official organ, I presume they were treated with contempt. One great object of a statesman in education surely should be to harmonize the system, to bring Public Schools into more sympathetic relationship with High Schools, and the latter with the Universities. At all events, this is being aimed at in other countries, and some few wrinkles in our High School programme of studies would seem to indicate that our Minister was not altogether a stranger to the principle. Here is a grand opportunity. The time has come but not the man. Yet, if the Napoleon in the educational world is alive, he must be studying mathematics at Elba. Our suggestion is simply to engage the services of one or more specialists who might lecture on pedagogy at the University at particular times during the year, and the Normal Schools, as well as the other schools in the city, would always afford ample scope for the practical side of such training. By this method undergraduates could qualify during their course with little additional expense, and at the close of such lectures the examination test could be applied and the standard adjusted to the satisfaction of the Department. Failing this scheme it would not be difficult to make the necessary arrangements to have such training given at the Normal School. But to go and interfere with the legitimate work of a Collegiate Institute under pretence of training masters, and then throw a sop—$300—to the boards, is a scheme which, so far as observation goes, will never commend itself to the judgment of intelligent men. But I am afraid this letter is already too long. I hope to return to the subject in a future issue.

ALPHA.

SCHOOL WORK.

MATHEMATICS.

ARCHIBALD MACMURCHY, M.A., TORONTO, EDITOR.

EDUCATION DEPARTMENT, ONTARIO.

JULY EXAMINATIONS, 1885.

Solutions by W. J. Robertson, M.A., Math. Master C. I., St. Catharines.

First Class Teachers—Grade C.

ALGEBRA.

Examiner—J. A. McLellan, LL D.

1. (*a*) Find the value of $5x^5+497x^4+200x^3+196x^2-218x-2001$ when $x=-99$. And of

(*b*) $x^3+3x^2-13x-38$ for $x=3{\cdot}58443$.

1. (*a*) Divide by $x+99$ and find remainder. Result $=-21$.

(*b*) Adopt the same method as in preceding part, or $x^3+3x^2=x^2(x+3)=x^2(6{\cdot}58443)$ $\therefore$ $x^2(6\ 58443)-13x-38=x(x\times 6{\cdot}58443-13)-38$. Substitute value of x.

2. Investigate Horner's Method of Division.

(1) Divide $6x^5+5x^4-17x^3-6x^2-10x+2$ by $2x^2-3x+1$.

(2) And express $x^4+8x^3-16x-10$ in powers of $x+2$.

2. Book-work.

(1) $6x^5+5x^4-17x^3-6x^2-10x+2\div 2x^2-3x+1=3x^3+7x^2+\frac{x}{2}-\frac{23}{4}$ with remainder $-\frac{111}{4}x+\frac{31}{4}$.

(2) Let $x+2=y$, or $x=y-2$. Divide by $x-y+2$ and find remainder.

3. When is an expression

(1) Symmetrical with respect to two of its letters.