

A SICILIAN COLLECTION.

BY MAXWELL SMITH.

During February and March, 1908, it was my good fortune to spend nearly fifty days on the island of Sicily, and I improved every opportunity which presented itself for mollusk hunting.

Soon after my arrival in Palermo I called upon the Marquis de Monterosato, and obtained from him much valuable information in regard to localities of Sicilian shells. I also viewed his unrivaled collection of Mediterranean shells, which is especially rich in Sicilian species.

After a few weeks in Palermo the following towns were visited in the order named—Girgenti, Siracuse, Taormina and Messina. Excursions were made from each, but at no time were shells taken more than twelve miles from the sea. From the above will be noticed that the northern, southern and eastern coasts were visited; but the interior and western mountains were untouched. The mountains in the west are exceedingly rich in peculiar species, including the most striking of the latticed *Clausilia*. Each mountain and plain on the island contains its own species or group of species.

Monte Pellegrino, above Palermo, supports a rich snail fauna. The mountain is largely composed of perforated limestone, in the recesses of which a large proportion of the land mollusca live. At the base of Pellegrino in the grass live *Helix hamilcaris* Kobelt. Under stones at the base of the cliffs *Ferussacia folliculus* Gron. Half way up the trail *Helix mazzulli* Jan. and *Helix sicana* Fer. first appear and extend nearly to the summit. Within a hundred feet of the summit *Clausilia grohmanniana* Phil., which was rare below, I found in comparative abundance. Near the signal station on the top *Helix macrostoma* Muhlf., one of the few Sicilian *Campylæas*, was discovered in crevices of the rock. Thus these species apparently prefer various elevations above the sea.

The most remunerative season for terrestrial mollusks in Sicily is during November and December, when the rainy season is usually at its height. At this time every wall is said to teem with shell life. But as I found at Girgenti even the dry season is not unpopular with land mollusca. On the first limb of a single almond tree I counted no less than two hundred and fifty specimens of *Helix*. The opercu-

lates though avoid the direct rays of the sun, living under boulders among the ruins. Siracusan land shells adapt themselves to the dry surroundings by living at the edge of the cliffs overhanging the sea.

Upon reaching Taormina and the base of Etna, I was surprised to find the terrestrial mollusca reduced to a minority. The country here reaches the wildest form, deep crevices and small canyons intersect the mountains and the vegetation is luxurious in early spring. The scarcity of land mollusca is accounted for in the prevalence of lava instead of limestone formations, which are so characteristic of the rest of Sicily.

In the vicinity of Taormina a few small permanent streams were explored. In these, under stones, in swiftly running water, two species of *Ancylus* were collected. The fresh-water genera are not well represented on the island; but near Siracuse the Anapo, a small permanent river, supports a few peculiar species. Many of the Sicilian streams after heavy rains are raging torrents, which, under normal conditions, run underground or in the dry season cease. The absence of mud is also unfavorable for molluscan life. The Anapo rises in a pool of considerable depth, is uniform in width throughout, and after many windings empties into the Bay of Siracuse a few miles below its source. Its banks are lined with papyrus, on the roots of which *Amnicola*, *Bithinia* and other small genera live. Of the lakes in the south I visited none, partly because of their inaccessible location, but particularly on account of their unhealthiness. The fauna of each is in the main peculiar, if we include extreme variations.

Romagnala, a small town near Palermo, was found an excellent station for marine species. Facing the open sea, the shore combines sand and algae-covered rocks. Over sixty species were secured in a few hours after a storm, the small species in fresh condition and the larger often containing the animal. Two days later the sand had covered the rocks, and it was with difficulty that ten species were secured. At Siracuse the bay yielded a few marine, and the rocky coast many genera not found at Palermo. *Cypræa lurida* L. and *Fusus syracusana* L. are seldom found near shore at Siracuse, but are frequently brought in by the fishermen. The violence of the surf, combined with the absence of drift on the beaches at Taormina, prevented frequent collecting. *Argonauta argo* L. and *Calliostoma conulus* L. occurred, which were not noticed in the north. Being in

close proximity with the Straits of Messina, a number of shells common at Messina were found at Taormina and Giardine.

At Messina there is an excellent market, in which at 5 a. m. each morning a surprising variety of fish are offered for sale. The early start required is amply repaid. The octopus, *Polypus vulgaris* L., is considered as an especial delicacy as food, both in Sicily and Italy.

In preparing the following list I have determined, for condensation, to omit separate annotations. For convenience I have arranged the *Helices* in alphabetical order, excepting *Leucochroa*.

For the identifications I am indebted to Marquis Monterosato, Mr. C. Payton Gwyer, Mr. E. A. Smith, of the British Museum, and for difficult fresh-water species to Mr. Bryant Walker. The Malacological Laboratory, Paris, has also given free use of its valuable library.

Argonauta argo L. Taormina.

Sepia officinalis L. Taormina, Palermo.

Poiretia algira Brug. Taormina, Girgenti.

Daudebardia brevipes Drap. Palermo.

Hyalinia suburbana Mont. Palermo.

Vitrea hydatina Rossm. Palermo.

Leucochroa candidissima Drap. Girgenti.

Helix acuta L., *apicina* Lam., *conica* Dr., *conoidea* Dr., *muralis* Müll., *pisana* Müll., *squalida* Monts. Siracuse.

Helix agrigantina Ad. Girgenti.

Helix andromica Monts. Taormina.

Helix gregaria Ziegl., *moesta* Parr. Palermo.

Helix aperta Born, *hamilcaris* Kob., *macrostoma*, *mazzuli* Jan., *sicana* Fér., *variabilis* Drap., *vermiculata* Müll. Monte Pellegrino.

Helix florida Ziegl., *ingoi* Cafici.

Ena pupa Brug. Girgenti, Palermo.

Pupa avenacea Brug., *P. philippii*, Cantr. Taormina.

Clausilia agrigantina Brug. Girgenti.

Clausilia affinis Ph., *C. affinis* Ph. var. *taurominica* Monts. Taormina.

Clausilia familiaris Monts., *C. grohmanniana* Phil. Monte Pellegrino.

Clausilia septemPLICATA Phil. Monreale.

Clausilia syracusana Phil. Siracuse.

Rumina decollata Linn. Well distributed.

Ferussacia folliculus Gron. Monte Pellegrino.

- Ferussacia vescoi* Bgt. Girgenti.
Succinea megalonyxia Bourg. Siracuse.
Succinea pfeifferi Ross. Palermo.
Alexia myosotis Drap. Siracuse.
Ancylus costulatus Kust. Sigone River near Taormina.
Ancylus striatus Q. & G. Above Letojanni near Taormina.
Lymnæa benoiti Bourg., *L. palustris* Müll. var. *anapensis* Monts.
 Anapo, Siracuse.
Lymnæa truncatula Müll. Palermo.
Planorbis cristatus L. Mondello near Palermo.
Planorbis subangulatus Phil. Siracuse.
Physa cyanea Pirajno. Anapo, Siracuse.
Gadinia garnoti Payr. Romagnola.
Actæon tornatilis L. Bay of Siracuse.
Bulla striata Brug. Romagnola.
Haminea navicula globosa Jeff. Siracuse.
Philine aperta L. Siracuse.
Conus mediterranea Hw. Siracuse, Romagnola.
Mangilia attenuata Monts. Romagnola.
Marginella miliaria L. Romagnola.
Marginella philippii Monts. Siracuse.
Mitra ebenus Lamk. Romagnola, Siracuse.
Fusus pulchellus Phil. Romagnola, Siracuse.
Fusus syracusanus L. Siracuse.
Latirus lignarius L. Siracuse.
Tritonidea orbignyi Payr. Romagnola.
Euthria cornea L. Romagnola.
Nassa cornicula Oliv. Romagnola.
Nassa costulata Ren. var. *flavida* Monts. Romagnola.
Nassa cuvieri Payr. Romagnola.
Nassa reticulata Lamk. var. *nitida* Jeff. Siracuse.
Cyclonassa neritea L. Siracuse.
Columbella rustica L., *C. scripta* L. Romagnola.
Murex brandaris L. Palermo, Siracuse.
Murex edwardsi Payr., *trunculus* L. Romagnola, Siracuse.
Murex trunculus L. var. *portulana* Monts. Palermo.
Typhis tetrapterus Bronn. Romagnola.
Lachesis mamillata Risso. Romagnola.
Purpura haemastoma L. Romagnola.

- Lotorium cutaceum* L. Palermo.
Lotorium reticulatum Beek. Romagnola.
Cassis sulcosa Brug. Siracuse.
Morio echinophora L. Siracuse.
Cypræa lurida L. Siracuse.
Cypræa pyrum L. Palermo.
Cypræa spurea L. Near Taormina.
Trivia europea Monts., *T. pulex* Sol. Romagnola.
Chenopus pespelicani L. Messina, Siracuse.
Triforis perversus L. Romagnola.
Cerithium mediterraneum Desh. Romagnola.
Cerithium mediteranneum Desh. var., *C. vulgatum* Brug. Siracuse.
Bittium lacteum Phil. Romagnola.
Vermetus subcancellatus Bivon, *V. subdentatus*. Romagnola.
Turritella communis Risso. Siracuse.
Littorina obtusata L. var. *neritoides* L. Siracuse.
Rissoa cimex L. var. *turrita* Monts., *R. monodonta* Biv., *R. subcostulata* Schw. Romagnola.
Rissoa venusta Phil. Siracuse.
Rissoina bruguieri Payr. Romagnola.
Amnicola subcarinata Monts. Anapo, Siracuse.
Bitlhinia anapensis Benoit. Anapo, Siracuse.
Cyclostoma elegans Müll. var. *villicum* Monts. Monreale, Palermo, Siracuse, Taormina.
Cyclostoma siculum Sowb. = *costulatum* Ziegl. Girgenti.
Pomatias paladilhianus S. Simon. Monte Pelligrino.
Natica millepunctata Lamk. Romagnola, Taormina.
Natica josephinae Risso. Romagnola.
Scala communis Lamk. Romagnola, Siracuse.
Odostomia polita Bivon. Romagnola.
Eulima boscii Payr. Romagnola, Siracuse.
Neritina fluviatilis L. Anapo, Siracuse.
Neritina meridionalis Phil. Siracuse.
Neritina viridis L. Romagnola.
Phasianella pulla L. Romagnola.
Phasianella punctata Mich. Siracuse.
Leptothyra sanguinea L. Siracuse.
Astraliium rugosum L. Taormina.
Trochus turbinatus Born. Romagnola.

- Clanculus cruciatus* L. var. *rosea* Monts. Siracuse.
Monodonta articulata Lamk. Siracuse.
Gibbula adansoni Payr. Siracuse.
Gibbula divaricata L. Romagnola.
Calliostoma conulus L. Messina, Taormina.
Calliostoma depictum Desh., *C. laugieri* Payr. Romagnola.
Haliotis lamellosa Lamk. Siracuse, Taormina.
Fissurella gibberula Lamk., *F. græca* Lamk., *F. litoralis* Monts.,
F. neglecta Resh., *F. nubecula* L. Romagnola.
Emarginula solidula Costa. Taormina.
Patella cærulea L. Messina, Romagnola.
Patella lusitanica Gm. Siracuse.
Ischnochiton polii Phil. Romagnola.
Dentalium novemcostatum Lamk. Romagnola.
Ostrea edulis L. Palermo, Taormina.
Anomia ephippium L. Taormina.
Spondylus gæderopus Lamk. Palermo.
Chlamys multistriatus Poli, *C. pes-felis* L. Taormina.
Chlamys sulcatus Born. Siracuse.
Chlamys varius L. Palermo.
Lima inflata Chem. Palermo.
Mytilus edulis L. Taormina.
Modiola barbata Lamk. Romagnola.
Arca barbata L., *A. lactea* L., *A. noæ* L. Romagnola.
Unio requieni Lamk. Anapo, Siracuse.
Cardita calyculata Lamk. Taormina.
Cardium aculeatum L., *C. paucicostatum* Sowb. Siracuse.
Cardium tuberculatum L. var. Romagnola.
Chama gryphoides L. Romagnola.
Tapes beudanti Payr., *T. geographica* Gm. Romagnola.
Venus gallina L. Siracuse.
Venerupis iris L. Romagnola.
Donax trunculus L. Romagnola.
Solen vaginoides Lamk. Siracuse.
Mactra corallina L. Mondello.
Lucina lactea L. Messina.
Lucina desmoresti Par. Romagnola.
Tellina tenuis Da Costa. Siracuse.
Gastrana fragilis L. Romagnola.
Solemya mediterranea Lamk. Romagnola.