

time of holding the examination should be more definitely fixed. (iv) I think the end sought might be attained, with a saving of labor and expense, if, in making our returns, the total on each subject were given (as in case of Third Class Teachers), without the tedious process of entering the value given to each answer.

THIRD CLASS EXAMINATION.—The adoption of the Intermediate for the County Board Examination is likely to meet with very general approval, if a committee of examiners can be secured large enough to carefully examine the papers in time to prevent confusion at the opening of schools after vacation. The certificate will, doubtless, have a provincial value, and therefore every county can be supplied with teachers. It will remove from thousands of mere boys and girls, too young to teach, the temptation of trying to pass the third-class examination; and it will tend to reduce the thousands of surplus teachers in our country. Again, public school teachers will be less likely to neglect their ordinary work for the special preparation of teachers, most of whom will hereafter find it to their advantage to attend High Schools.

A very careful check will be needed, however, at Model Schools, on the admission of pupil teachers who are under age; since there is no restriction in case of Intermediate candidates.

In the character of third-class papers I know of nothing which calls for special notice. As a whole, I think they could not be materially improved.

THE INTERMEDIATE EXAMINATION has its friends and its opponents, simply because, while it has many advantages, it is not without its disadvantages. The change from semi-annual to annual has removed some serious objections; and the favorable recognition it is receiving from some of our Universities, the Medical Council, and the School of Practical Science, will greatly add to its practical value. There are still some examining bodies whose concurrence we must try to secure, especially the Law Society and Toronto University. If the promoters and friends of the Intermediate can aid us in these directions, they will take the surest way of rendering it still more acceptable.

Any examination adopted by the Department merely, or even primarily, to determine the apportionment of legislative aid, is likely to be regarded as an unwelcome burden imposed on our schools, and one which does not furnish such motives as are needed in order to secure the hearty co-operation of our pupils. Such was the Intermediate at first, and hence the suspicion with which it was regarded by both teachers and pupils.

In reference to the instructive and educating influences of this examination, while I think they are somewhat overrated, I believe a more definite direction is given to our work than under the former arrangement.

The evils peculiar to any such general change appeared on its introduction. Some of these evils may be fairly regarded as inevitable; others certainly arose from overburdening teachers and pupils.

The pecuniary advantages at first promised, absorbed the attention of trustees and teachers to such an extent as to induce an unhealthy and, in some cases, undignified competition, the evil effects of which are still to be seen. The grant per pupil has become so small that less importance is now attached to the examination than at first. It is generally admitted, indeed, that to be guided merely by the results of the Intermediate may prove *disappointing to trustees and unjustly humiliating to faithful teachers*.

The arrangement of subjects and options appears to give general satisfaction. A change will be necessary, however, in case of students who are aiming at the Medical Council Matriculation; since, in addition to the compulsory subjects, they are required to take the science group, Latin, and either French or German. As the time-table is now arranged, only one of these groups is accessible.

Some fault has been found with the method adopted, apparently with design, for lessening the chances of candidates at this examination. If the increase of candidates to between three and four thousand be deemed too great, there are several ways of reducing the number, to which no objection can be urged: one by exacting a higher percentage; a second by an increase of work in a given time. There is still another, by purposely giving to one or more of the papers such an unusual turn as is not anticipated in the general line of teaching pursued. The last method we think is hardly justifiable. Having reference to the programme of study and to former papers on the same subject, the course is freely construed into a breach of faith as between pupil and examiner.

These remarks will be deemed irrelevant by those who have heard no complaints in the direction indicated.

OF THE FIRST CLASS EXAMINATION I shall only say that I think we must all approve of the recent regulations by which honor undergraduates of our Universities are admitted as having passed an equivalent for the non-professional examination.

As before remarked, I regard our Departmental Examinations superior to those they superseded. At the same time, I do not think that their warmest admirers consider them incapable of improvement. Any reasonable suggestions to which our discussion may give rise will therefore be likely to receive due attention from the Minister and his advisers.

Mathematical Department.

Communications intended for this part of the JOURNAL should be on separate sheets, written on one side only, and properly pagged to prevent mistakes. They must be received on or before the 30th of the month to secure notice in the succeeding issue, and must be accompanied by the correspondents' names and addresses.

UNIVERSITY OF TORONTO—ANNUAL EXAMINATIONS.

ARTS: MATRICULATION.

MATHEMATICS.

Examiner—F. HAYTER, B.A.

1. Define *ratio* and *proportion*. Prove that in every proportion the product of the extremes is equal to the product of the means.

Compare the rates of speed of two locomotives, one of which travels $897\frac{1}{2}$ miles in $11\frac{1}{2}$ hours, and the other $262\frac{1}{4}$ miles in 8 hours.

2. Describe the units of length, surface, and volume in the English and French systems. Given the numerical value of any length in one system, express it in the other.

3. A proprietor of Three per Cent. Consols receives his half-yearly dividend and lays it out in the purchase of more Consols at 90. His next half-year's dividend is £457 10s.; how much does this dividend exceed the former?

4. Simplify

$$(i) \frac{acx^2 + (ad - bc)x - bd}{a^2x^2 - b^2}$$

$$(ii) \frac{x^2 + 3x + 2}{x^2 + 2x + 1} \times \frac{x^2 + 5x + 4}{x^2 + 7x + 12}$$

$$(iii) \left(\frac{ay}{x}\right)^{\frac{1}{2}} \cdot \left(\frac{bx}{y^2}\right)^{\frac{1}{2}} \cdot \left(\frac{y^2}{a^2b^2}\right)^{\frac{1}{2}}$$

5. Divide by Horner's Method

$$(i) x^6 - x^2 + 10x - 10 \text{ by } x^3 - 8x^2 + 4x - 2.$$

$$(ii) 6x^4 - 28x^3 + 22x - 16 \text{ by } 2x^2 - 5x - 8.$$

6. Solve