of preserving phytogeographical data for convenient reference, and also for various educational purposes. In this Dr. Clements is the pioneer, and deserves our congratulations upon the success of this first attempt.

It is understood that twenty-four sets (the price of which was very moderate) were prepared, of which all or nearly all have been taken, about a third of them by institutions abroad.

W. F. Ganong.

NOTE ON NEGATIVE DIGITS.

In the common scale of notation 2873 stands for $2000+800+70+3$. The same number might be represented by $3\bar{1}33$ which is intended to mean $3000-100-30+3$. It might also be written $3\bar{1}2\bar{7}$ or $29\bar{3}3$, and, indeed, a great variety of ways might easily be found, but the form $3\bar{1}33$ is most advantageous in that the absolute values of the digits are the smallest possible. It is clear that any number may be written so that all its digits shall be less than six in absolute value. In fact, we may replace 9 by $1,\bar{1}$ by $\bar{2}$, 7 by $\bar{3}$ and 6 by $\bar{4}$, leaving the others unchanged. This amounts to replacing the digit K by $10-K$, so that we must add one unit to the adjacent digit on the left. We have then the following rules for changing any digit from plus to minus and from minus to plus:

1. *To change a digit from plus to minus, subtract it from* 10 *and add* 1 *to the digit on the left.*

2. *To change a digit from minus to plus, subtract it from* 10 *and subtract* 1 *from the digit on the left.*

In practice one begins on the right and changes successively those digits which are greater than 5. Thus to change 82755637 the 7 on the right goes into $\bar{3}$ and the 3 becomes a 4, the 6 changes to $\bar{4}$ and the 5 adjacent to it becomes 6, which goes into $\bar{4}$ and makes the second 5 a 6. This goes in turn into $\bar{4}$ and changes 7 to 8 or $\bar{2}$ and the 2 becomes 3. The last digit on the left becomes $\bar{2}$, which changes the digit next to it on the left (namely 0) to 1. The whole process then gives

$$1\ \bar{2}\ 3\ \bar{2}\ \bar{4}\ \bar{4}\ \bar{4}\ 4\ \bar{3}.$$

The reverse process is carried out similarly, and half an hour's practice will enable one to make the change from one notation to the other with little effort of the mind.

The new notation is of little value in addition or subtraction and is entirely useless in division. In multiplication its value, however, can hardly be overestimated. The advantage in using it is twofold. The digits are all less than 6 and there is twice the chance of repeated digits in the multiplier. Thus, in the ordinary method of multiplication, if one has obtained the partial product corresponding to a digit 3 in the multiplier, one obtains the partial product corresponding to a digit $\bar{3}$ by changing the signs of all the digits in the first partial product. In the short method of multiplication given in Science, July 11, 1902, it is difficult to deal with large digits. Thus, to find the product of 987593×86759 by that method would be a difficult and fatiguing task. Changing to negative digits, however, one finds the product can be written out with perfect ease, thus:

$$\begin{array}{r} 1\ 0\ \bar{1}\ \bar{2}\ \bar{4}\ \bar{1}\ 3 \\ 1\ \bar{1}\ \bar{3}\ \bar{2}\ 4\ \bar{1} \\ \hline 1\ \bar{1}\ \bar{4}\ \bar{3}\ 3\ 2\ 4\ 1\ 1\ 2 \\ 1\ 0\ 1\ 7\ \bar{1}\ \bar{1}\ \bar{3} \\ \hline 8\ 5\ 6\ 8\ 2\ 5\ 8\ 1\ 0\ 8\ 7 \end{array}$$

D. N. Lehmer.

University of California,
October, 1902.

MUSEUM NOTES.

Part X., Volume II., of the *Annals of the South African Museum* is devoted to a continuation of 'The Moths of South Africa,' by G. F. Hampson. The present instalment, comprising nearly two hundred pages, deals entirely with the large family Noctuidæ, and gives keys to the subfamilies, genera and species. The descriptions are very full and include a great number of new species; the greater number of types are in the British Museum, but the location of all others is noted.

Part II. of the *Memoirs of the Carnegie Museum* contains a detailed description of the osteology of 'Oligocene Canidæ,' by J. B. Hatcher, including *Daphnœus felinus, Pro-*