3rd. This Act does not apply to teachers already superannuated. (o. 25.)

4th. No pension to be paid for five years after the sanction of the Act, and teachers dying within such period lose their right to ponsion, though their heirs may recover the amounts paid to pen sion fund. (c. 26, 27.)

5th. Orders or regulations to enforce the Act to be drawn up by the superintendent of public instruction. (c. 28).

Contributions and Correspondence.

ALGEBRAIC FACTORING.

To the Editor of the Canada School Journal:

DEAR SIR, -Agreeably to the wishes of many teachers, I have ventured to for ward to you for publication in the CANADA SCHOOL JOURNAL the following, so far as I know, ORIGINAL synopsis of the "Laws of Algebraic Factoring:"

I. An algebraic expression can be factored if it have some letter or

letters, figures or figures, common to all or to some of its terms. This, the method of "factoring by parts," or "taking out the common factor," is treated at length in McLellan's Algebra, pp. 79-82, and in Hamblin Smith's Algebra, pp. 48-44.

II. An expression can be factored provided it be, or can be, transformed into a trinomial-

1. Whose first term is a perfect square.

2. Whose third term contains factors, which

3. When added algebraically appear in the second term as the coefficient of the square root of the first term.

The type of this trinomial is $x^2 + x(a+h) + ab$.

Examples of this, and of its extensions, may be found in McLel-

lan's Algebra, pp. 67-78, and in H. Smith's Algebra, pp. 44-47. III Provided an algebraic expression be, or can he, transformed into a complete nth power of a polynomial (including bi and trinomials) it can be at once factored.

This includes all squares, cubes, fourth powers, &c.

IV. Provided an expression be, or can be, made the difference between any two nth powers, it can be at once factured; or if it be, or

can be, made the sum of any two odd powers. This includes not merely $a^2 - b^2$, $a^3 - b^3$, $a^6 + b^5$, &c.; but also the illusory forms $a^4 + 4m^4$; $x^{16} + 8y^{16}$; $x^4 + x^2y^2 + y^4$. Or exam-ples may be found in M-Lellau's Algebra, p. 66 and pp. 74-7... and in H. Smith's Algebra, pp. 49-51.

V. If an expression be not reduced or reducible to either of the above, it may be factored -

1. By the application of the " Theory of Divisors," vide McLellan's Algebra, pp. 88-90. 2. By the method of Trial Dicisons, McLollau's Algebra, pp. 99-

100.

It may be added that many expressions are met with requiring the use of more than one of these laws.

 $\begin{array}{l} \text{e.g., } x^4 + 6x^3 + 27x^2 + 162x + 729 \\ \text{which} &= (x^4 + 54x^2 + 729) + 6x(x^2 + 2x) - 27x^2 \\ &= (x^2 + 27)^2 + 6x(x^2 + 27) - 27x^2 \\ &= \{(x^2 + 27) - 9x\}\{(x^2 + 27) - 8x\} \\ &= (x^2 - 9x + 37)(x^2 - 3x + 27). \end{array}$

Again, also, such as

 $x^{4} + 12x^{3} + 50x^{2} + 84x + 88$,

which = $(x^4 + 12x^3 + 36x^2) + 14(x^2 + 6x) + 83$ = $(x^2 + 6x)^2 + 14(x^2 + 6x) + 83$ = $(x^2 + 6x + 11)(x^2 + 6x + 8)$.

Thanking you for your kindness in publishing this note in your columns, I remain, yours sincerely,

D. F. H. WILKINS, B.A., Bac. App. Sci.

Mathematical Master C. H. S.

LOVELL'S GEOGRAPHY.

To the Editor of the Canada School Journal:

DEAP. SIN,—Noticing the criticism of the maps in Lovell's geography by "Head Master ' (p. 39), I took a look over the maps of South America in "Lovell's Advanced Geography," which one would expect to be a little in advance of some others. One

would naturally expect, at least, to find named upon the map all the places mentioned in the text, but I failed to find the names of 1 ocean, 3 straits, 3 bays or gulfs, 4 peninsulas, 7 capes or points, 8 falls and rapids, 12 lakes and 1--cons, 17 towns or cities, 18 states, districts or provinces, 18 islanca, sland groups or archipolagos, 25 table lands, plains, plateaux, llanos, and pampas, 26 mountain peaks, 33 mountain groups, cordilleras, sierras or ranges, and the amazing number of 53 rivers not vamed ; in all 208 places named in the text but not named in the map. Notwithstanding these facts, the map contains the names of 1 cape, 1 lake, 1 fall, 4 rivers, 4 islands and 69 towns not deemed worth mentioning in the text at all. Then I looked at the map of New York State in vain for the names of Mt. Marcy, Staten Island, West Point and Saratoga, the last three of which places are perhaps as well known to the travelling world as almost any three in any other State of the Union, and are mentioned in the current literature of the day quite as often. Do you think that the books authorized are critically examined by those supposed to do so? Comment is unnecessary -the defect is too plainly seen. Hoping this may be of interest,

I am yours truly, W. S. Howell,

Principal of Milford Public School.

Practical Department.

LANGUAGE LESSONS.

BY MSS BERTHA SIMS.

We teach language lessons; we learn language lessons. Why? In order that our citizens, when called upon, may be able "to define accurately" the terms-noun, pronoun, verb, adjective, etc.? Rattle off long lists of declensions, inflections, rules, and exceptions to rules? Conjugate verbs (regular or irregular) in all their moods and tenses; or analyse extracts from standard authors, "parsing syntactically the words in italics? No.

This is all very well in its place, but let us be quite sure we know what is its place. I am convinced that many of the inaccurate grammatical constructions, most of the forms of expression which we call bad English," (as if anything English were over bad)-are owing to "a mistaken idea of our teachers as to the object of the science of grammer in forming a part of our public school course of study." In fact, "contributing, as it does, to the higher and reflective branches of the work, grammar, as generally studied in our schools, could very profitably be deferred until the child acquires through language lessons a correct use of his mother tougue; since it is now conceded by our best philologists, that language'is seldom improved by the study of an ordinary text-book on grammar. Language first-grammar afterwards. Grammar through languago; not language through grammar. Yes; what we must teach, and aim to teach better, day by day, is not the statistics, but the use of words. " Moro grammar is dry husks, but words, swift, terse, burning words, let the children learn to store and use." We must teach speech, not the science of it merely.

Teach speech ; free, lucid, exact. Let us have no more of the time-honored (?) expression, "I know, but I can't make you understand." We ought to tell; to be able, at least, to tell, for we have not, even in these days of freedom, reached that point of which Chas. Kiugsley speaks when he says an honorable member of parliament roundly declared-"That, in a free country, no one was bound either to understand himself or let others understand him."

Teach speech. Let the thought behind be given clearly, logically, accurately. It may be a poor thought; it will be no poorer, no move meagre for beautiful surroundings. A grand enduring thought it may be, stamped with the impress of Nature's own nobility. Twill be no less grand, no less enduring, enriched by the graceful ministry of art.

Teach speech-polished, ready, true, till in all the land, from