mens, representing the various classes of this valuable animal. The leading article in the Children's Museum section is a sketch of 'King Cole,' a live crow, which was for some time an object of interest in the museum. Lecture courses are announced for both museums.

SOCIETIES AND ACADEMIES.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY OF THE UNIVERSITY OF NORTH CAROLINA.

THE 161st meeting of the society was held in the chemical lecture room on Tuesday (7:30 P.M.), October 17, 1905. The following papers were presented:

PROFESSOR H. V. WILSON: 'On the Formation of Regenerative Bodies of Sponges when kept in Confinement.'

PROFESSOR A. S. WHEELER: 'Paper Making.'

ALVIN S. WHEELER,
Recording Secretary.

DISCUSSION AND CORRESPONDENCE.

MUSICAL INSTRUMENTS OF MALAYSIA AND THE WEST COAST OF AMERICA.

TO THE EDITOR OF SCIENCE: A short time ago the National Museum received from Mr. C. Boden Kloss, curator of the Johore Museum, No. 40 of the *Journal of the Straits Branch of the Royal Asiatic Society,* for June, 1904, containing an illustrated catalogue of the ethnographical collection of the Sarawak Museum, Part I., Musical Instruments, by R. Shelford.

On page 29, Mr. Shelford thus describes a flageolet of the tribe called Murut, in Borneo:

a. Murut—Flageolet. (Plate VIII., figs. 7 and 8.)

Distal end open and cut square, proximal end closed by the natural septum, the bamboo has not been cut flush with this but projects considerably beyond it; in the wall of this projecting part a small hole is bored quite close to the septum, and a groove runs on the outside of the flute from this hole to the sound-hole, the groove being covered by a slip of bamboo luted on with dammar. The edge of the sound-hole is sharpened by a piece of palm-leaf stuck on. The sound-hole is 5 centim. from the proximal end; there are two stops 8.5 centim. apart, bored with a red-hot iron in a flattened strip on the same side as the sound-hole, the upper one is 32 centim. from the sound-hole. Total length 52.5 cm.; diam. 2.5 cm.

Catalogue No. 1291. F. J. D. Cox, Esq. (P. viii 03). From the Trusan river.

This is precisely similar to the mystery flute of some of the early writings about the North American Indians. The Museum has just received an additional example from Arizona, through E. H. Nelson. They are usually made of cane, having a closed joint at or near the middle. A hole is pierced on either side of the septum of the joint through the walls of the cane and an air channel cut on the outside from one hole to the other. If the upper hole and the channel are covered by a bandage or the finger as far as the lower face of the septum and the upper tube blown into, it gives a whistling sound. In the lower section three or four finger holes are made. If more than that number, it shows a European influence. If an instrument of this kind that has no bandage is handed to one ignorant of its characteristics, he would not be apt to place a finger in the precise spot required to make a sound, and how to sound it would be a mystery to him. Some of the North American Indians construct bone whistles in the same manner. For the reason that this method of construction is seldom seen elsewhere, the instrument is supposed to have been original with the Indians of North America.[1]

This is another interesting connecting link between Malaysia and the west coast of America, because of these two identical instruments in regions far apart. A search for the cause of this identity will be interesting to ethnologists. E. H. HAWLEY.

THE BUREAU OF SOILS.

TO THE EDITOR OF SCIENCE: Mr. F. H. King, in the last number of SCIENCE, reviewing the work done by Dr. Buckingham and published by the Department of Agriculture, makes use of the following expression:

He is well aware too that my object in having him called to the bureau was that he might make

[1] See George Catlin Indian Gallery, Smithsonian Report, 1885, p. 395 and Plate 93 g.

investigations along exactly the lines printed in the Bulletin, with many others, but to have him do so in conjunction with simultaneous field studies * * * etc.

To one who is unacquainted with either party to the controversy, on the nature of which he is also very little posted, the following questions naturally arise:

1. By what uncharted route under the civil service did Dr. Buckingham reach his present position in the Department of Agriculture?

2. Does one who secures a position in the department by the means implied, consider himself owned by one outside of the department, so that the latter shall complain, 'Is the creature greater than the creator?'

3. Is Dr. Buckingham owned in Madison, Wisconsin?

Arthur John Hopkins.

October 22, 1905.

SPECIAL ARTICLES.

THE METHOD OF ELIMINATION IN FIXING GENERIC TYPES IN ZOOLOGICAL NOMENCLATURE.

One of the most perplexing problems in zoological nomenclature is to decide on the proper application of a generic name used in a comprehensive sense by an early author, to one of the component parts of the original group. The genus of Linnæus and his followers of the eighteenth century corresponds fairly to the family of the twentieth century. It is agreed that a generic name should stand or fall by its typical species. But the writers of the eighteenth century had little conception of type-species in the modern sense. We must, therefore, find some method of fixing their types for them.

This may be done by choosing the 'best known European or officinal species,' to quote an expression attributed to Linnæus. When such a species is clearly indicated, this ought to settle the matter. But it does not do so in all cases, as some genera have no species either European or officinal. As many of the earlier writers took Linnæan specific names for their genera (tautonomy), it is safe to regard such a practise as fixing the type in question. *Bodianus bodianus* is an example of this sort. Virtual tautonomy (as *Tetrao tetrix, Scomber scombrus*) amounts to the same thing.

The method of beginning with a leading species or *chef de file,* as typical representative of each genus to be described in full, while the others were disposed of in comparative sentences, was adopted by Lacépède, Cuvier, Valenciennes, Poey and other authors. In ichthyology this has given reason for the choice of the type of the genus by page precedence. This method was raised to the dignity of a universal rule by Dr. Bleeker and others. It is a pity that it was not systematically adopted earlier, for it would have given fixity, a matter which in nomenclature far outweighs all others. But Linnæus, among others, usually placed his type-species in the middle of the series, the less known or more aberrant forms at either end of it.

The rule of the first reviser is generally recognized, and is given precedence over all other methods of fixing the type by many authors. The objection to it is that no one has yet defined the first reviser, so as to separate his rights from the rights of different meddlers. If we admit none to be revisers, unless they definitely limit a genus and definitely associate its name with some one or more of its original constituent species, to the exclusion of others, this rule may be available, although its application involves a good deal of otherwise profitless labor in bibliography.

In recent years a rule of fixing types by elimination has come into vogue, the American Ornithologists' Union having given it especial prominence. As a guide to the operations of a first reviser, who finds no type assigned by previous writers, the rule is not open to serious objection.

But it has been largely applied without regard to previous revisers, and the meanings of various generic names have been frequently shifted in accordance with its supposed demands. It is evident that it is in great need of definition.

For example, let *A, B, C, D* represent the species of a comprehensive genus called *X*. If each of these is successively made the type of a new genus *U, V, Y, Z,* then *Z,* the last