The fact that all of the mail-cheeked fishes do not have the coracoid elements separated by the actinosts is not an argument in disfavor of the relationship of the Gobiidæ to the Cottidæ, because the mail-cheeked fishes with the typical shoulder girdle (such as the Scorpænidæ) were, of course, the ancestors of the Cottidæ. From the Cottidæ came the Liparidæ and the Cyclopteryidæ, as Dr. Gill long ago pointed out.[1]

It does not seem improbable that the gobies may have come from some ancestor—probably scale-covered—of the Cottidæ in which the shoulder girdle had become differentiated. Further, it is not altogether improbable that this ancestor might also have been from somewhere along the line leading towards the Cyclopteryidæ and the Liparidæ; some form in which the ventrals had just become attached to each other, much as in most of the gobies of to-day. From this the sucking disk of the Liparidæ and Cyclopteryidæ could have developed. In considering this supposition, of course, we could only explain the gobies with separate ventrals by the separation being secondary. The gobies further resemble the last two families in having no myodome to the cranium.

It is conceded, certainly, that the family Gobiidæ is not very close to the Cottidæ, they having lost the suborbital stay to the preoperculum and undergone other changes, and no modification of the suborders containing these two families is suggested. The character of the shoulder girdle seems to be the most significant character in showing a possible line of descent of the gobies, and it is suggested in light of it that the group be placed in close relationship with the mail-cheeked fishes in works involving classification. With this question in mind the gobies should, of course, be studied in detail.

Edwin Chapin Starks

CARCHARIAS BORNEENSIS AND BARBUS ELONGATUS, AS PREOCCUPIED NAMES

In the *Philippine Journal of Science,* Vol. V, No. 4, Section D, October, 1910, p. 263, Pl. 1, Mr. Alvin Seale describes, as new, "*Charcharias borneensis.*" This is preoccupied by *Carcharias* (*Prionodon*) *borneensis* Bleeker, *Act. Soc. Sci. Ind.-Neerl.* (Borneo 12), V, 1858–59, p. 8.

In the same journal Mr. Seale also describes, as new, *Barbus elongatus,* on p. 265, illustrated on Pl. 2 as Fig. 1. This is preoccupied by *Barbus elongatus* Rüppell, Mus. Senckenb., II, 1837, p. 11, Pl. 2, Fig. 1.

Henry W. Fowler

Academy of Natural Sciences,
Philadelphia, Pa.,
February 9, 1911

[1] *Proc. U. S. Nat. Mus.,* Vol. XIII., 1890.

SOCIETIES AND ACADEMIES

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

The 693d meeting was held on April 8, 1911, President Day in the chair. Three papers were read.

Mechanical Forces on an Electrical Conductor: Dr. Frank Wenner, of the Bureau of Standards.

Starting with the equation for the electromotive forces in an inductive circuit the speaker showed how it follows under certain conditions that a current through a conductor causes forces such as to require a tension in the conductor to maintain equilibrium, that is, the forces tend to increase the length of the conductor. It also follows that under other conditions the forces are such as to tend to decrease the length of the conductor. Under most conditions the force on an element of the conductor near the surface is such as to tend to crowd it toward the center.

It was also stated that it is possible that a current in a conductor causes forces other than those due to electro-magnetic and electrostatic actions, the former only having been considered by the speaker. So far, however, no one has shown the presence of any such additional force.

The Completion of the Texas-California Arc of Primary Triangulation: Mr. Wm. Bowie, of the Coast and Geodetic Survey.

Three grades of triangulation are recognized: primary, secondary and tertiary; and the grade depends upon the accuracy of the angle and length measurements rather than upon the length of line between pairs of stations.

The primary work is extended in long arcs over