Stipendiary magistrates in these districts are empowered to hold division courts and exercise some other functions that in older parts of the province devolve on county judges. Matters beyond their jurisdiction are settled by the judge of Algoma, by the county court judge of Victoria to which Haliburton is for judicial purposes attached, and by the judge of Simcoe to which the districts of Muskoka and Parry Sound are attached in the same way.

MISCELLANEOUS.

A NEW GEOGRAPHICAL TERM.—BY A. H. O.

Many of the readers of the JOURNAL have no doubt felt the want of a name for one of the four classes into which lakes have been divided. We have names for (1) lakes which have an inlet but no outlet, viz., "Lakes of reception"; for (2) those which have an outlet but no inlet, viz., "Lakes of omission"; and for (3) those which have both influents and effluents, viz., "Lakes of transmission." But, for lakes which have neither an inlet nor an outlet, we have, so far as I know, no name. I suggest to my fellow-teachers to call this class, "Lakes of inclusion." The names of the first three classes denote the offices which they perform. The name proposed for the fourth class does the same for it. Lakes of the first class *receive* water conveyed to them; those of the second *emit* water from their own supplies; those of the third receive and emit, *i.e.*, *transmit* water, which has been conveyed to them; those of the fourth class simply *inclose* the water within their borders.

Mathematical Department.

ELEMENTARY ARITHMETIC.

During the past months we have devoted a good deal of space to intermediate and university work. The struggle is over for another year with the numerous readers of this department who have been actively engaged in preparing for the various examinations. The die is cast; and before our next number reaches them we trust that most of them will be rejoicing in their success.

In the present number we propose to hold a quiet chat with that large circle of our friends who are for many months of the year teaching elementary arithmetic. It is almost impossible now to advance anything strikingly original on this topic; and were it possible it would not probably be so useful as the repetition of important matters already well established. Leaving all prejudices aside, and looking at the matter from a practical point of view, can any one imagine why the multiplication table should be taught to 12 times 12 and there stop "forever and forever"? Children in the second reader learn it thus far. Is it not alien to the whole spirit of our system to *stop* there, is it not absurd to think of a merchant fumbling for his pencil before he can find the price of 19lbs. of butter at 17 cents a pound? Experience generally teaches business men the necessity of knowing the table up to 16 or 20 times at the very least. The pupils of the third class could very easily learn the table up to the end of 16 times by spending five minutes only, say twice a week during a single term, especially if they were required to apply the table as soon as learned to their ordinary work, and thus do away with the clumsiness of multiplying by 13 and higher numbers with *two lines* of figures instead of one line. It is equally easy to push the table on to 25 times 25 in the fourth class. As a preparation for the duties of after life, for the every-day work of the bank, the farm, the shop, the school, we ask deliberately what other piece of information acquired in the same time can be so convenient and so serviceable to the possessor? The first requisite of success in rapid calculation is, we believe, efficient drill in mental problems. Now the extended addition table and its counterpart the extended multiplication table furnish matter for this drill at once the most elementary, the most natural, and by far the most practically useful to the pupil. Understanding division to be the reverse of multiplication, all our preceding remarks apply to division. It saves vast amounts of time and of drudgery to the more advanced pupil to be able to multiply, divide, or cancel with factors as high as 23 or 25.

In this connection we very naturally insist on the pupil's learning at the earliest moment to test his multiplication and division by "casting out nines." It requires but a lesson or two to make pupils so familiar with this method that long lines either of multiplication or division can be satisfactorily tested in a few seconds, and the certainty thus gained is a powerful stimulus to further progress. Pupils in the second book learn to apply the test in one short lesson. Why should they not learn it as soon as they have fairly understood the four simple rules? Are we so extremely sensitive on that bugbear, CRAM, that we are afraid to communicate the most useful information simply because the pupil cannot yet understand the reasons of the process? If so, let us never more teach subtraction until our beloved little protegés can wholly comprehend the reason for "carrying." Is it not patent that in very many cases we must first teach the HOW and then the WHY, and that this is not only the simplest but also in such cases the *shortest plan*. In our humble opinion it is injudicious to attempt to carry out the *method of discovery* in every particular case even in mathematics. The *method of instruction* has its appropriate sphere.

Speaking of "carrying" in subtraction, reminds us that we have seen the most satisfactory results obtained by teaching subtraction as a certain kind of addition, so that the pupil is not brought into contact with any new principle of "carrying" different from what he has already learned in addition. Thus, instead of saying 5 from 7 leaves 2, it is possible to state the question, 5 and how much makes 7? In the case of long lines of subtraction this way of putting it avoids the learning of a new rule; subtraction can be done as soon as addition is learned.

Example: 6325464
895493
5429971

3 and ? *one* are 4. 9 and ? *seven* are 16; 5 and ? *nine* are 14; 6 and ? *nine* are 15; 10 and ? *two* are 12; 9 and ? *four* are 13; 1 and ? *five* are 6. The ? indicates the mental problem to be solved. Let the pupil prove the operation by addition, 3 and 1 are 4, 9 and 7 are 16, 5 and 9 are 14, 6 and 9 are 15, &c., and no mystery hangs over the operation, which is perhaps more than can be asserted of the common plan of "borrowing and paying back again." This method also enables the pupil to do *long division* very rapidly and with one half the usual figures, by combining multiplication and division.

Example: 4064)56438971(13887
15798
36069
35577
30651
2203

We say once 4 and ? *nine* are 13 (one to carry, 9 set down) once 6 are 7 and ? *seven* are 14; once 0 is 1 and ? *five* are 6; once 4 and ? *one* are 5. Bring down 8. Three times 4 are 12 and ? *six* are 18; three times 6 are 18 and *zero* are 19; three times 0 is 1 and ? *six* are 7; three times 4 are 12 and *three* are 15. Bring down 9, &c. Pupils learn this plan in one lesson, and it conduces to accuracy and rapidity as experience abundantly proves. It will be observed that the operation admits of being tested by "casting out nines" just as well as when the subtrahends are written down.

We now offer a few hints on the tables of weights and measures. The most obvious remark of any business man on opening a common school arithmetic would be, that a large part of what is usually given under this head is of no practical use in the every-day business of life, and ought at least to be deferred to the later stages. We are apt to forget that less than one half of our Canadian boys and girls ever get beyond the third book. Let us teach to this vast multitude who are destined to receive no further school advantages, all the most USEFUL things we can, that is as few *useless* things as possible. With such a book as Kirkland and Scott's elementary arithmetic in in their hands junior teachers are sure to succeed if they earnestly realize what they should aim at, viz. to teach well the most simple and useful parts of arithmetic to this majority of our children before their school days are finished forever, say at the end of the third class. In long measure, what is the utility of barley corns, furlongs, leagues, &c.? 12 inches=1 foot; 3 feet=1yard; 1760 yards=1mile, is about all that is required in practical life. Again, in square measure it is practically most useful to know that 4840 square yards