

HCl and H_2SO_4 but also of HNO_3 , HBr and $C_2H_2O_2$ upon the seedlings of *Zea Mais*, and arrived at practically the same conclusion. I not only called attention to the fact that the seedlings of Indian corn are much more resistant to H ions than those of *Lupinus albus* used by Kahlenberg and True* but also that they are able to withstand a solution of HCl or H_2SO_4 four times as concentrated as are the seedlings of *Pisum sativum*.

It is true that the exact concentration of H_2SO_4 and HCl which I found to inhibit the growth of corn roots differs somewhat from the figures given by Dr. Loew. This variation in the results may easily be explained by the different methods of experimentation.

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SHORTER ARTICLES.

A LITTLE KNOWN DEVIL-FISH.

IN the *Annals and Magazine of Natural History* for August, 1897 (XX., 227), Boulenger published a 'Description of a New Ceratopterine Eagle-Ray from Jamaica,' which he named *Ceratobatis Robertsii*. I was reminded thereby of a species described many years before (1862) by Richard Hill in an article on 'The Devil-fish of Jamaica' in 'The Intellectual Observer' (II., 167-176). Therein he named a small species *Cephaloptera Massenoidea* on account of a supposed resemblance to the *C. Massena* of Risso. I find that Hill's name and article are unknown to ichthyologists generally and, therefore, a note on the subject may be of use at the present time and call attention to some unappreciated facts.

The fish of Boulenger had a disk 13.77 inches long and 30.70 inches wide; the tail was 24.40 inches long. It was assumed that 'this ray grows to a very large size,' and that 'the single specimen secured by Mr. Roberts, the dimensions of which are recorded above, is a young one.'

The species of Hill had a length of 25½ inches 'from the centre of the head to the dorsal fin' and the width was 48 inches; the

tail was 30 inches long. It was a female, having 'a fœtus just mature for extrusion, 16 inches broad,' and consequently full grown or at least sexually mature.

Hill's description is not sufficiently full to enable an identification to be made from it alone with Boulenger's specimen. No mention is made of the dentition which is said by Boulenger to be 'restricted to the upper jaw' in his species. Furthermore, there is an apparent discrepancy in the relative proportions, but this may be due to the difference of the points between the measurements. The proportion of the sum of the length of the disk and tail to the width, in Hill's specimen, is not irreconcilable with the proportions of Boulenger's fish. It is improbable, too, that two small species of the same family should be inhabitants of the same waters. Whether there are or are not is a problem for native Jamaican naturalists or visitors to the island to determine.

Boulenger's measurements are given in millimeters; Hill's in feet and inches. Reducing Hill's to millimeters the principal measurements are as follows:

	Boulenger.	Hill.
Length of disk.....	350	648
Width of disk.....	780	1,218
Tail	620	762

The difference in size between the species in question and the gigantic devil-fish is remarkable. Another individual (which must have been of another species) was noted by Hill as caught shortly after the one he described which had a disk 15½ feet wide and 9½ feet long and a tail only 2 feet long.

The pregnant mother of the species described by Hill was considerably less in size than the fœtus procured from the body of another female killed in Jamaica many years previously; that fœtus was 'five feet broad.'

Such differences in size even might possibly be within specific variation, but as the differences are coordinate with other structural characters, they can not be in this case.

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* *Bot. Gaz.*, 22: 81. 1896.