

434th Meeting, held at the Museum, Manchester, Sept. 9th, 1914.  
Mr. E. Collier in the chair.

Additions to the Library announced and thanks voted:—

"Land and Freshwater Mollusca of the Valley of the Roe, Benevenagh, and Magilligan, co. Derry," by A. W. Stelfox. "Manual of Conchology," part 88, by H. A. Pilsbry (from the respective authors); and the usual periodicals received in exchange.

Donation to Cabinet announced and thanks voted:—

By Prof. A. E. Boycott: A dextral specimen of *Clausilia bidentata*, taken by him at Portmadoc, North Wales, August, 1914.

#### New Members Elected.

Dr. W. G. N. van der Sleen.

W. G. Mazyck.

Rev. John McMurtrie.

#### Candidates Proposed for Membership.

John Noble Kennedy, R.N., H.M.S. "Antrim," c/o G.P.O., London (introduced by J. R. le B. Tomlin and Kenneth H. Jones).

Alfred John Saban, 318, Ivydale Road, Peckham Rye, S.E. (introduced by Capt. W. J. Farrer and J. Ray Hardy).

#### Death.

A. J. Jukes Browne, F.R.S., F.G.S.

#### Papers Read.

"Note on *Bursa (Tritufa) rubita* (Bolten) = *Triton lampas* (Lam. et Guet.)," by Edgar A. Smith, I.S.O.

"Notes on Fluvial Mollusca from Port Patrick, Wigtownshire," by John N. Kennedy, R.N.

"Molluscan Rubber Pests," by G. C. Robson, B.A.

"The Marine Mollusca of São Thomé," I., by J. R. le B. Tomlin, M.A., and Lewis J. Shackelford.

#### Exhibits.

By Mr. G. C. Spence: Nine species of Formosan and Japanese *Pupinella*, and *Pupinella angasi* Brazier, Louisiade Islands.

By Mr. C. H. Moore: *Helix hortensis*, *Hygromia rufescens*, and other species from Ilfracombe; *Helicigona lapicida*, *Hygromia hispida*, *Clausilia bidentata*, *Jamania cylindracea*, and *Hyalinia alliaria*, from Lynmouth; and varieties of *Helicella virgata* from Croyd Bay, North Devon.

By Mrs. Gill: A drawer of *Placostylus*, showing variation in form, and some of the rarer species.

By Mr. J. Wilfrid Jackson: Elongate specimens of *Azeqa* from Clapham, Yorks. (coll. J.W.J.), and Barnoldswick, Yorks. (coll. H. Beeston), for comparison with *Azeqa elongata* described by Mr. J. W. Taylor in the "Naturalist," March, 1897, p. 75.

It was decided to have the following Special Exhibits at future meetings:

October 14th - *Planorbis spirorbis* and *P. vortex*.

November 11th - The Genus *Alycaeus*.

December 9th - The Genus *Ranella*.

## THE MARINE MOLLUSCA OF SÃO THOMÉ, I.

By J. R. le B. TOMLIN, M.A., AND L. J. SHACKLEFORD.

(Read before the Society, Sept. 9th, 1914.)

THE material from which the following list has been compiled was collected in S. Thomé by Mr. J. Chalmers. He was unfortunately unable, for various reasons, to do any dredging, and we gather that the heavy surf would make dredging a very difficult operation in a small boat. The list is, therefore, exclusively a record of shore collecting. Mr. Chalmers also sent home large quantities of coarse coral gravel from which all the small shells were sifted, but a very large proportion of specimens from this source was too rolled and worn for identification, otherwise our list would be considerably larger. Even as it is we are able to make a considerable addition to the authentic records from this island.

The only list that has been published, so far as we are aware, is Nobre's "Sur la Faune Malacologique de S. Thomé," subsequently incorporated (M. Nobre informs us) in his "Matériaux pour l'étude de la Faune Malacologique des Possessions Portugaises de l'Afrique Occidentale" (1909), published in the Bulletin de la Société Portugaise des Sciences Naturelles, tome iii., suppl. 2. In this paper 126 species are recorded for S. Thomé, 57 of which have not occurred in our material. The ensuing list records 188, making a total of 245 for the island.

There are, however, probably a few misidentifications in M. Nobre's list, which would slightly reduce this total. We record below 31 species which are common to the West Indies, as compared with 15 in Dautzenberg's "Contributions à la Faune Malac. de l'Afrique Occidentale" in Actes de la Société Linn. de Bordeaux, 1910—a paper in which the author ascribes the presence of West Indian species on the West African coast to the branch of the Gulf Stream, known as the Canaries current, which crosses the Atlantic from the Gulf of Mexico to Portugal, and then runs southwards along the African coast. We do not, however, recollect reading of the occurrence of any West Indian shells on the Portuguese coast.

The marine mollusca of S. Thomé obviously have a very close affinity with those of the Cape Verdes, but though so much further south—S. Thomé lies practically on the equator—the tropical element seems much smaller than in the Cape Verdes. Apart from a few species of very wide distribution, the Cape element is almost absent.

Our thanks are due to Mr. T. Iredale, M. Augusto Nobre, M. Ph. Dautzenberg, and the Marchese di Monterosato for much kindly help.

**Melampus flavus** (Gmel.).*Voluta flava* Gmelin, Syst. Nat., ed. xiii., p. 3436.

S. Thomé, common; Príncipe and Cape Verdes (Nobre); West Indies.

**Melampus pusillus** (Gmel.).*Voluta pusilla* Gmel.; Syst. Nat., ed. xiii., p. 3436.

S. Thomé, fairly common; Príncipe and Cape Verdes (Nobre); West Indies.

**Pedipes afer** (Gmel.).*Helix afra* Gmel., Syst. Nat., ed. xiii., p. 3651.

H. and A. Adams, Genera of Recent Moll., II., p. 248, pl. lxxxiii., f. 4.

S. Thomé, fairly common; Cape Verdes (Bouvier); Azores and S. Helena (Smith); Madeira, very common (Watson); Cansado, Plage de Hann, Boulbiné and Mossamedes (Dautzenberg); Lisbon and Salvages (Wollaston, Test. Atl., pp. 50, 265, 293).

**Siphonaria algesirae** Quoy et Gaimard.

Quoy et Gaimard, Voyage de l' "Astrolabe," II., p. 338, pl. xxv., f. 23-25.

S. Thomé, scarce; Canaries (Watson); Cape Verdes, abundant (Nobre); Atlantic, from Portugal to Mossamedes; Mediterranean.

**Gadinia garnoti** (Payr.).*Pileopsis garnoti* Payraudeau, Moll. Corse, p. 94, pl. 5, f. 3, 4.

S. Thomé, scarce; Mediterranean.

**Gadinia costata** (Krauss).*Mouretia costata* Krauss, Sudafr. Moll., p. 57, pl. 4, f. 1.

S. Thomé, scarce; Cape Verdes (Nobre); S. Africa; S. Helena (Smith).

**Williamia gussoni** (Costa).*Ancylus gussonii* Costa, Cat. Test. Sicil., pp. 120, 125.

S. Thomé, common; Canaries (McAndrew); Azores, S. Helena and Ascension (Smith).

We should be disinclined to include <sup>1</sup>*Patella radiata* Pease in the synonymy without anatomical confirmation.**Actæon maltzani** Dautzenberg.

Dautzenberg, Contrib. Faune Afr. Occ., I., p. 10, pl. 1, f. 1, 2.

*Actæon senegalensis* von Maltzan (non Petit).

S. Thomé, rare; Goree (von Maltzan); Rufisque and Libreville (Dautzenberg).

**Retusa striatula** (Fbs.).*Bulla striatula* Forbes, Rep. Aegean Invert. (Brit. Assoc., 1843), p. 188.

S. Thomé, scarce; Mediterranean.

<sup>1</sup> Smith in P.Z.S., 1890, p. 296.**Tornatina knockeri** Smith.

Smith, P.Z.S., 1871, p. 738, pl. lxxv., f. 30.

S. Thomé, common; Whydah (Smith); Cansado, Rufisque, W. of Cape Rouge, Conakry, Boulbiné, Los Is., Cotonou, Libreville, Bana, Shart Point, and Mossamedes (Dautzenberg).

**Weinkauffia diaphana** (Aradas).*Bulla diaphana* Aradas, Cat. Conch. Sicil., p. 40.*Scaphander gibbulus* Jeffr., Ann. and Mag. Nat. Hist., 2nd ser., xvii., p. 188, pt. II., f. 20, 21.*Alys diaphana* Arad., Pilsb., Man. of Conch., xv., p. 278, pl. xxxii., f. 29, 30.

S. Thomé, Rufisque, W. of Cape Rouge, Conakry, and Los Is. (Dautzenberg); Madeira (Watson); Mediterranean.

**Cylichna cylindracea** (Pennant).*Bulla cylindracea* Pennant, Brit. Zool., iv., p. 117, pl. 70, f. 85.

S. Thomé, fairly common; Norway to Madeira, Canaries, and Azores; Whydah (Smith); S. Helena (Smith); Port Elizabeth (Sowerby); Ascension, 420f.; and Tristan da Cunha (Challenger); Gulf of Oman, Maskat, and Bombay (Melville).

**Bulla adansoni** Philippi.*Bulla adansonii* Philippi, Zeitschr. f. Malak., 1847, p. 121.

Pilsbry, Man. Conch., xv., p. 333, pl. xxxviii., f. 61.

S. Thomé, common; Cape Verdes; Cape Blanco to Loanda.

It is curious that *B. ampulla* L., which Nobre reports as "très commun" at S. Thomé, did not occur in our consignments.**Haminea orbignyana** (Férussac).*Bulla orbignyana* Férussac, Dict. Classique d'Hist. Nat., II., p. 573.

Dautzenberg, Contrib. Faune Afr. Occ. I., p. 13, pl. 1, f. 3, 4.

S. Thomé, not uncommon; Senegal (Dautzenberg); Brittany and Gulf of Gascony; Mediterranean.

This is probably Nobre's <sup>1</sup>*Haminea* sp. ? from S. Thomé.**Ringicula suturalis** Smith.

Smith, P.Z.S., 1871, p. 733, pl. lxxv., f. 12.

S. Thomé, common; Whydah (Smith).

**Terebra corrugata** Lam.

Lamarck, Anim. Sans Vert., x., p. 244.

S. Thomé, a few worn specimens; Cape Verdes, plentiful (Chalmers); Loanda.