritable encyclopedia of after-war data, American and foreign, but, instead of being typically encyclopedic in form and make-up, its pages at a rapid thumbing resemble those of the advertising sections of a first-class magazine, being set with striking colored graphs of all types and correspondingly catching illustrations, maps, and pictures. It is a lesson not only to the leaders of the church but of the school, and it is hoped that future reports of both may be definitely affected. Statistics is, as was stated at the outset, a fundamental science, but graphical presentation is its sister science and the one which is more significant for use with the general reader.

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IV

THE FREE READING PERIOD IN THE THIRD GRADE

The Third Grade children have been *reading* this fall instead of *studying reading*. The love for good stories that has grown in the class has made this plan, which we followed, a most worth-while one.

There were forty-two children in the grade and we had, in our room library, forty-five suitable books ranging from Second Grade readers, (ones to which they had not previously had access), to Fourth Grade readers. In addition to these we secured a large number of books from the Normal School library. Some of these books were readers, others were simple fairy story books and history, geography, and nature-story books.

All of our books were placed on a long low shelf in the room. At the same hour every day, for a period of thirty minutes, we have a free reading period. At this time the children go to the bookshelf and select the books they wish to read. If a child shows signs of being a poor judge in deciding on what he is to read, the teacher who is in the midst of the group and standing ready to advise helps him to make a wise choice. If a poor reader comes along and hesitates over getting a book, the teacher interests him

in extremely easy reading matter, even to the extent of pointing out a particular story in which she has reason to believe he will be interested. When a child who reads unusually well comes for his book the teacher advises him, in the event that she sees him about to take material which wouldn't be likely to appeal to him. When all of the children have their books, they are encouraged to read. In order to save time the teacher goes to the desk of those who seem to find it difficult to decide on a story, or seem to be wasting time. She very quickly points out in the table of contents a story suitable for the child. Then the children read uninterruptedly, knowing that if they come to a word they cannot pronounce or any part of the reading they do not understand that the teacher will come to their desks and give them the help they need.

While the teacher is pronouncing words or clearing up the meanings of words, she takes note of these words which give the most trouble and at a separate period she conducts a phrase drill including all of them. She is very careful to stress drill on the words they are likely to meet in their future readings. When the period comes to an end the children are given permission to keep, in their desks, any book containing a story they have started and would like to finish. Others return their books to the shelf. At any time during the day when the children complete a piece of work and have a few minutes to wait for others, they get the books from their desks and finish the stories they began during the reading period. We do not wish the children to feel that they must make a return from this reading. We do not *require* them to reproduce their stories. We feel that this phase of the work will take care of itself if we succeed in leading them to love good stories. The fact that we have accomplished our aim is evidenced in several ways.

Very soon after the class began reading in this way, the children were found to be pointing out the stories they had read to other children and getting them to read the same ones.

Sometimes a child would read a story he wanted to play. He would interest other children in wanting to play the story and a large number of them would read it, so they could tell it to the entire class and all could take part in playing it.