# THE MONEY COST OF THE REPEATER.

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"Our Overcrowded Schools," was the headline of an article which appeared in a New York newspaper during the second week in January of this year. The article reached the desk of the writer as one of a collection of clippings on miscellaneous educational topics. The same week brought from different cities five other clippings, all somewhat similar in tone. From the Minneapolis *Tribune* of January eighth came an article whose headlines told us: "2707 *Children in Basement Classes,* 60 *Rooms Below Street Level are now Occupied, Six New* 16 *Room Buildings are Needed to Eliminate Evil.*"

A Brooklyn newspaper described the congested condition of schools in that city as "scandalous and disgraceful".

From Philadelphia came an article which in part read as follows:

> "The Philadelphia school problem is the problem of the elementary schools. Of the school children of Philadelphia, 94 per cent are in the elementary schools and 6 per cent are in the high schools. There are more than 1000 children to whom Philadelphia has given a cold, cold shoulder. They stand at our school doors and knock, but no door is opened to them. Besides this 1000 and more, there are 15,255 children who have succeeded in getting one foot inside of the school. We call them 'half-timers'. In one Philadelphia schoolroom there are 116 children under one teacher."

These newspaper articles are noteworthy because they are typical. As many more similar in tone and content, and coming from all over the country, could be secured every week in the year. These words from the press tell us of the problem, and by their practically simultaneous appearance they show us how general it is. They reflect a condition that is very common in our cities.

It is evident that there are two great causes underlying this condition, lack of room and lack of money. Where congested school conditions constitute a great problem, the overcrowding is almost always found in the lower grades. In considering the possibility of ameliorating such conditions, two lines of inquiry at once present themselves. First, if our lower grades are overcrowded, who overcrowd them? Are they filled with the children who ought to be in them, or are many seats occupied by children who ought to have passed on to the upper grades long ago? Secondly, if the lower grades are filled with repeaters, how much money is expended on them each year which rightfully ought to be expended in supplying increased school facilities and in increasing the number of pupils in the upper grades? This phase of the problem, then, resolves itself into a question of the number and cost of the retarded children who are repeating grades.

It cannot be denied that we are spending money in teaching large numbers of children the same things over again. If all the children had to reach a certain point before leaving school, this money would be saved if they could reach this point earlier; but such is not the case. Children are not required to make a certain degree of progress in the schools, but only to sit there a certain number of years. From the standpoint of the taxpayer, who has no other interest in education than that of the tax rate, it is quite immaterial whether the money raised for schools be spent in training first grade pupils or eighth grade pupils.

Overcrowding means that we are not spending enough money on our schools. Retardation means—not that we are spending too much—but that we are spending it wastefully.

Viewed, then, from this economic or financial standpoint, the question is: How great is this waste? It resolves itself into a question of the number and cost of the retarded children who are repeating grades.

How shall we determine the number of repeaters? The problem is by no means simple, but will repay careful examination. The term *retarded* is applied to the child who is below the proper grade for his age. Our schools are crowded with such children. They often constitute as much as one-third of the entire membership. Whatever the causes may be that account for this condition, they may be grouped under two general heads—either the children have started late, or they have progressed slowly. In the case of the child who has started late, little blame can be laid at the door of the schools. It is the child who progresses slowly

with whom this article has to deal. When a boy or girl fails of promotion and repeats the work, the city has to pay for the term's schooling twice over.

Nor is the money waste the only serious result of repeating grades. The child who spends much more than the normal amount of time in doing the work in the lower grades finds himself at the age of fourteen, say in the fifth grade instead of the eighth. Being discouraged at the remoteness of the prospect of graduation and humiliated by being associated with companions who are younger than he, instead of continuing he drops out.

These two processes—the repeating of grades by large numbers of pupils in the lower grades, and the dropping out of retarded pupils in the upper grades—account for the great disparity in numbers invariably noted in our school systems between the first grade and the final one.

Let us take for instance the case of Columbus, Ohio. In the year 1906 the enrolment in all the day schools was as follows:

| | | |
|---|---|---|
| First Grade | 3718 | |
| Second " | 2587 | |
| Third " | 2721 | |
| Fourth " | 2751 | |
| Fifth " | 2323 | |
| Sixth " | 1911 | |
| Seventh " | 1511 | |
| Eighth " | 1219 | |
| Total | | 18,741 |

High Schools.

| | | |
|---|---|---|
| I | 916 | |
| II | 675 | |
| III | 480 | |
| IV | 328 | |
| Total for High Schools | | 2,399 |
| Normal School | | 78 |
| Grand Total | | 21,218 |

The striking feature of this table is the falling off in membership in the successive grades. The first grade contains 3718 pupils, the eighth only 1219. At first sight it would appear that the interpretation of these figures is that in Columbus for every

3800 children who enter school only 1200 get to the eighth grade. But such an interpretation would be erroneous. The fact that there are 3800 children in the first grade does not mean that 3800 children enter the schools each year. The first grade is made up of some children who entered this year, plus some who entered a year ago, plus some who entered two years ago, and so on. A similar state of affairs exists in the second and third grades. In short the first grade is made up of the number of pupils who enter during the year, plus a certain number of repeaters. The second grade is made up of the number of pupils who entered a little more than a year before, plus a certain number of repeaters, and so on. If we knew the number of pupils who enter the schools of Columbus annually we could determine the number of repeaters in each of the lower grades. Unless we can discover the number of beginners our whole inquiry is fruitless.

How then shall we ascertain the number of beginners? It is not a matter of record in the printed reports of the schools, nor can we, for reasons already indicated, infer it from the number of pupils in the grades. An extended study has led me to the belief that we must seek an answer in the figures which record the ages of the pupils in our schools.* For instance the pupils enrolled in all the day schools of Columbus during the year 1905-'06 were grouped by ages as follows:

| Age. | Number. |
|---|---|
| 6 | 1,894 |
| 7 | 2,006 |
| 8 | 2,123 |
| 9 | 2,143 |
| 10 | 2,178 |
| 11 | 2,110 |
| 12 | 2,150 |
| 13 | 2,164 |
| 14 | 1,747 |
| 15 | 1,083 |
| 16 | 703 |
| 17 | 507 |
| 18 | 264 |
| 19 and over | 146 |
| Total | 21,218 |

*In this view I am in full accord with Dr. Falkner who expressed a similar opinion in the February number of THE PSYCHOLOGICAL CLINIC.

It needs but a glance at this table to see that the numbers credited to the ages seven to thirteen inclusive are very similar in size. The average of these numbers is 2125, and the largest variation, at the age of ten, is 53, or only 2.5 per cent. From the age of seven years, when children generally enter school, up to the age of thirteen, before which they do not leave, each age, or each generation to use the statistical designation of the persons born in a given year, is substantially equal. However much the ages of the entering pupils may vary—and we know they vary within a normal range only—it is clear that the number who enter each year cannot on the average exceed the number who become of school age each year, and must in practice very closely approximate it. In other words *the number of children beginning school each year is approximately equal to the average of the generations of the ages seven to twelve in the school membership of the system.* It is not necessary to suppose for the essential truth of this conclusion that all the children enter the public schools. Whether it be all the city's population, or only a large fraction of it which enters the public schools, it is still true for this body of pupils, that the average of the ages seven to twelve among them is the best test of the number who enter the schools annually.*

For our general rule we have taken, as in the illustration for Columbus, the age seven years as the lower limit. Some children may enter at eight or even later, but the number is so small that it may be disregarded. It is substantially true, everywhere, that all the children are in school by the age of seven.

As the upper limit we have taken the age of twelve rather than thirteen as in the Columbus illustration. Elsewhere there is so frequently a considerable difference between the ages twelve and thirteen as to suggest that quite a number leave school at the latter age, and to make it unsafe to include thirteen years in the

*In our theoretical discussion of factors affecting grade distribution we called attention to the fact that the generations seven to twelve were of different size. In the present discussion substantial equality has been predicated for purely practical reasons. Ages are not reported either in the census or in the schools with absolute exactness, and hence the measurement of small variations becomes impracticable. In the second place there is no one age distribution which is typical of all cities. The rule of equality is as fair to all as would be any other. Again, if our knowledge of age conditions in the several cities were exact enough for us to compute for each, the relation in number between the seven year olds and the twelve year olds, the difference in the case of the seven year olds would presumably be slight. We should expect the average to equal the number at the age nine and the variations either side of it would be only such as a maximum of three years could produce. It is doubtful whether in any case it would exceed 5 or 6 per cent, a variation which appears negligible in a calculation which is of necessity approximate.

calculation. There is no such falling off at the age of twelve. Moreover, the disappearance of thirteen year old children in the elementary schools may be due in some measure to "elimination upwards" into the high school,— a consideration of importance in those cities where we have age figures for elementary schools only.

We have adopted the number 2118 as representing with approximate accuracy the annual number of beginners in Columbus. Referring now to our table of grades we find that the first grade has 3718 children enrolled, and in a similar way every grade up through the fifth has an enrolment considerably larger than the annual number of beginners. Therefore, we are safe in concluding that the first five grades contain a considerable number of repeaters. Their total membership is 14,000. If there were no repeaters it would be only 10,590. The difference, or 3410, represents the number of children who are doing the work of their grades for the second time. This is 16 per cent of the total membership of the schools. Columbus expended on her school system during the year $674,650; 16 per cent of this sum is $107,944. This is what it cost Columbus during the year 1905-6 to have her lower grades crowded with children who were doing the work for the second or third time.

The more important arguments that may be brought against this line of reasoning are two. First: the repeaters are not confined to the lower grades. A few—a very few—pupils get to the seventh or eighth grade, fail of promotion and repeat the work of the grade. It is even conceivable that a pupil might get as far as the last year of the high school and take the year's work twice. There are a few repeaters in the upper grades even after the age of compulsory attendance is passed. This influence tends to make the computed cost of the repeater too low.

On the other hand lies the second of the two arguments. This is that in using the total cost of the schools as a basis from which to compute the cost of repetition we have included the expenditures for high schools, which are at a higher *per capita* rate than those for elementary schools, and this influence tends to make our computed cost of the repeaters too high. The answer to this is that when the added cost of the high school instruction is distributed among all of the pupils in all the schools it becomes a very small factor indeed.

We have then two factors influencing our results, one tending to make them too high, the other tending to make them too low.

Both of them are small and in practice they very nearly counterbalance each other.

There is another doubt as to the applicability of the system used in the case of Columbus to figures from other cities for the purpose of comparison. This is that the grade figures from different cities are gathered by different methods. In some places they are based on total enrolment, in others on average enrolment or enrolment at a given date. Can they then be made to give comparable results? The answer is that where the grade figures are based on total enrolment the age figures are also based on total enrolment, and *ceteris paribus* for the other methods. Thus the relation between the number of children in the grades and the number who would be there, were there no repeaters, is not affected and the resulting percentage which gives us the money cost of repeaters remains unchanged.

In the present state of our knowledge concerning retardation and elimination it is not pretended that our method can give more than a useful approximation to the facts. Exact measurement is out of the question. But as in other cases the only way to secure in the future more accurate information is to make the most of what we have, carefully pointing out its limitations. With more precise information as to the number of repeaters and with more uniform financial methods determining the cost of instruction we should come closer to the exact state of affairs.

Yet there is virtue in an approximate measure. It is rarely the case that in its particular application its errors all work in the same direction. Given this possibility, however, it fails in any effort to make exact comparisons when there is comparatively little difference between the results. We would not, however, extend our comparisons beyond broad general lines, and within them the method we propose can be relied upon. It is a key which gives us access to illuminating facts showing the economic importance of the problem. In the following table are shown the results obtained by applying the method to the known fact of grade membership, age groups and financial expenditures in fifty-five cities.

The validity of the method for computing the number of repeaters may be checked by means of data printed in the published reports of three cities giving the number of pupils who have been more than one year in the same grade. A pupil who spends more than one year in one grade is a repeater. The cities publishing this information are Kansas City, Mo., Springfield, Ohio, and

NUMBER AND COST OF REPEATERS IN FIFTY-FIVE CITIES.

*Arranged in order of the percentage of school funds expended for repeaters.*

| | Year. | Pupils in all schools. | Repeaters. | Cost of all schools. | Cost of repeaters. | Per cent. expended for repeaters. |
|---|---|---|---|---|---|---|
| Newport, R. I. | 1907 | 3,208 | 166 | $ 129,544 | $ 0,611 | 5.2 |
| Somerville, Mass. | 1906-7 | 12,488 | 817 | 369,753 | 24,683 | 6.5 |
| Medford, Mass. | 1907 | 4,515 | 302 | 119,661 | 7,897 | 6.6 |
| Waltham, Mass. | 1908 | 3,301 | 276 | 104,504 | 7,106 | 6.8 |
| Fitchburg, Mass. | 1907 | 4,079 | 300 | 159,896 | 11,672 | 7.3 |
| Newton, Mass. | 1906 | 6,319 | 516 | 249,516 | 20,210 | 8.1 |
| Haverhill, Mass. | 1908 | 5,482 | 474 | 156,517 | 13,460 | 8.6 |
| Meriden, Conn. | 1907-8 | 4,241 | 380 | 166,555 | 148,233 | 8.9 |
| Boston, Mass. | 1906-7 | 90,876 | 9,241 | 4,453,054 | 449,758 | 10.1 |
| Springfield, Mass. | 1907 | 13,796 | 1,397 | 373,300 | 37,703 | 10.1 |
| St. Louis, Mo. | 1906-7 | 67,743 | 7,415 | 3,318,900 | 361,760 | 10.9 |
| Warura, Ill. | 1908 | 2,219 | 251 | 67,714 | 7,651 | 11.3 |
| Portland, Ore. | 1906-7 | 16,937 | 1,947 | 668,077 | 76,160 | 11.4 |
| Dayton, Ohio, | 1906-7 | 11,998 | 1,404 | 478,398 | 55,972 | 11.7 |
| Portland, Me. | 1906-7 | 9,047 | 1,103 | 250,853 | 30,353 | 12.1 |
| Utica, N. Y. | 1906-7 | 9,733 | 1,194 | 249,110 | 30,391 | 12.2 |
| Louisville, Ky. | 1904-5 | 24,887 | 3,097 | 658,891 | 81,702 | 12.4 |
| Malden, Mass. | 1908 | 6,698 | 831 | 190,953 | 23,678 | 12.4 |
| New York, N. Y. | 1907 | 561,560 | 70,871 | 38,889,139 | 4,901,290 | 12.6 |
| Williamsport, Pa. | 1908 | 5,226 | 699 | 105,719 | 14,060 | 13.3 |
| Grand Rapids, Mich. | 1906-7 | 15,629 | 2,078 | 487,174 | 65,281 | 13.4 |
| Omaha, Neb. | 1906-7 | 18,316 | 2,481 | 721,253 | 97,369 | 13.5 |
| Newark, N. J. | 1908 | 3,293 | 461 | 104,605 | 14,540 | 13.9 |
| Wilmington, Del. | 1905-6 | 9,311 | 1,354 | 254,656 | 36,925 | 14.5 |
| Lowell, Mass. | 1908 | 10,568 | 1,563 | 384,296 | 56,491 | 14.7 |
| Springfield, Ohio. | 1907 | 6,537 | 971 | 155,393 | 22,998 | 14.8 |
| Fort Wayne, Ind. | 1906-7 | 6,234 | 932 | 234,163 | 34,890 | 14.9 |
| Denver, Col. | 1906-7 | 35,013 | 5,498 | 1,279,846 | 200,935 | 15.7 |
| York, Pa. | 1907-8 | 6,596 | 1,050 | 129,600 | 20,606 | 15.9 |
| Richmond, Va. | 1907 | 14,257 | 2,293 | 240,347 | 38,455 | 16.0 |
| New Haven, Conn. | 1908 | 20,641 | 3,349 | 538,466 | 87,231 | 16.2 |
| New Brunswick, N. | 1907-8 | 2,834 | 468 | 67,027 | 11,059 | 16.5 |
| Paterson, N. J. | 1907 | 19,053 | 3,164 | 498,758 | 82,793 | 16.6 |
| Reading, Pa. | 1907 | 11,896 | 1,991 | 389,471 | 65,041 | 16.7 |
| Decatur, Ill. | 1908 | 4,569 | 778 | 161,296 | 27,420 | 17.0 |
| Columbus, Ohio. | 1906-7 | 21,706 | 3,748 | 674,662 | 116,041 | 17.2 |
| Hoboken, N. J. | 1906-7 | 10,316 | 1,872 | 276,392 | 50,026 | 18.1 |
| Quincy, Mass. | 1908 | 6,222 | 1,127 | 136,150 | 24,643 | 18.1 |
| Chicago, Ill. | 1906 | 244,438 | 45,014 | 11,517,870 | 2,119,287 | 18.4 |
| Kingston, N. Y. | 1908 | 3,779 | 703 | 123,490 | 22,969 | 18.6 |
| Cincinnati, Ohio. | 1907 | 40,286 | 7,551 | 1,934,190 | 361,693 | 18.7 |
| Minneapolis, Minn. | 1907 | 44,683 | 8,465 | 1,368,504 | 258,647 | 18.9 |
| Cleveland, Ohio. | 1905-6 | 69,512 | 13,232 | 2,630,077 | 499,714 | 19.0 |
| Kansas City, Mo. | 1906-7 | 32,673 | 6,326 | 1,814,652 | 350,227 | 19.3 |
| Philadelphia, Pa. | 1907-8 | 157,317 | 32,693 | 4,330,661 | 896,446 | 20.7 |
| Jersey City, N. J. | 1906 | 29,902 | 6,411 | 1,184,143 | 253,406 | 21.4 |
| Wheeling, W. Va. | 1906-7 | 5,745 | 1,342 | 133,313 | 31,061 | 23.3 |
| Newark, N. J. | 1906-7 | 51,499 | 12,118 | 2,128,484 | 500,193 | 23.5 |
| Passaic, N. J. | 1907-8 | 7,164 | 1,688 | 198,467 | 46,639 | 23.5 |
| Erie, Pa. | 1906-7 | 7,974 | 1,970 | 206,499 | 51,005 | 24.7 |
| Baltimore, Md. | 1906-7 | 68,721 | 17,391 | 1,773,544 | 448,706 | 25.3 |
| Woonsocket, R. I. | 1908 | 3,364 | 980 | 93,528 | 27,216 | 29.1 |
| New Orleans, La. | 1907-8 | 25,229 | 10,488 | 760,794 | 225,965 | 29.7 |
| Memphis, Tenn. | 1908 | 13,903 | 4,186 | 476,924 | 143,554 | 29.7 |
| Camden, N. J. | 1906-7 | 13,648 | 4,147 | 397,968 | 120,584 | 30.1 |
| TOTALS | ..... | 1,906,836 | 312,457 | $88,966,717 | $13,719.381 | |

Williamsport, Pa. The substantial agreement between the computed results and the printed facts is shown by the following table:

| | Per cent repeating (printed report) | Per cent repeating (computed) |
|---|---|---|
| Kansas City | 19.8 | 19.3 |
| Springfield | 15.3 | 14.8 |
| Williamsport | 13.1 | 13.3 |

It is evident that my method of computation gives results very close to the truth.

The condition revealed above cannot be lightly passed over or safely disregarded. In the schools of these cities are more than 1,900,000 children. Of this number more than 300,000 are repeaters. The annual cost of conducting those children for the second or third or fourth time over the ground they have already traversed, reaches the astounding sum of nearly fourteen million dollars. If the school systems of these cities are fairly representative of American city school systems, then we are spending each year about twenty-six millions of dollars in the wasteful process of repetition.

In a broad general way we have answered the question what is the money cost of the repeater, and on broad general lines we do not hesitate to describe it as waste. Elimination of waste, means either a decrease of effort or an increase of effectiveness in the effort made. We are disposed to believe that in the present case the latter would be the main, perhaps the exclusive result. But it is one which is well worth striving for. These economic considerations add an additional motive to those who are seeking light not only upon the extent of retardation, but on its causes and possible remedies.

Some of the expenditure for repeaters is unavoidable, but not all of it, for we cannot be sure that repetition is wholly ineffective from an educational viewpoint. But we feel sure that more is lost than gained by the process of repeating.

The effect of retardation is not to make school expenditures greater, but to make their effectiveness painfully less. To reduce retardation would greatly enhance educational efficiency rather than effect a financial saving.