be of interest in connection with the origin of measurements by the foot, the span, the hairsbreadth, etc.

H. H. CLAYTON.

BLUE HILL, MASS., September 5, 1899.

THE FAUNA OF PORTO RICO.

TO THE EDITOR OF SCIENCE: It is somewhat surprising to find in the current number of SCIENCE (Sept. 1, p. 286), a paper by Dr. Mark W. Harrington on the 'Fauna and Flora of Puerto Rico,' which shows the writer to have, in some respects, less knowledge of West Indian mammal and bird life than was possessed by the discoverer of these islands. Columbus, in his journals, comments on the absence of large animals in the islands which he visited and states that the only land mammal found was the Hutia, or Utia, on which he was feasted by the natives of the Bahamas, Hayti and San Domingo, and Cuba. In the last named island the animal is still common under this name,* three species being known, viz., *Capromys pilorides*, *C. melanurus*, and *C. prehensilis*. The remaining members of the genus are *Capromys brachyurus*, of Jamaica, now supposed to be on the verge of extinction, largely through the ravages of the Mongoose; *C. thoracatus*, a nearly allied form discovered by Townsend in Swan Island, and the remarkably distinct *C. ingrahami*, described by Allen from the Plana Keys, Bahamas, in 1891, when for first time Columbus' mention of the Utia in the Bahamas was given a scientific status. In Hayti and San Domingo there occurs a member of the same Histricomorphine family (Octotontidæ), *Plagiodonti ædium*, an exceedingly rare animal of which little is known, and this, with the six species of *Capromys* named, two species of *Solendon*—one each from Cuba and Hayti—and a small species of *Oryzomys* from Jamaica, constitutes the entire known indigenous terrestial mammalian fauna of the Greater Antilles; there being, therefore, no indigenous land mammal recorded from Porto Rico. For this reason it is with no small interest we find your correspondent saying of the 'wild fauna' of Porto Rico: "Generally speaking, the largest wild mammal is a ground squirrel, about the size of a gopher. A few others of larger size are reported from time to time, but they are only occasional and are probably animals escaped from cultivation. Probably the larger animals once existed, and their traces could doubtless be found by a linguist in the place names which abound all over the island and are quite often not Spanish * * *."

The 'squirrel' mentioned is as yet unknown to students of the Greater Antillean fauna, who have also failed to discover, either in the records of man or nature, any evidence of the former existence of large mammals in these islands.

In respect to birds, it appears that both your correspondent and Columbus found 'Nightingales' in the West Indies; an error as pardonable 400 years ago as it is inexcusable to-day.

FRANK M. CHAPMAN.

AMERICAN MUSEUM OF NATURAL HISTORY,
September 7, 1899.

*In Hill's recently published 'Cuba and Porto Rico' (p. 55), this animal is miscalled 'Agouti.' Only one species is said to occur in Cuba, and the creature is stated to be found in the Windward Islands, but not in Jamaica, whereas the reverse is true. There is, however, in the Windward Islands a true Agouti (*Dasyprocta cristata*), the only member of the genus occurring in the West Indies.

METHODS FOR A CARD INDEX.

IN the last number of SCIENCE Professor Porter, of the Harvard Medical School, outlines a plan for a card *Centralblatt* of physiology, which when carried into effect will greatly smooth the way for students of physiology and related sciences. I am not, however, sure that the plan proposed is the most practicable. A card index is without doubt the most convenient form of an index, chiefly because it can be continually and homogeneously increased. It is, however, bulky and somewhat inconvenient to use, and hence, I think, not suited for the publication of abstracts, especially when they extend beyond the limits of a single card. The most convenient and economical method of storing printed matter is in the form of books on a shelf. The card catalogue should be an index to these books.

There should be for each of the sciences *Centralblätter* or series of abstracts and probably one in each leading country so as to secure

completeness and different perspectives. Then there should be a central bureau as planned by the Royal Society, which would send out promptly a card catalogue giving all the titles and also references to reviews and abstracts (at least in certain standard journals), as they appear. The slips giving data regarding reviews and abstracts would, of course, refer to the article abstracted, and should, perhaps, be printed on narrow and thin slips which could be pasted on the original cards. If the abstracts in question are by competent men of science, it would be an advantage if an opinion were expressed in regard to the importance of the work reviewed, whether it is a compilation or an original research, etc. If this were done by some uniform system it could be carried over to the slip by a symbol, as a letter or a single word.

We are undertaking to carry out this plan for psychology in the Psychological Laboratory of Columbia University, but it has, of course, only local usefulness so long as the Index is not published. We have a card catalogue of psychological literature, and the card indicates whether the publication can be found in the University Library and if not the most accessible library in which it can be found. It is proposed to add references to abstracts and reviews, as far at least as they are contained in the *Zeitschrift für Psychologie* and the *Psychological Review*, and to indicate the character and value of the publication. To learn the contents it is only necessary to turn to a journal within arm's reach.

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Columbia University.

NOTES ON INORGANIC CHEMISTRY.

The investigations of Professor K. A. Hofmann have shown the decided analogies which exist between hydroxylamin NH_2OH and water especially in possessing both a basic and an acidic nature. The basic nature lies in the tendency of the amido group to form an ammonium group, while the acidic nature rests in the hydroxyl group, in which the hydrogen atom is in derivatives replaceable by a metal. A new analogy between hydroxylamin and water is now shown by Rudolf Uhlenhuth in Liebig's *Annalen*. When hydroxylamin is added to a concentrated solution of nickel sulfate, a red crystalline precipitate is formed, which has the formula $NiSO_4$, $6NH_2OH$. This would be ordinarily considered hydroxylamin of crystallization. Nickel sulfate, however, crystallizes as many other vitriols with $7H_2O$. According to Werner's hypothesis one of these water molecules is united chemically with the SO_4, while the other six are coördinated with the nickel atom. Now the hydroxylamin could not be thus united with the SO_4, hence we find only six molecules present. This would seem to add another to the not long list of substances such as water, ammonia, etc., which can be coördinated with the metallic atoms.

Practical use is being made of the high temperature developed by the reduction of metallic oxids by aluminum, as described by H. Goldschmidt in the *Zeitschrift für Electrochemie*. Carbon-free metals are readily obtained, as chromium for chrome steel and manganese for manganese bronze. Vanadium oxid is reduced by aluminum only to the suboxid V_2O, but columbium oxid is reduced to the metal. As a by-product in these reactions an artificial corundum is obtained which surpasses the natural emery as an abrasive. When a mixture of iron oxid and aluminum reacts, the temperature is intense but is very circumscribed, so that it can be used for many purposes, such as welding steel, where a high temperature is desired locally.

A contribution to the chemistry of matches has appeared in the *Bollettino chimico-farmaceutico* by Giovanni Craveri of Buenos Ayres. He suggests the replacement of phosphorus in matches by perthiocyanic acid $H_2C_2N_2S_3$, and claims that such matches are not poisonous nor explosive, strike on any surface and burn brightly. Perthiocyanic acid can be readily made from the by-products of several processes, such as the purification of coal gas or the Lebane soda manufacture, and already its cost is less than that of phosphorus. If the new matches prove all that is claimed for them, Craveri will be recognized as a benefactor of the human race.

The paper by Sir William Crookes on victorium, a new element associated with yttrium, recently read before the Royal Society has been