

ence to the experiments with the pigeons (Exps. 16, 17) apart from the fact (of little significance) that one experiment was performed in May and the other in October it should be mentioned that in the first instance the pigeons were fed and were much more active than in the second which accounts for the weight of the oxygen consumed and carbon dioxide produced being so much greater in the former case than in the latter, the respiratory quotient being 0.8. The apparatus made use of by the authors in the investigations just described is not well adapted to the study of respiration as obtained in the lower vertebrata, reptilia, batrachia and invertebrata. Nevertheless, the results of an experiment (Exp. 18) with a turtle (*Pseudemys mobilensis*) are offered as illustrating how slowly oxygen is consumed and carbon dioxide is produced in such animals, the respiratory quotient, however, being the same as in the mammalia.

#### NOTES ON A COLLECTION OF SHELLS FROM SOUTHERN MEXICO.

BY FRANK C. BAKER.

The following notes are based upon collections made by the Expedition which went from the Academy of Natural Sciences under the charge of Prof. Angelo Heilprin in the early part of 1890. The geographical positions of the localities visited are as follows:

Silam, situated on the northern coast of Yucatan on the Gulf of Mexico; Progreso, on the northern coast of Yucatan about fifty miles west of Silam; Campeche, on the western coast of Yucatan on the Gulf of Campeche; and Vera Cruz, on the southeastern coast of Mexico on the Gulf of Campeche. All of these localities are situated between the 19th and 22nd degrees of north latitude.

Most of the specimens collected were beach shells, although some dredging was done at Progreso, and more or less littoral collecting was done at all the localities visited. At Vera Cruz there is a chain of large coral reefs and islands, and upon these reefs in water from four to twenty feet in depth were found living *Purpura haemastoma* var. *Floridana*, *Conus mus*, *Coralliophila abbreviata*, *Sistrum nodulosum*, *Siphonaria alternata*, *Arca Noa*, *Arca imbricata* and *Triton tritonis* var. *nobilis*. A serpuloid reef, Punta Gorda, a few miles north of Vera Cruz was found literally paved with living *Purpura haemastoma* var. *Floridana* associated with *Siphonaria alternata*. Old logs and pieces of timber along the shore were most always found to be covered with *Littorina columellaris*, *L. ziczue* and a few specimens of *Purpura haemastoma* var. *Floridana* and *Siphonaria alternata*. Many interesting species were found in the sea-wrack thrown upon the shore. The outer reefs at Vera Cruz, as for example the Isla Verde, were found to be very prolific in lamellibranchs, the genera *Arca* and *Lucina* being well represented. It will be seen by the following list that many species are reported from localities at a greater or lesser distance south than has previously been reported. Many species hitherto reported from Florida Keys we now know extend as far south as Silam, Campeche or Vera Cruz.

The collections from Silam were made by Prof. Angelo Heilprin and Mr. J. E. Ives; those from Progreso by Prof. Heilprin, Messrs. J. E. Ives, Witmer Stone and myself; while the shells from Vera Cruz were collected by Prof. Heilprin and myself. The Campeche collection was purchased.

## CYRENIDÆ.

CYRENA CAROLINENSIS Bosc. Vera Cruz.

CYRENA FLORIDANA Conrad. Silam; Progreso. No extreme southern range is given by Dr. Dall; it has been reported from Tampa and West Florida.

## DONACIDÆ.

DONAX DENTICULATUS Linné. Vera Cruz.

DONAX VARIABILIS Say. Vera Cruz.

DONAX FOSSOR Say. Vera Cruz.

IPHIGENIA BRASILIANA Lam. Vera Cruz.

## PSAMMOBIIDÆ.

TAGELUS GIBBUS Spengler. Vera Cruz.

ASAPHIS DEFLORATA Linné. Vera Cruz.

SANGUINOLARIA ROSEA Lam. Vera Cruz.

## TELLINIDÆ.

TELLINA FAUSTA Solander. Vera Cruz.

TELLINA LINEATA Turton. Silam.

TELLINA POLITA Say. Progreso.

TELLINA RADIATA Linné. Campeche.

MACOMA CONSTRICTA Brug. Vera Cruz.

LUTRICOLA INTERSTRIATA Say. Silam; Vera Cruz. (= *Tellina intastriata* Say, *Tellina gruneri* Phil.)

## SEMELIDÆ.

SEMELE RETICULATA Gmelin. Vera Cruz.

SEMELE ORBICULATA Sowb. Vera Cruz.

SEMELE VARIEGATA Lam. Vera Cruz.

## GNATHODONTIDÆ.

GNATHODON ROSTRATA Petit. Vera Cruz. Has not before been reported so far south.

## MACTRIDÆ.

MACTRA BRASILIANA Lam. Progreso.

## LYONSIIDÆ.

LYONSIA BEANA d'Orb. Progreso.

## PHOLADIDÆ.

PHOLAS CAMPECHIENSIS Gmelin. Vera Cruz.

## SCAPHOPODA.

## DENTALIIDÆ.

DENTALIUM SEMISTRIATUM Guldin. Progreso.

CADULUS CAROLINENSIS Bush. Vera Cruz.

## GASTROPODA.

## TORNATINIDÆ.

TORNATINA CANDEI d'Orb. Silam.

## BULLIDÆ.

BULLA STRIATA Brug. Vera Cruz; Silam; Progreso.

HAMINEA SUCCINEA Conrad. Progreso.

## SIPHONARIIDÆ.

SIPHONARIA LINEOLATA d'Orb. Vera Cruz. Found living on coral in 10-20 feet of water.

SIPHONARIA ALTERNATA Say. Silam. Most southerly locality reported. Quoted by Dall from Bermuda, East and West Florida and Florida Keys.

## TEREBRIDÆ.

TEREBRA CINEREA Gmelin. Vera Cruz.

TEREBRA PROTENTA Conrad. Vera Cruz. Most southerly locality reported.

## CONIDÆ.

CONUS PROTEUS Hwass. Vera Cruz; Progreso.

CONUS MUS Hwass. Vera Cruz; Campeche. Living among the coral in Vera Cruz in 20 feet of water.

CONUS PEALII Green. Silam; Progreso.

CONUS VERRUCOSUS Hwass. Campeche.

## PLEUROTOMIDÆ.

DRILLIA FUSCESCENS Gray. Vera Cruz; Progreso.

DRILLIA COCCINATA Reeve. Silam.

DRILLIA LEUCOCYMA Dall. Silam.

DRILLIA OSTREARUM Stearns. Progreso.

MANGILIA ACCINCTA Mont. Vera Cruz.

MANGILIA PPLICATA C. B. Adams. Silam; Progreso, (= "*plicosa* C. B. Ad." Dall's List.) Most southerly locality reported.