A SYNOPSIS OF THE HAMMERHEAD SHARKS (*SPHYRNA*), WITH DESCRIPTION OF A NEW SPECIES.

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(Figures 1–3.)

While working upon material obtained recently in the Gulf of Aden I found it necessary to examine the collection of Hammerhead Sharks in the British Museum (Nat. Hist.). The results of this study were somewhat surprising and have necessitated the publication of this paper.

During my work in the field I distinguished three species which I named *Sphyrna zygaena*, *S. mokarran* and *S. tudes*, in accordance with the previously accepted definitions of these forms, but it now appears that not one of these names was correctly applied. The position can best be made clear by discussing briefly each of these in turn.

(*a*) *Sphyrna zygaena*.—It has been shown by Springer that under this name two quite different species have been confused, and he has proposed the name *S. diplana* for the one having a median indentation in the snout, short narial grooves, and other characters. More recently Bigelow and Schroeder, in their fine monograph of the Sharks of the western North Atlantic, have presented a large amount of data upon both species which leaves no doubt as to their distinctness and makes comparative work simple.

The bulk of the material labelled "*S. zygaena*" in our collection proved to agree with the description of "*S. diplana*" and so far from being simply an Atlantic species, as the American authors seem to have supposed, it appears to be circumtropical. We have specimens from Panama, West Indies, Rio Grande, Mediterranean, West Africa, Nigeria, Zanzibar, Seychelles, Aden, Canara, Moluccas, Japan, Formosa, China and Honolulu, none of which differs in any important respect from those described by Bigelow and Schroeder.

In one way this is very unfortunate, because the species occurs off Australia, whence it was described in 1822 by Griffith as *Zygaena lewini*. The original description is almost worthless, but the illustration leaves no doubt that it represents the shark later described and figured more accurately by Whitley. Comparison of the latter with our material and the American descriptions reveals no essential difference between the two forms.

When describing his *S. diplana*, Springer applied the name *S. lewini* to a specimen taken off California in order to show differences between the two. It must be pointed out, however, that some of the minute differences noted may well be due to error. For example, in his best description of the species Whitley (1934) makes no mention of serrated teeth, and in fact shows them in his illustration as entire. His remark in a later work that "the teeth which are entire in the young become finely denticulated" is evidently based on observation of larger specimens for the identity of which we have no evidence. In fact, the photograph which accompanies his comments shows what appears to be a large *S. tudes*, in which the teeth would be serrated. His statement is accompanied also by remarks concerning the alleged lengthening of the narial grooves with age, and proportional differences, which further suggest confusion with other species.