in use before his time. Thus a Dutch mathematician, Stevinus (about 1586), wrote $\textcircled{3}-2\textcircled{2}+3\textcircled{1}-4\textcircled{0}$ for x^3-2x^2+3x-4,

You see, the x was understood, and he simply enclosed the indices in a circle to distinguish them from other numbers.

Q. What is the value of $\textcircled{3}\times\textcircled{5}$? *A*. $\textcircled{8}$.

Q. What does this mean? *A*. $x^3\times x^5=x^8$.

Stevinus is famous as the teacher of Prince Maurice of Nassau, whose knowledge of mechanics enabled him to revolutionise the art of war and to recapture many Dutch towns from the Spaniards.

Q. What does LXX mean? *A*. 70.

Q. What does soixante-dix mean? *A*. 70. [etc.]

Just as there are many names for 70, so there are other names for indices. They are often called logarithms, the number of which they indicate a power being termed the base.

Q. What is the logarithm of x^3 to the base x? *A*. 3.

Q. Why? *A*. Because x to the power of $3=x^3$.

Q. What is the logarithm of 8 to the base 2? *A*. 3.

Q. Why? *A*. Because $2^3=8$.

[Many more like this.]

Q. What is the value of 10^0? *A*. 1, if it is defined as obeying the index law.

Q. What is the value of $\log_{10}1$? *A*. 0.

Q. Why? *A*. Because $10^0=1$.

[Many more like this.]

Q. What is the index law? *A*. (As before.)

Q. What other name do you know for an index? *A*. Logarithm.

Q. How would you get the index of the product of two powers of x? *A*. Add the indices of those powers.

Q. How would you find the logarithm of the product of two factors? *A*. Add the logarithms of the factors.

Q. If $\log_{10}2=\cdot3$ and $\log_{10}3=\cdot5$, approx., what is $\log_{10}6$? *A*. ·8, approx.

Etc., etc., *ad lib.*

Middlesbrough. A. F. van der Heyden.

CORRESPONDENCE.

AN INDIAN MATHEMATICAL SOCIETY.

From Mr. V. Ramaswami Aiyar we have received the following most interesting and welcome communication, which we hope will serve as an incentive to the formation of branches of the Association in the provinces at home:—

"It may perhaps interest you to know that I have formed a Mathematical Society here. It started with twenty members, and twenty-three more have up to date proposed to join. I shall not be surprised if our membership at the end of the year be something like 75. The annual subscription is 25 rupees (£1. 13s. 4d.). Our object just now is to have a central library from which to obtain Mathematical journals and books, for opportunities of seeing which those interested in Mathematics in India have very few facilities. I have already written for about 30 to 40 journals—English, American, French, and German. At present it is a mere book and journal club, but when the membership is sufficiently advanced we may possibly be able to start an elementary Mathematical Journal. If the Society succeeds its success will in no small measure be due to the *Mathematical Gazette*, which is the chief source of mathematical enlightenment in India. Tantalising reviews appear in the *Gazette*, but the individual has not the means of getting the text-books. We are ambitious of getting all the best books and journals and placing them within the reach of every member. At the same time we hope that Indian students may receive such a stimulus as will elicit capacity for research in the years to come.

GOOTY, *May* 16*th*, 1907.

MATHEMATICAL NOTES.

239. [V. 1. a.] "*Formulae*" *Problems.*

"In this connection the best assistance, to my mind, would be given by sets of simple illustrations of use of mathematics drawn from real life, so that by degrees the text-book examples would become more living and concrete."—Quoted from a letter of A. Lodge in *Math. Gazette*, May, 1907.

Formulae problems constitute one of the features of "reformed" arithmetic and algebra, and afford much better and more interesting practice in handling equations and logarithms than most of the rather dreary chapters containing scores of stereotyped examples in "x" in the text-books. The chief difficulty is to get together a fair collection of such formulae based on reality and capable of being used readily. In this connection Civil Service examinations have within recent years furnished a large number of original and easy problems, and a selection from my own collection will possibly be of some little service to fellow teachers in elementary mathematics.

Every teacher, of course, has at his command the usual formula in interest, mensuration, statics, dynamics, etc., and I need not take up any space with these.

For equation work many of the formulae can be used for finding any one of a number of data when the others are given. This will be found really excellent and interesting work for pupils.

I should like to know whether there is any collection of such problems published. Most of those given below are from Civil Service examination papers (many are to be found in D. Mair's highly suggestive and original *School Course of Mathematics*).

1. The height H of a mountain in feet is given by

$$H=49{,}000\left(\frac{R-r}{R+r}\right)\left(1+\frac{T+t}{900}\right),$$

where R, r are the observed heights of the barometer in inches, and T, t the observed temperatures at the bottom and top of the mountain respectively.

2. Calculate the value of the expression $\dfrac{b^3(0\cdot00081\,x)}{(1+at)760}$ where $b=21$, $x=730$, $t=33$, $a=\frac{1}{273}$ (an error of one per cent. is allowed).

3. Volume of a conical pier is $V=\frac{11}{42}\,h(a^2+ab+b^2)$, where h is the height of pier and a, b diameters of the ends; find the volume of the Forth Bridge