

SCHOOLS STAND LOW BY ARITHMETIC TEST

**Prof. Curtis Found 3,000 Out
of 5,000 Pupils Had Not
Average Ability.**

WORSE THAN OTHER CITIES

**Investigator Concludes That in Im-
proving Children, Efficiency of
System Is Very Low.**

According to the latest school report given out by the Board of Estimate's Committee on Inquiry, efficiency in the New York schools is low, compared with other cities, and the children here, while slightly better in speed, are less accurate and very poor in reasoning. The report was compiled by Stuart A. Curtis, on the basis of scientific arithmetic tests tried on 33,350 children of the public schools of this city. Mr. Curtis was one of the eleven specialists employed by the committee to investigate the New York public schools under the supervision of Prof. Paul H. Hanus of Harvard.

Mr. Curtis, who had already tried similar tests on school children of eighteen cities of this country and in cities of England, devised a system of eight standard tests in simple arithmetic, which were commended by Prof. Hanus as "the most successful attempt at scientific measurement in education" known to him. The tests embodied simple abstract examples in addition, subtraction, multiplication, and division, with concrete application of these principles in other simple tests. A standard length of time was allowed for each test, set as a measure for the degree of ability to be attained by the pupils in that grade, and for the growth of the pupils instead of the amount of knowledge mastered by them.

"Every examination at the present time contains this idea of standard," explained Mr. Curtis, "but with this difference: Examinations ordinarily attempt to measure knowledge; the child does not have the same examination twice. Standard tests measure skill in the control of knowledge. Essentially the same tests are given at the beginning of the year, at intervals during the year, and from year to year. The child's growth is shown by increased scores."

Mr. Curtis through his tests found

an amazing range of ability in any single grade of the schools, pupils in the primary grades of the elementary schools frequently showing an efficiency equal to or surpassing that of high school pupils.

In the fourth grade, more than 5,000 children were tested. The results of these grade tests show that these pupils range from the small group of twenty-nine who attempted no examples at all to the group of 147 who tried all nineteen examples in Test No. 7 on the fundamental operations in arithmetic. Two thousand of them proved to be of average ability.

Mr. Curtis says:

"For education the important fact is, not that 2,000 of the children in the fourth grade are of average ability, but that 3,000 are not, and should have very different treatment from those that are.

"From the standpoint of efficiency, the significance of the data, according to the results of the foregoing tests, is not that the average score of fourth grade children is 8.8 examples attempted, but that in the fourth grade are found good-sized groups of children of every level of ability, from those who could do none of the examples at all, to those who could do all the examples in a test so long that but 1 per cent. of the high school children could finish all of it correctly in the time allowed.

"So far as any individual child is concerned," asserts Mr. Curtis, "to say that he has completed the course in arithmetic in the public schools is to convey no information as to his ability in even the simplest work. He may be almost an absolute incompetent, so far as practical work is concerned, or he may have acquired a degree of skill that would be adequate for any situation in which he is likely to find himself."

Mr. Curtis draws these conclusions from his tests in the New York public schools:

That the product of school work in New York City in the fundamental operations of arithmetic is exceedingly variable.

In the sense that the schools should produce certain well-defined changes in the children that pass through them, their efficiency is very low.

That the neglect of the one basic factor—the differences in the powers and capabilities of individual children—has been the cause of this condition, which is universal throughout the system.

That children of school age are highly specialized in their mental characteristics, either by the forces of heredity or of early training, and, as in the schools, uniform treatment is provided for variable material, the response must necessarily be variable, and the product correspondingly inefficient.

That New York City school children, as compared with children who received the Curtis tests in arithmetic in other cities, are slightly better in speed, worse in accuracy, and very poor in reasoning.

The analysis of the second section of the Curtis report will be given out by the Committee on School Inquiry on Wednesday. This analysis will include the results of the tests performed by Mr. Curtis on forty-six pairs of twins; on forty-one employees, representing seven different types of positions in a department store; comparisons of the abilities of boys and girls in public school; the various nationalities; effects of foreign parentage, and private school tests.