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1935

MINISTRY OF COMMERCE AND INDUSTRY, EGYPT

Fisheries Research Directorate

NOTES AND MEMOIRS No. 15

THE FISHERY GROUNDS NEAR ALEXANDRIA

VII.—DECAPODA

(with 40 Figures)

BY

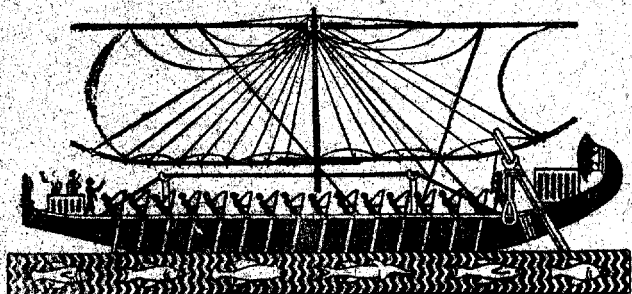
HEINRICH BALSS

Munich, Zoologische Staatssammlung

With an Appendix : SCHIZOPODA

BY

C. ZIMMER, (*Berlin*)



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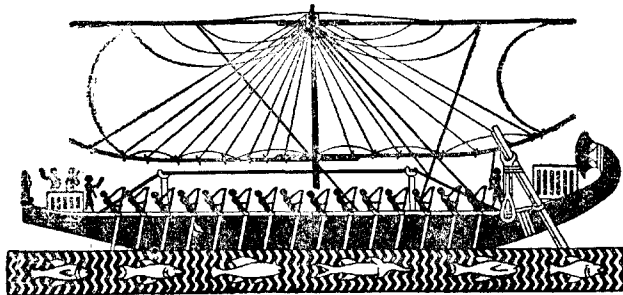
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The Fishery Grounds near Alexandria

VII.—Decapoda

BY

HEINRICH BALSS

The Decapoda collected by Prof. Dr. STEUER during his three month's stay in the Marine Laboratory of Alexandria comprise altogether 63 species, 51 of which belong to the Mediterranean fauna ; 10 species are more recent Indo-pacific immigrants, seven of them having already been met with in the Eastern Mediterranean. One species (*Xanthias granosus* A. M. E. and Bouv.) has been mentioned up to now from the Cape Verde Islands only, so that its presence near Alexandria is surprising ; one may expect to find it in other places of the Mediterranean as well, especially near the North African coast. One species (*Caridina nilotica*) has been found in the fresh water of Lake Mareotis.

The littoral fauna of the Eastern Mediterranean—as far as concerns the Decapods—is up to now known only by some sporadic hauls ; STEINITZ only has given an exhaustive list from the coast of Palestine ; so the material collected by Prof. STEUER furnishes a welcome contribution to our knowledge of the fauna of that basin in which we find particularly interesting biological conditions on account of the influence of the water from the Nile, as well as by the communication with the Red Sea by the Suez Canal.

My best thanks are due to Prof. Dr. Gravier-Paris, who has kindly lent me the types of *Xanthias granosus*, and to Miss G. Gilhofer-Innsbruck, who has translated the German manuscript.

H. B.

Munich (Germany), April 25, 1935

PART I.—Systematic list of the forms found

A.—SHRIMPS

Fam. Penaeidae Bate

1. *Penacus trisulcatus* Leach (T. in Fig. 1).

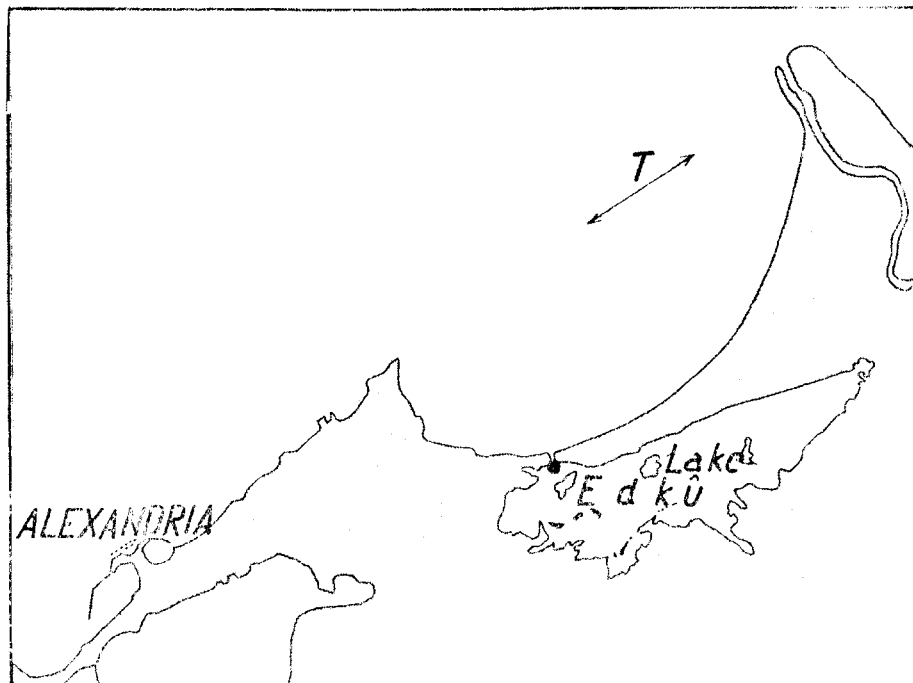


FIG. 1.—*Penacus trisulcatus*. *Metapenaeus stebbingi*, *monoceros* (T).

Pesta, 1918, p. 39.

Monod, 1931, p. 420.

Steinitz, 1933, p. 143.

(=*P. caramote auctorum*).

Locality: 2 ♂, 5 ♀, Trawl, 3. XI. Bay of Abukir, 10 fath.

These Penaeids as well as the two following ones are most certainly widely spread in the district investigated.

This form is easily to be distinguished from the closely related *P. canaliculatus* by the following spine-furniture:

P/1 : Coxa and base one spine each.

P/2 : Coxa and base one spine each.

P/3 : Coxa one spine, base no spine.

Habitat according to PESTA (Adria): At the bottom in depths of 20–360 m.; penetrates into sandy and muddy grounds.

Geographical distribution.—East Atlantic from South England to Angola; Mediterranean, western part (also Algiers and Tunis) eastern half: Port Said, Gulf of Alexandrette, Haifa.

2. *Metapenaeus stebbingi* Nobili. (T. in Fig. 1).

Nobili, 1906, p. 15.

Balss, 1927, p. 221.

Monod, 1931, p. 420.

Burkenroad, 1934, p. 33.

Locality: 5 ♂ ad., Trawl, 3. IX. Bay of Abukir, 10 fath.

Geographical distribution.—A species originally endemic in the Red Sea, immigrated by the Suez Canal and already so frequent in Port Said that one finds it there at the fish-market (Fox-Balss, 1927).

3. *Metapenaeus monoceros* (Fabr.). (T. in Fig. 1).

Alcock, 1906, p. 18.

Balss, 1927, p. 221.

Monod, 1931, p. 419.

Locality: 1 ♂, 2 ♀, Trawl, 3 IX. Bay of Abukir, 10 fath.

Geographical distribution.—Widely spread in the warm Indo-pacific, but up to now not recorded from the Red Sea. Penetrated into the Mediterranean by way of the Suez Canal (Transported?); recorded up to now from Port Said (Balss, Monod); Great Bitter Lake (BALSS).

Genus Metapenaeus.—(● in Fig. 1).

Several young specimens—not to be determined quite surely—of one species of the Genus had been found near the Edku Channel.

4. *Sicyonia carinata* (Oliv.). (Fig. 2).

Pesta, 1918, p. 47.

Monod, 1931, p. 421.

Localities: 3 ♂, 1 ♀, Stat. 10; 6 fath.

1 ♀, Stat. 42, near Abukir.

1 ♂ juv., Stat. 98; 4 fath.

2 juv., Stat. 114; 25 fath.

1 juv., Stat. 125; 6 fath.

In shallow places near the coast the species reaches a depth of 25 fathoms, from the west to the banks of sea-weeds at the eastern coast of the Peninsula of Abukir ; at the stony, sandy or muddy bottom with sea-weeds and algæ.

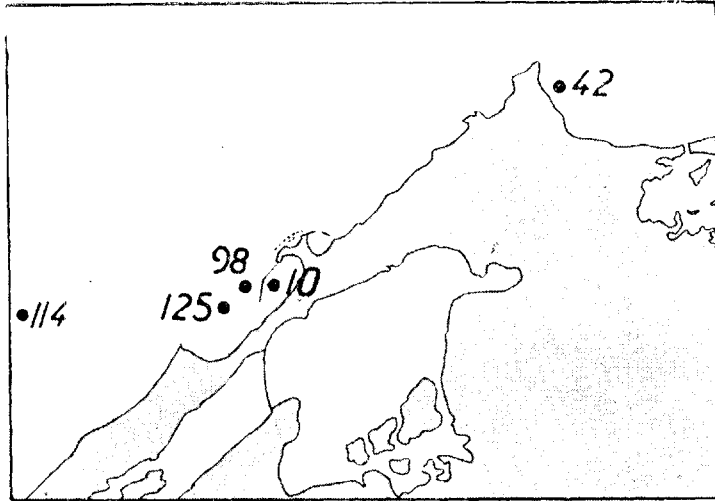


FIG. 2.—*Sicyonia carinata*.

Geographical distribution.—East Atlantic : Portugal, Cape Verde Islands, Senegambia. Mediterranean : Western half ; in the eastern half off Beirut.

Fam. Pasiphaeidae Smith

5. *Leptochela aculeocaudata* Paulson. (Fig. 3).

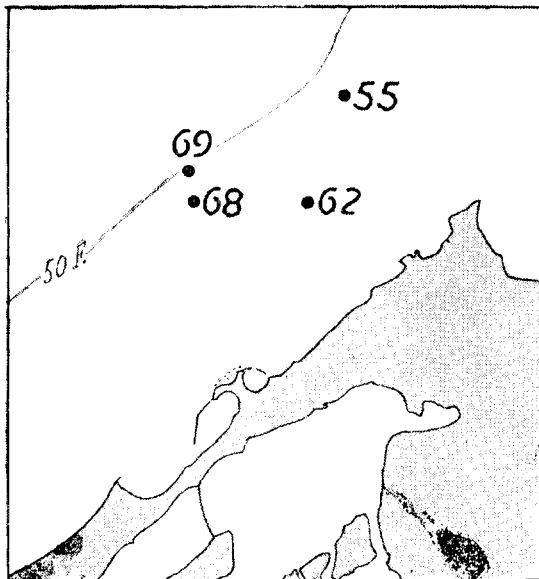


FIG. 3.—*Leptochela aculeocaudata*.

Kemp, 1925, p. 254.

Localities : 3 spec. Stat. 55 ; 40 fath.

5 spec. Stat. 62 (among them 1 ♀ with eggs, 16 mm. long,
from the rostrum to telson), 28 fath.

3 spec. Stat. 68 ; 37 fath.

1 spec. Stat. 69 ; 48 fath.

From 28 to 48 fathoms on muddy bottom with or without vegetation, only on the middle part of the district investigated ; it is striking that this Indian immigrant has not been found in the east as well.

Geographical distribution.—Red Sea, Indian coast, upper littoral, New for the Mediterranean.

Fam. Palaemonidae Bate

6. *Leander xiphias* (Risso). (Fig. 4).

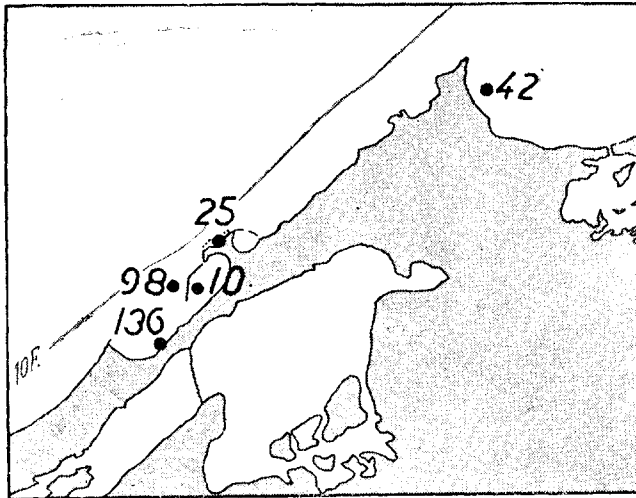


FIG. 4.—*Leander xiphias*.

Pesta, 1918, p. 121.

Monod, 1931, p. 426.

Steinitz, 1933, p. 146.

Localities : 1 spec., Stat. 10 ; 6 fath.

1 spec., Stat. 25, c, d.

2 spec. (one of them ♀ with eggs of 20 mm. length). Stat.
42, Abukir.

2 spec., Stat. 98 ; 4 fath.

1 spec., Stat. 136 ; 5–6 fath., Ras el Kara.

Habitat.—Greatest depth 6 fathoms. On sandy and muddy bottom overgrown with sea-weed and algæ (*Caulerpa*), from the western coast of the Bay of Abukir to the Bay of Dekhela.

Geographical distribution.—Mediterranean; from the eastern half known up to now from Haifa and Beirut only.

7. *Leander adpersus fabricii* (Rathke). (Fig. 5).

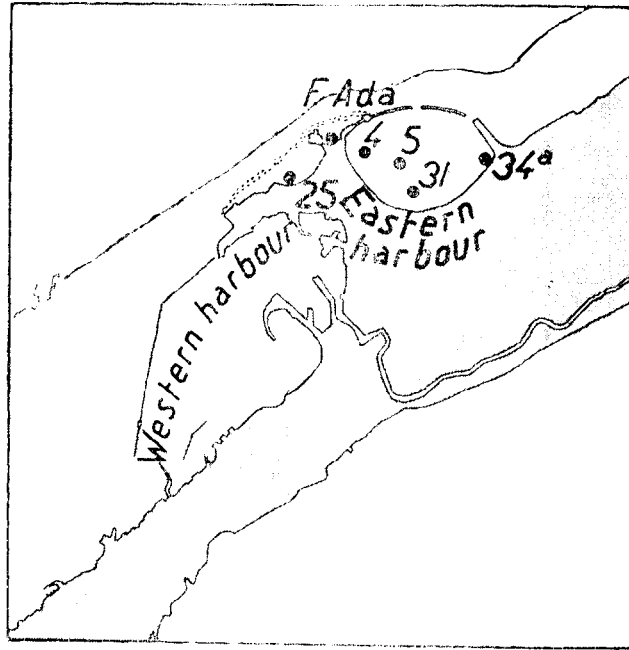


FIG. 5.—*Leander adpersus fabricii*.

Pesta, 1918, p. 116.

Steinitz, 1933, p. 146.

Localities: 13 spec., Stat. 4, Eastern Harbour, 3 fath.

8 spec., Stat. 5, Eastern Harbour, 2-3,5 fath.

7 spec., Stat. 25, c, d.

3 spec., Stat. 31, Eastern Harbour, 2 fath.

Many spec., Stat. 34a.

1 spec., Fort Ada.

Habitat.—Reaches down to 3.5 fathoms; on sandy bottoms and crags beset with algæ; has been met with in the Eastern Harbour and in the neighbouring shallow Bay of Anfushi.

Geographical distribution.—From Norway and the Baltic Sea to the Mediterranean (in the eastern half up to now found near Haifa only).

8. *Leander squilla elegans* (Rathke). (● in Fig. 6).

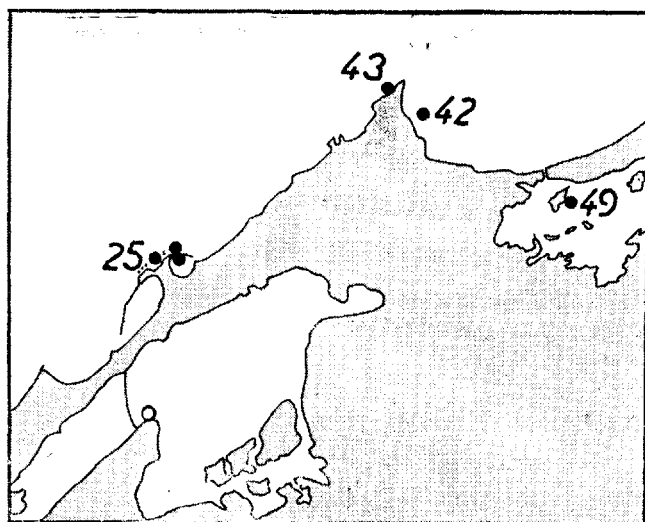


FIG. 6.—*Leander squilla elegans* (●). *Caridina nilotica* (○).

Pesta, 1918, p. 113.
Santucci, 1928, p. 347.
Monod, 1931, p. 425.
Steinitz, 1933, p. 146.

Localities: 1 spec. Eastern Harbour.
Many spec., Stat. 25, c, d.
1 spec., Stat. 42, Abukir.
Several spec., Stat. 43.
Several spec., Stat. 49, Lake Edku.
Several spec., Fort Ada.

Habitat.—Only in shallow parts of the coast, on banks of sea-weeds, bushes of algæ and on crags in the Eastern Harbour and in the An ushi Bay, off the Peninsula of Abukir as well as in the Edku Lake (in shallow banks of sea-weeds, according to the determination by Dr. Abu Samra: Cl 11·3‰ S. 2·07‰), euryhalin.

Geographical distribution.—The species occurs in several subspecies from Norway to the Cape of Good Hope; the subspecies *elegans* is known from the Mediterranean (in the eastern half: Greece, Cyprus, Haifa, Aegean islands); Black Sea, Azores, Canaries and Islands of Cape Verde.

Fam. Atyidae Kingsley

9. *Caridina nilotica typica* Roux. (○ in Fig. 6).

Bouvier, 1925, p. 146.

Localities: Many spec. Lake of Mareotis, 28. IX. 1933.

On the mole extending from the Mex Experimental Station to the south.

Geographical distribution.—This fresh-water species is spread in many subspecies in Africa, Madagascar, Asia and the Malayan Archipelago; the subspecies *typica* is known from Egypt, East Africa and Madagascar.

Fam. Hippolytidae Ortmann

10. *Hippolyte prideauxiana* Leach. (Fig. 7).

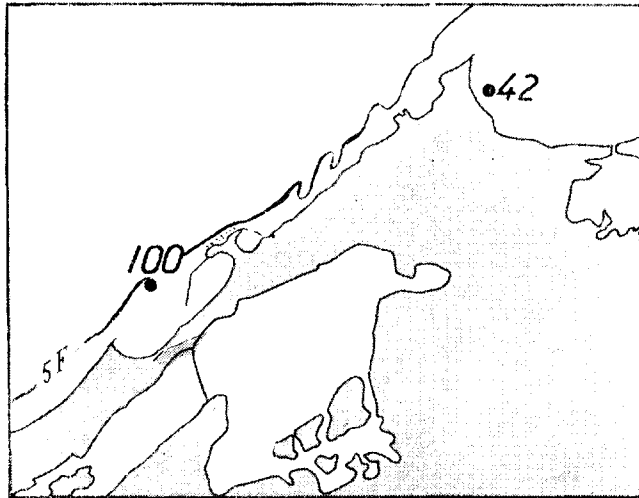


FIG. 7.—*Hippolyte prideauxiana*.

Pesta, 1918, p. 99.

Localities: 3 spec., Stat. 42, Abukir.

1 spec., Stat. 100; $5\frac{1}{2}$ –6 fath.

Habitat.—Down to 6 fathoms on sandy and muddy bottom with marine plants; has been recorded from the western part of the Bay of Abukir and off the Bay of Dekhela only.

Geographical distribution.—Atlantic from England to Portugal; Mediterranean, Black Sea.

Fam. Alpheidae

11. *Athanas nitescens* Leach. (Fig. 8).

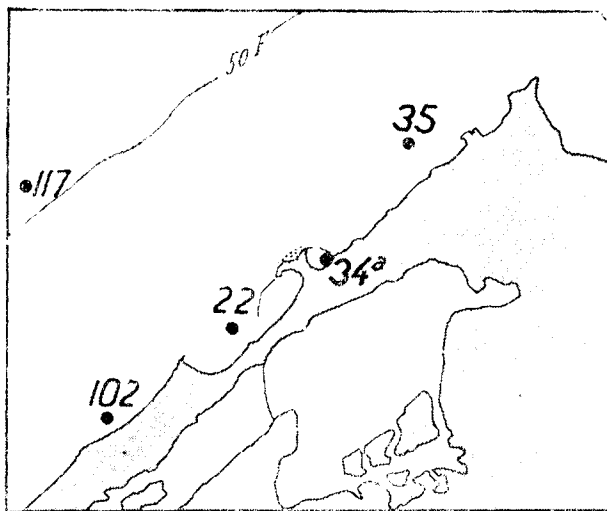


FIG. 8.—*Athanas nitescens*.

Pesta, 1918, p. 82.

- Localities : 1 ♂, Stat. 22 ; 7 fath.
1 ♀ with eggs, Stat. 34 a.
1 ♀ with eggs, Stat. 35 ; 7 fath.
1 ♀ with eggs, Stat. 102 ; 5-6 fath.
1 ♀ with eggs, Stat. 117 ; 55 fath.

Habitat.—Near the coast to depths of 55 fathoms, usually on rocky, stony grounds with sea-grass and algæ. Has only been found westward from Abukir. In the Adriatic according to Pesta principally in depths of 40-70 m., also on stony and sandy grounds.

Geographical distribution.—East Atlantic, from Norway to the Isles of Cape Verde ; Mediterranean, Black Sea.

12. *Alpheus ruber* H. Milne Edwards. (○ in Fig. 9).

Pesta, 1918, p. 91.

- Localities : 1 spec., Stat. 53 ; 33 fath.
1 spec., stat. 61 ; 50 fath.

Habitat.—In depths from 33 to 50 fathoms only, on marshy grounds without plants, westward from Abukir. According to Pesta also in the Adriatic especially in depths of 50 to 100 m., on sand or mud.

Geographical distribution.—Eastern Atlantic, from Ireland to Cantabria; Mediterranean: western and eastern half (Stephensen, 1932).

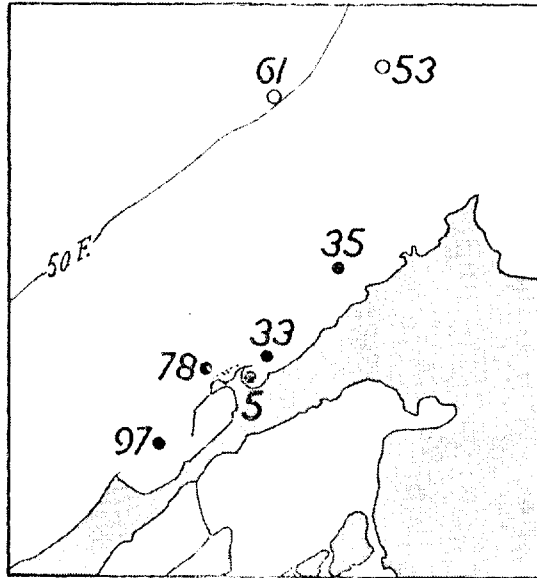


FIG. 9.—*Alpheus ruber* (○). *Alpheus dentipes* (●).

13. *Alpheus crassimanus* Heller. (Fig. 10).

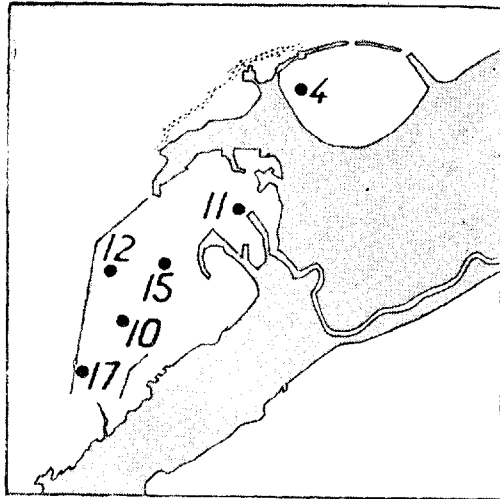


FIG. 10.—*Alpheus crassimanus*.

de Man, 1911, p. 417.

Localities: 2 ♂, Stat. 4; 3 fath, Eastern Harbour.

2 ♂, Stat. 10; 6 fath, Western Harbour.

1 ♂, Stat. 11; 6 fath.

1 ♀ with eggs, Stat. 12; 3 fath, Western Harbour.

1 ♂, Stat. 15; 6 fath, Western Harbour.

1 ♂, 2 ♀ with eggs, Stat. 17; 5-12 fath, Western Harbour.

Habitat.—From 3 to 10 fathoms, on mud and sand, with or without vegetation; also on dark, rotten mud. Found only in the two harbours. This immigrant from the Indo-pacific was, as we assume, introduced by ships thereon.

Geographical distribution.—In the Indo-Pacific from the Red Sea to the Moluccas and Hawaii. The form appears here for the first time in the Mediterranean; it must have been transported shortly. The Cambridge Expedition had not found this species (it found however the closely related *A audouini* Cout.)

14. *Alpheus dentipes* Guerin. (● in Fig. 9).

Pesta, 1918, p. 87.

Monod, 1933, p. 7.

Localities: 1 spec., Stat. 5, East Harbour, 2-3,5 fath.

1 ♀ with eggs, Stat 33a, Pier of Silsila.

3 spec. (among them 2 ♀ with eggs), Stat. 35; 7 fath.

2 spec., Stat. 78; 5-6 fath.

1 spec., Stat. 97; 4 fath.

Habitat.—Reaches depths of 7 fath. on sand and stones with algæ and Posidonia; westward from Abukir only. In the Adriatic from 4 to 10 m., especially on rocky and stony grounds.

Geographical distribution.—Mediterranean, Aegean Sea, West Africa, Morocco and Islands (Annobon, Azores, etc.); Antilles, California.

15. *Synalpheus laevimanus* (Heller). (Fig. 11).

Pesta, 1918, p. 84.

Localities: 2 spec. Stat. 4; 3 fath., East Harbour

1 spec., Stat. 5, East Harbour, 2-3, 5 fath.

1 spec., Stat. 18, West Harbour, 10-11 fath.

1 spec., Stat. 39; 17 fath.

2 spec., Stat. 78; 5-6 fath.

3 spec., Stat. 119; 5. 5 fath.

1 spec., Stat. 143; 13 fath.

Habitat.—In depths of 3-17 fath. on every kind of bottom, even on black, rotten mud, with sea-weeds and algæ. Westward from Abukir only.

Geographical distribution.—Endemic in the Mediterranean.

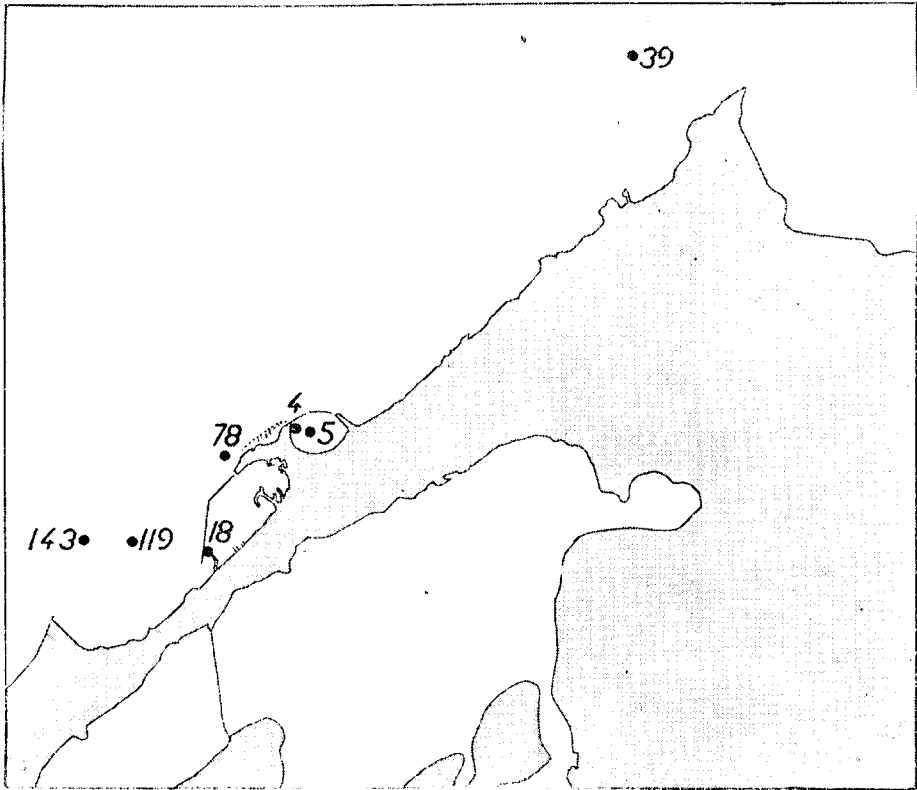


FIG. 11.—*Synalpheus laevimanus*.

Fam. Processidae Borradaile

16. *Processa canaliculata* Leach. (Fig. 12).

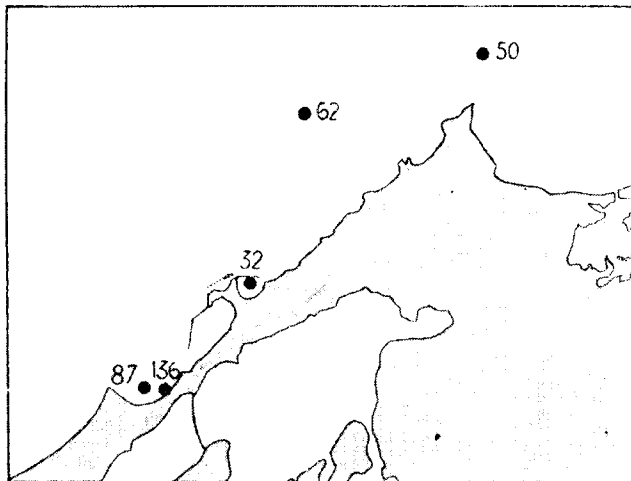


FIG. 12.—*Processa canaliculata*.

Pesta, 1918, p. 137.

Localities: 1 juv. Stat. 32, East Harbour, 5, 5 fath.

1 spec. Stat. 50; 9 fath.

1 ♀ with eggs, Stat. 62 (length 18 mm. rostrum to telson).

1 spec. Stat. 87; 4 fath.

1 spec. Stat. 136; 5-6 fath.

Habitat.—In depths of 4-28 fathoms on sandy and muddy grounds with sea-grass and algæ. In the Adriatic usually in depths of 5-200 m., but also deeper still (e.g. Aegean Sea 597 m., "Pola").

Geographical distribution.—Very widely spread, East- and West Atlantic, Mediterranean, Black Sea, North Pacific.

Fam. Crangonidae Bate

17. *Aegeon cataphractus* (Ol.) (Fig. 13).



FIG. 13.—*Aegeon cataphractus*.

Pesta, 1918, p. 157.

Monod, 1931, p. 426: 1933, p. 10.

Locality: 1 ♂, 17 fath. (Length 23.5 mm.), Stat. 7.

Habitat.—Has been found once only on stony *Caulerpa* grounds off the Western Harbour together with *Upogebia deltaura*. In the Adriatic mostly on sandy and muddy grounds in depths of 10-50 m. not rare. Length of the ♂ to 40 mm.

Geographical distribution.—East Atlantic from Spain to Senegal; Mediterranean; (in the eastern half near Beirut).

B.—ANOMURA

Fam. Laomedidae Borradaile

18. *Jaxea nocturna* Nardo. (○ in Fig. 14.)

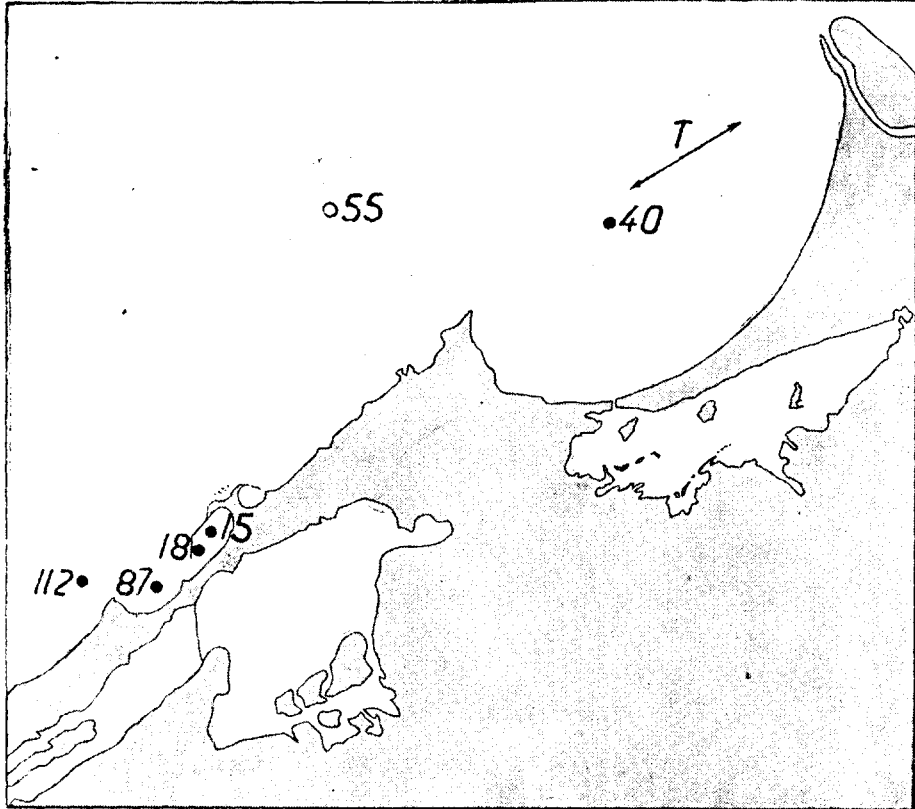


FIG. 14.—*Jaxea nocturna* (○). *Upogebia litoralis* (● and T).

Pesta, 1918, p. 193.

Locality: 1 spec. (Cl. 55mm), Stat. 55. Mud without algæ, 40 fath.

Habitat.—Lives hidden in the mud at daytime, coming out at night only.

Geographical distribution.—Mediterranean (Adriatic, Naples, Barcelona); Ireland, Scotland, scarce.

Fam. Callianassidae Bate

19. *Upogebia litoralis* (Risso). (● and T. in Fig. 14).

Pesta, 1918, p. 197 (partim).

de Man, 1927, p. 27.

Localities: 1 spec. Trawl, 3. IX. Bay of Abukir.

6 fath.

1 spec., Stat. 15; West Harbour.

1 spec., Stat. 18; 10–11 fath.

5 spec., Stat. 40; 8 fath.

3 spec., Stat. 87; 4 fath.

2 spec., Stat. 112; 15 fath.

Habitat.—4–15 fathoms on every kind of bottom, mostly on sand, with or without plants (also in black mud, a little rotten already) in the Bay of Abukir and near Dekhela as well as in the Western Harbour.

Geographical distribution.—East Atlantic, from the south-west coast of France to Portugal; Mediterranean, Black Sea.

20. *Upogebia gracilipes* de Man. (+ in Fig. 15).

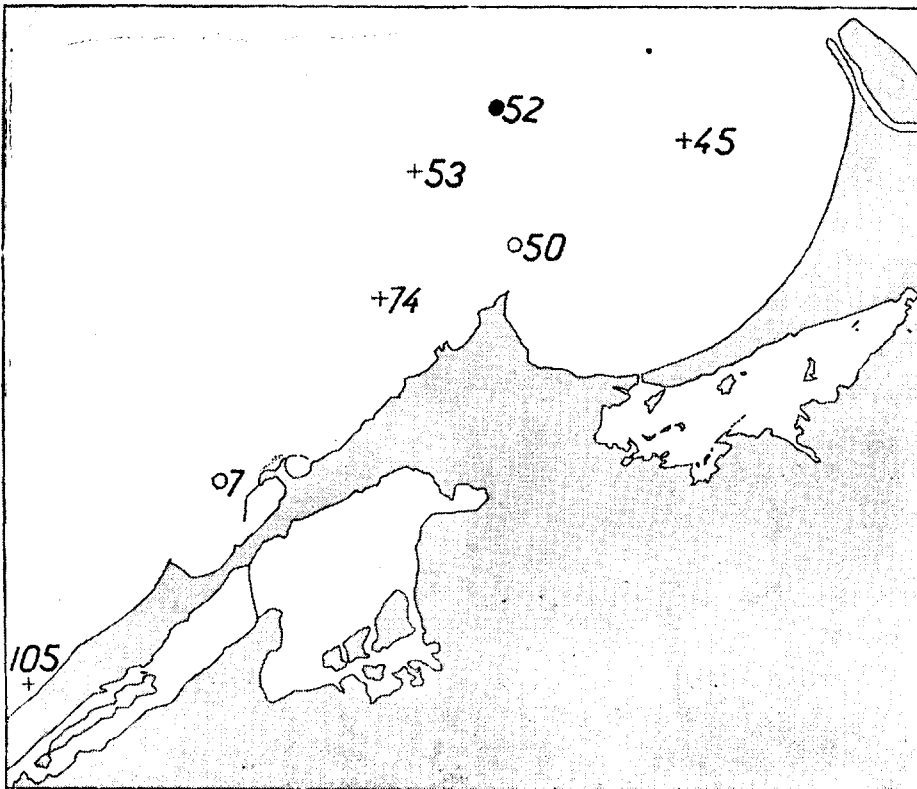


FIG. 15.—*Upogebia gracilipes* (+) *Upogebia deltaura* (○)
Callianassa subterranea minor (●).

Upogebia litoralis Pesta, 1918, p. 197 (partim).

Upogebia gracilipes de Man, 1927, p. 40.

Localities: 1 spec., Stat. 45; 9 fath.
1 spec., Stat. 53; 33 fath.
1 spec., Stat. 74; 23 fath.
1 spec., Stat. 105; 6 fath.

Habitat.—6–33 fath, usually in mud without plants in the Bay of Abukir and in the utmost west.

Geographical distribution.—This species distinguished by de Man in 1927 has been known as yet from the Adriatic only, but may very likely be found in other parts of the Mediterranean as well.

21. *Upogebia (Calliadne) deltaura* (Leach). (☉ in Fig. 15).

Pesta, 1918, p. 199.

de Man, 1927, p. 17.

Locality: 2 spec., Stat. 7; 17 fath. (together with *Aegeon cataphractus* on stony Caulerpa-ground off the Western Harbour.

1 spec., Stat. 50; 9 fath.

Geographical distribution.—East Atlantic, from Norway to Portugal; Mediterranean (as yet met with in the western half only).

22. ? *Callianassa subterranea minor*. Gourret. (● in Fig. 15).

Pesta, 1918, p. 205.

Locality: 1 juv. not surely determinable but with pediform Mxp/3. Stat. 52; 22 fath.

Geographical distribution.—Mediterranean, Marseille, Adriatic, Aegean Sea, in depths of 30–92 m.

Fam. Porcellanidae Henderson

23. *Porcellana platycheles* Pennant. (Fig. 16).

Pesta, 1918, p. 270.

Steinitz, 1933, p. 148.

Monod, 1933, p. 22.

Localities: Stat. 4, East Harbour, 3 fath.

East Harbour off the bath.

Stat. 83; Fort el Ayana.

Stat. 135; 4 fath.

Stat. 140; 4–8 fath.

Habitat.—Reaches depths of 8 fathoms on stony, sandy ground with *Posidonia* and algæ. Only in the East Harbour and off the Western Harbour in the Bay of Dekhela.

Geographical distribution.—East Atlantic from the North Sea to the Canary Islands. Morocco; Mediterranean (Haifa); common.

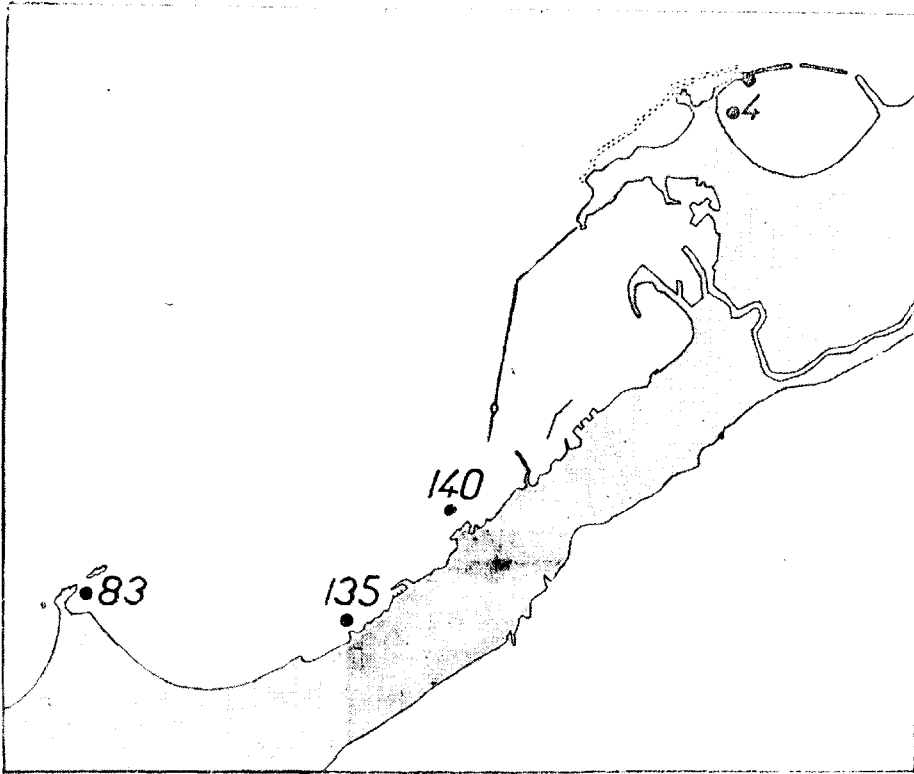


FIG. 16.—*Porcellana platycheles*.

24. *Porcellana longicornis* (Pennant). (Fig. 17).

Pesta, 1918, p. 268.

Monod, 1933, p. 23.

Localities: Stat. 19; 9 fath.

Stat. 32, East Harbour. 5.5 fath.

Stat. 34, East Harbour.

Stat. 35; 7 fath.

Stat. 40; 8 fath.

Stat. 50; 9 fath.

Stat. 51; 13 fath.

Stat. 102; 5-6 fath.


Stat. 119; 5,5 fath.

Stat. 134; 6 fath.

Stat. 135; 4 fath.

Stat. 139; 2,5-5 fath.

Habitat.—Reaches to a depth of 13 fathoms on sandy ground, often Amphioxus-sand, with or without plants; occurs in the whole district investigated.

 *Geographical distribution.*—East Atlantic, from Norway to Morocco. Mediterranean, Black Sea.

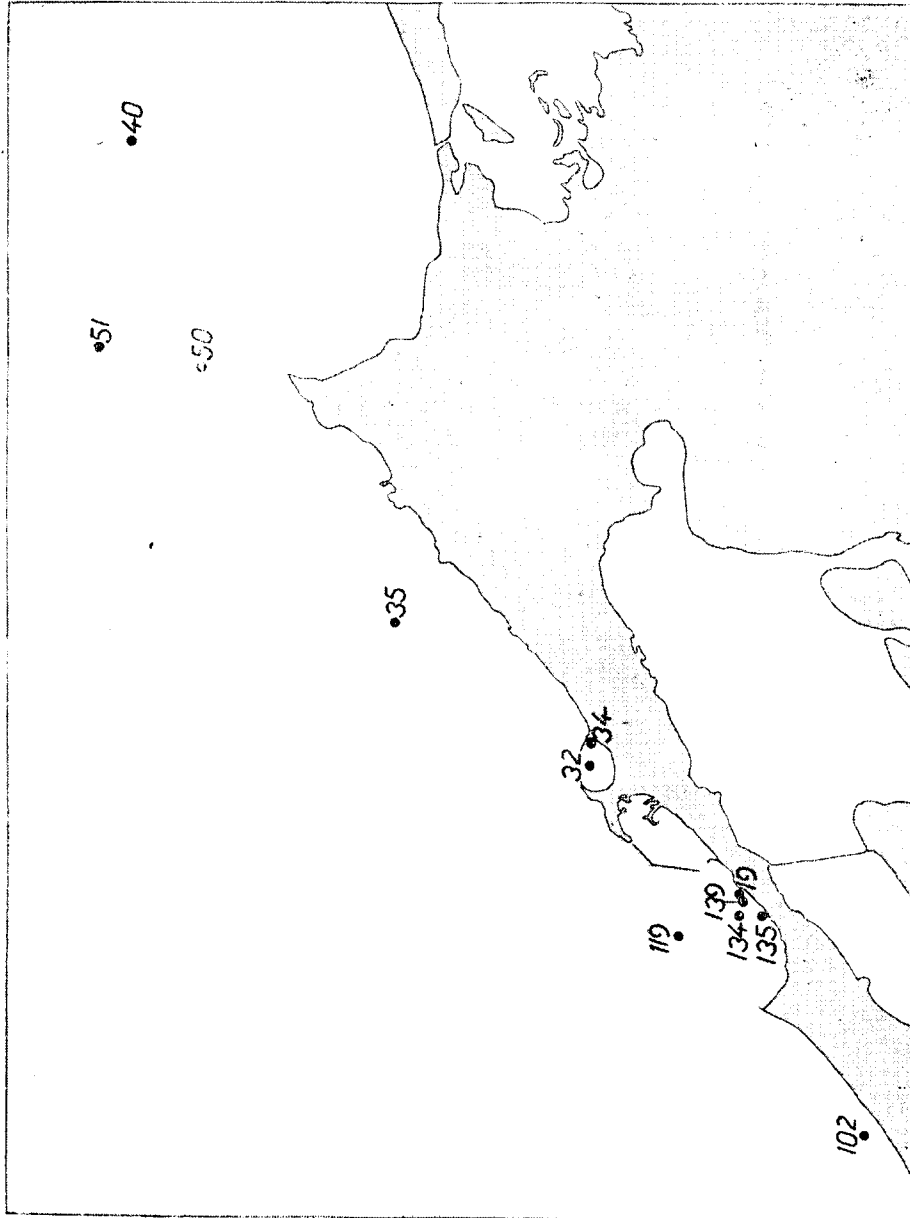


FIG. 17.—*Porcellana longicornis*.

Fam. Paguridae Dana

25. *Paguristes oculatus* (Fabr.). (Fig. 18).

Pesta, 1918, p. 209.

Localities: 1 ♀ with eggs, Stat. 4, East Harbour, 3 fath.
1 ♀ juv, Stat. 7; 17 fath.

1 spec., Stat. 21; 1, 5 fath.
1 ♂ juv., Stat. 50; 9 fath.
Stat. 64. 1 juv., 110 fath.
1 juv., Stat. 74; 23 fath.
1 juv., Stat. 77; 7 fath.
1 ♀ juv., Stat. 114; 25 fath.
3 juv., Stat. 116; 35 fath.

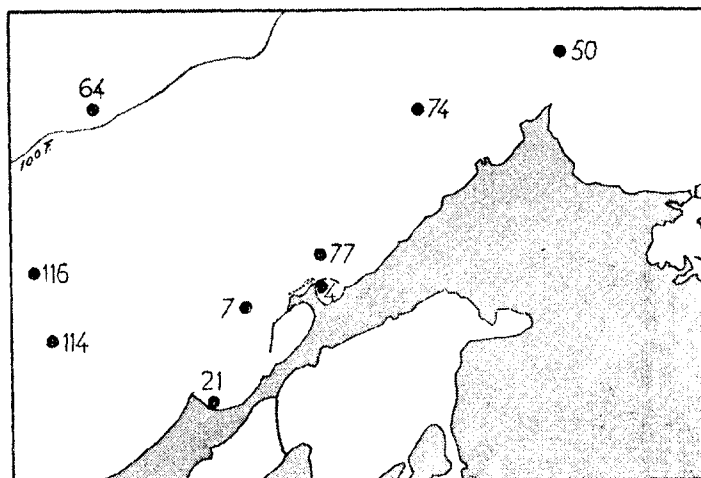


FIG. 18.—*Paguristes oculatus*.

Habitat.— $1\frac{1}{2}$ –110 fathoms, usually on sandy grounds overgrown with plants westward from Abukir. Frequent in the Adriatic from 5 to 30 m. and deeper still; on every kind of ground.

Geographical distribution.—Mediterranean, East Atlantic: coast of Portugal, in the south to Porto Santo (near Madeira).

26. *Clibanarius misanthropus* (Risso). (Fig. 19.)

Pesta, 1918, p. 222.

Steinitz, 1933, p. 147.

Localities: 1 ♂, Stat. 41, Abukir, eastern coast.

Many spec., Stat. 42.

Stat. 43. crags.

Fort Ada.

2 ♂, Stat. 83, Fort el Ayana.

Pok, Ras el Tin.

Pharos, outward part.

Habitat.—Only on crags of the Peninsula of Abukir, Anfushi Bay, Fort Ada and Dekhela. In the latter place at the top of stones in great quantities out of water.

Geographical distribution.—East Atlantic from Brittany southward to the Salvage Islands; Azores. Mediterranean: western half, frequent. Eastern half: Bay of Haifa (frequent). Greece

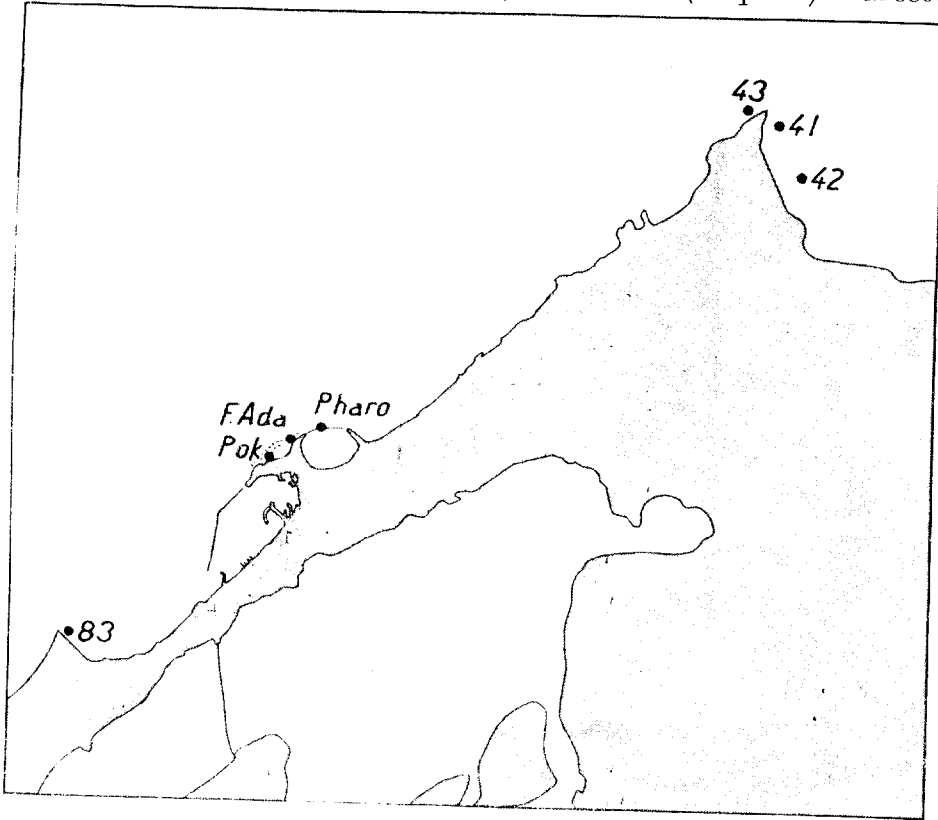


FIG. 19.—*Clibanarius misanthropus*.

27. *Calcinus ornatus* (Roux). (Fig. 20).

Fenizia, 1933, p. 129.

Localities: 1 ♂, Stat. 78;
5-6 fath.

1 ♀, Stat. 146; 10-11 fath.

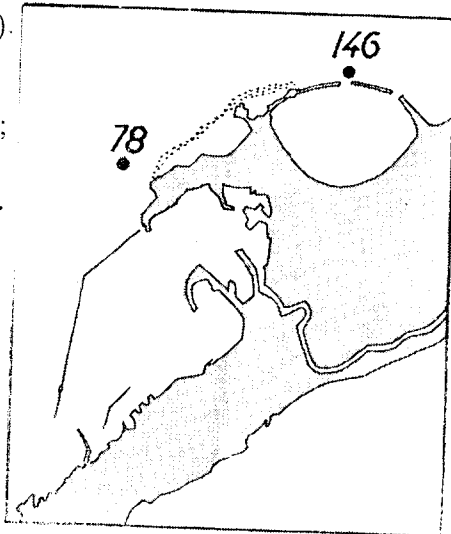


FIG. 20.—*Calcinus ornatus*.

Habitat.—From 5 to 11 fathoms on stony grounds with vegetation; near the town only. (Near Naples frequent in the upper littoral in depths of $1\frac{1}{2}$ –15 m.)

Geographical distribution.—Gulf of Marseille, Naples, Oran, Adriatic, Canary Isles, Azores.

28. *Diogenes pugilator* (Roux). (Fig. 21).

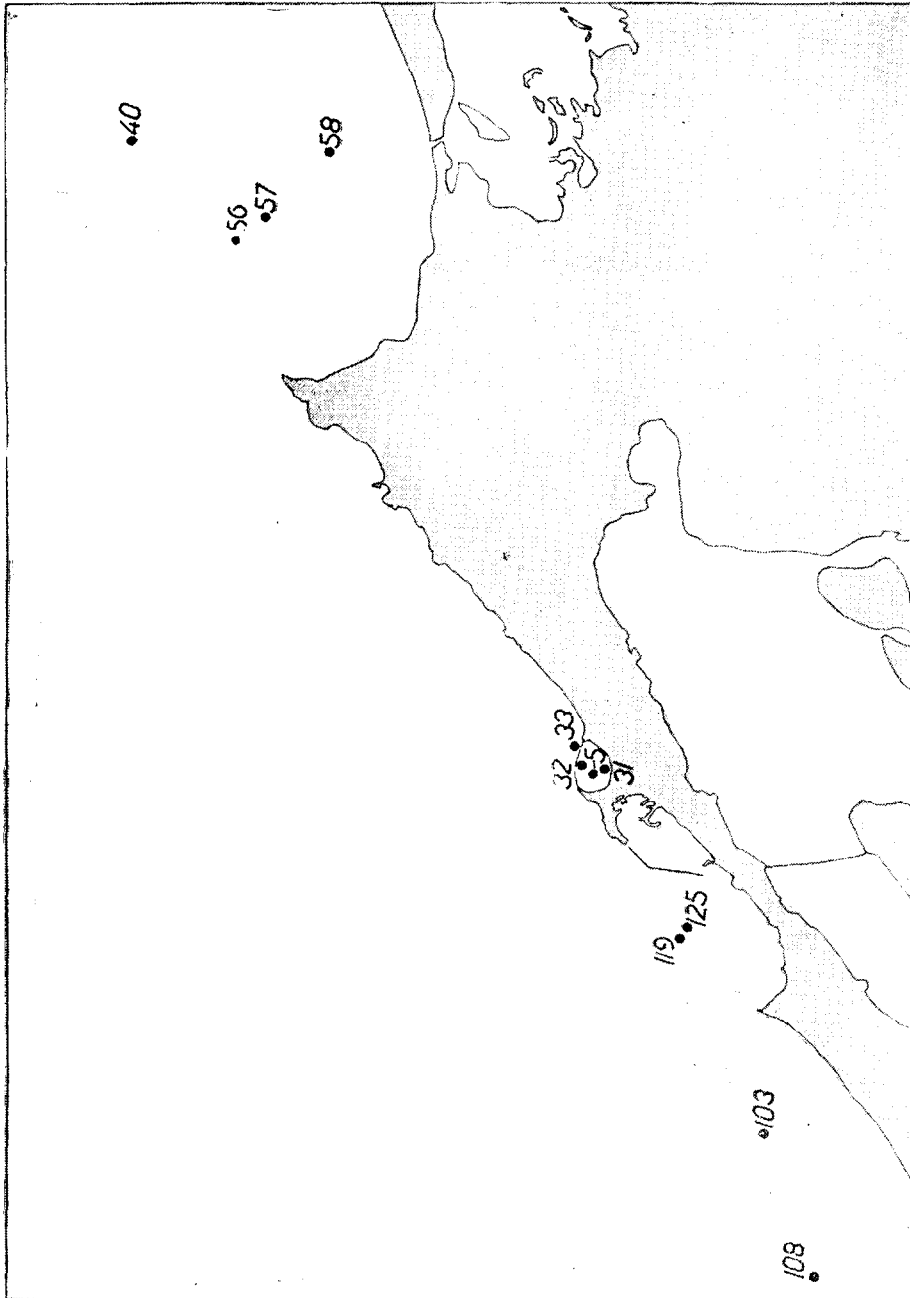


FIG. 21.—*Diogenes pugilator*.

Pesta, 1918, p. 218.

Localities : Stat. 5, East Harbour. 2-3, 5 fath.

Stat. 31. East Harbour ; 2 fath.

Stat. 32 (1 ♀ with eggs), East Harbour, 5½ fath.

Stat. 33b. East Harbour.

Stat. 40; 8 fath.

Stat. 56; 4 fath.

Stat. 57; 3 fath.

Stat. 58; 4 fath.

Stat. 103; 16 fath.

Stat. 108; 14 fath.

Stat. 119; 5,5 fath.

Stat. 125; 6 fath.

Habitat.—In the whole district investigated down to 16 fath., usually on sandy ground with vegetation.

Geographical distribution.—East Atlantic, from the southern coast of England to Portugal; Mediterranean, Black Sea.

29. *Eupagurus anachoretetes* (Risso). (● in Fig. 22).

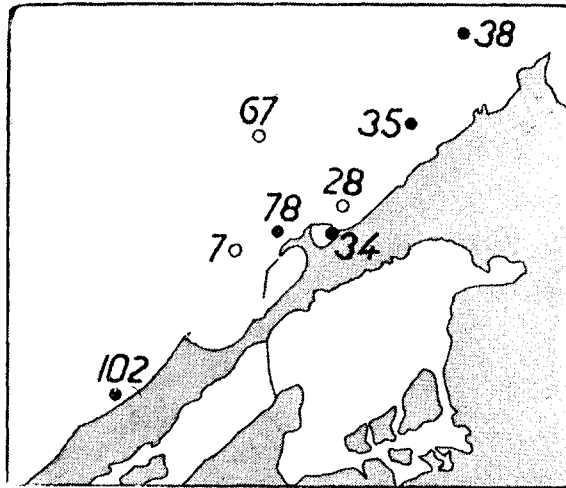


FIG. 22.—*Eupagurus anachoretetes* (●). *Eupagurus cuanensis* (○).

Pesta, 1918, p. 229.

Localities : Stat. 34, East Harbour.

Stat. 35 ; 7 fath.

Stat. 38 ; 17 fath., N.W. Abukir.

Stat. 78 ; 5-6 fath.

Stat. 102 ; 5-6 fath.

Habitat.—From the coast to 17 fathoms on stony ground beset with brown algæ, *Caulerpa*, sea-weeds; westward from Abukir.

Geographical distribution.—In the Mediterranean (Algier, Bône, etc.); coast of Portugal.

30. *Eupagurus cuanensis* (Thompson). (○ in Fig. 22).

Pesta, 1918, p. 232.

Localities: 1 ♂, Stat. 7; 17 fath.

1 ♂, Stat. 28; 10-12 fath.

1 spec., Stat. 67; 22 fath.

Habitat.—10-22 fathoms; mostly on stony ground with *Caulerpa*; off Alexandria only.

Geographical distribution.—East Atlantic from Norway to Angola; Mediterranean, western half.

C.—BRACHYURA, CRABS

Fam. Dorippidae Dana

31. *Ethusa mascarone* (Herbst). (Fig. 23).

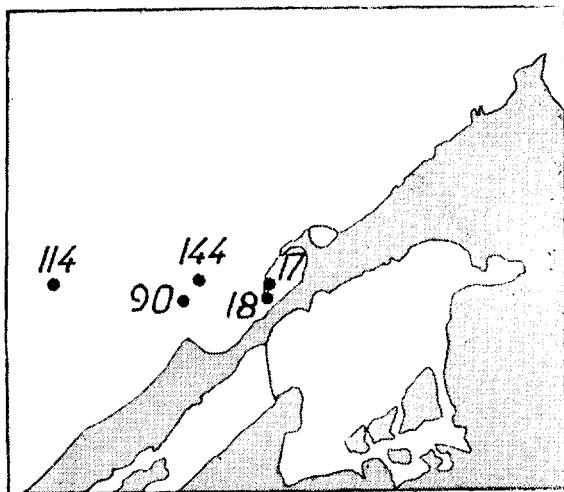


FIG. 23.—*Ethusa mascarone*.

Pesta, 1918, p. 289.

Santucci, 1928, p. 351.

Monod, 1933, p. 33.

Localities: 2 ♀ without eggs, Stat. 17, West Harbour, 5-12 fath.

1 ♂, Stat. 18, West Harbour, 10-11 fath.

1 ♀ without eggs, Stat. 90; 18 fath.

1 ♀ without eggs, Stat. 114; 25 fath.

1 ♀ with eggs, Stat. 144; 18 fath.

Habitat.—5–25 fathoms, mostly on muddy grounds with plants westward from the Western Harbour; very likely not adapted to brackish water.

Geographical distribution.—Atlantic: Portugal, Morocco, Canaries, Cape Verde Islands, Senegambia; Mediterranean: western half, Greece, Kos. To depths of 90 m.

Fam. Leucosiidae Dana

32. *Ilia nucleus* (Herbst). (+ in Fig. 24).

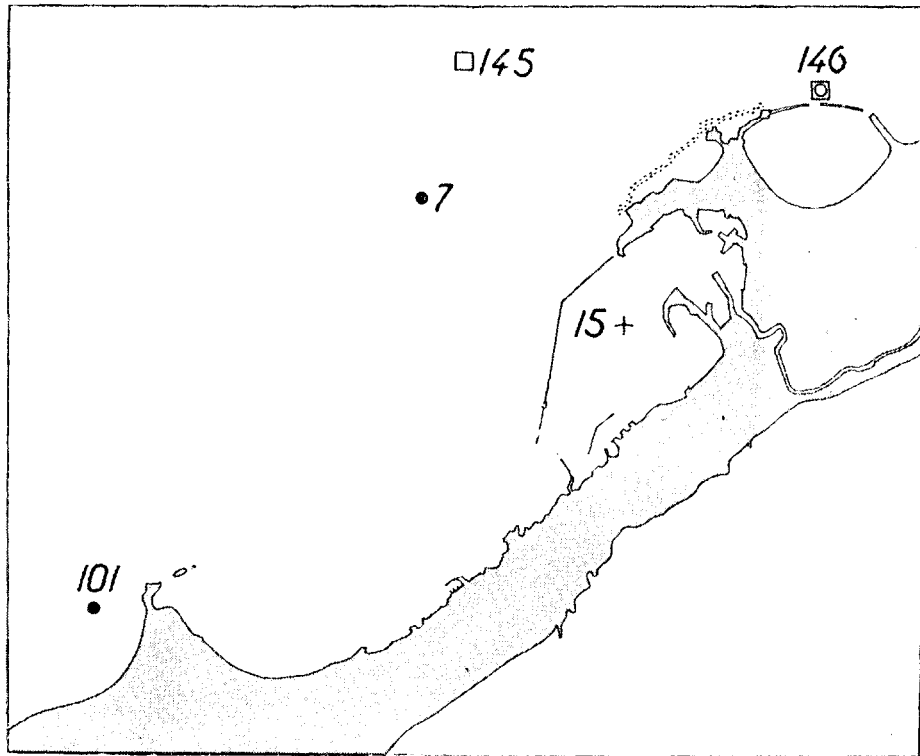


FIG. 24.—*Ilia nucleus* (+). *Achaeus cranchi* (○). *Inachus dorsellensis* (□).
Inachus dorhynchus (●)

Pesta, 1918, p. 293.

Monod, 1933, p. 42.

Locality: 1 ♂, Stat. 15, West Harbour; 6 fath. (Cl. 11,6 mm.).
Sandy ground.

Habitat.— In the Adriatic principally on stony and sandy bottom, occasionally on mud. Size in the Adriatic to 30 mm. Cl.

Geographical distribution.—Mediterranean, western half, e.g. Oran, Bône; Greece. East Atlantic: Morocco, Cape Verde Islands, Canaries.

33. *Myra fugax* Fabricius. (Fig. 25).

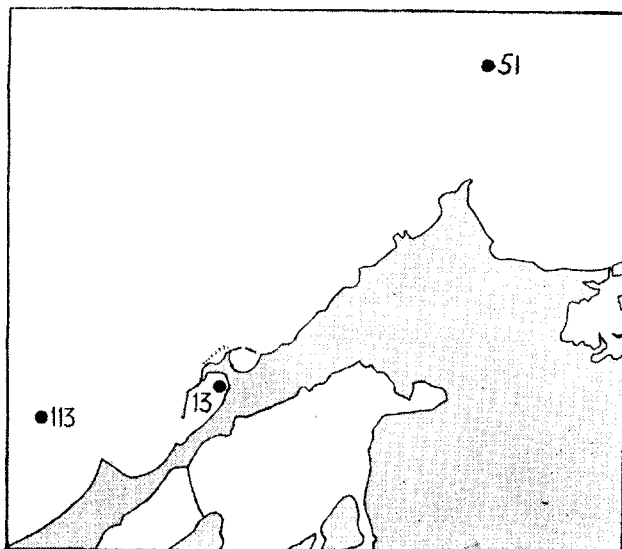


FIG. 25.—*Myra fugax*.

Calman, 1927, p. 212.

Monod, 1931, p. 427. Fig. 25.

Localities: 1 ♂, Stat. 13, Western Harbour, 6 fath. (Cl. 19 mm.).

1 ♂ (Cl. 9 mm.), Stat. 51; 13 fath.

1 ♂ (Cl. 14, 7 mm., with the hindspine), Stat. 113; 20 fath.

Habitat: 6–20 fathoms on sandy bottom; not frequent.

Geographical distribution.—Frequent in the Indo-pacific from the Red Sea to Japan. Has been mentioned by CALMAN from the Suez Canal; Mediterranean: Bay of Alexandrette and Jaffa (MONOD); immigrated.

Fam. Mairidae Alcock

34. *Achaeus cranchi* Leach. (○ in Fig. 24).

Pesta, 1918, p. 329.

Locality: 1 ♀ with eggs, Stat. 146; 10–11 fath. On Caulerpa-grounds off the Eastern Harbour.

Habitat.—In the Adriatic in depths of 4–30 m. on bottoms with rich vegetation.

Geographical distribution.—East Atlantic from Scotland to Portugal. Azores. Mediterranean, western and eastern half.

35. *Inachus dorhynchus* Leach (● in Fig. 24).

Pesta, 1918, p. 323.

Monod, 1933, p. 49.

Localities: 2 ♂, Stat. 7; 17 fath.

1 ♀ without eggs, Stat. 101; 5½ fath.

Habitat.—On sandy and stony Caulerpa-grounds; only met with near Dekhela Bay.

Geographical distribution.—East Atlantic, Norway to Morocco, Cape Verde Isles; Mediterranean, western half.

36. *Inachus dorsettensis* (Pennant) (□ in Fig. 24).

Pesta, 1918, p. 321.

Monod, 1931, p. 428.

Localities: 2 ♂, 1 ♀, Stat. 145; 21 fath.

1 ♂, Stat. 146; 10–11 fath.

Habitat.—On Caulerpa-grounds, off Alexandria.

Geographical distribution.—East Atlantic, from Norway to Angola, Mediterranean, western half, Algiers, Oran and others. Greece, Bay of Alexandrette.

37. *Macropodia (Stenorhynchus) rostrata* (L.). (+ in Fig. 26).

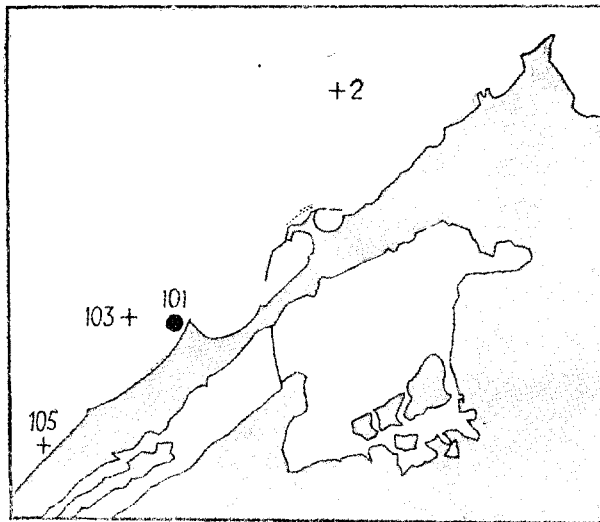


FIG. 26.—*Macropodia rostrata* (+) *Macropodia longirostris* (●)

Pesta, 1918, p. 318 (= *Stenorhynchus phalangium auctorum*).

Monod, 1931, p. 428.

Localities : 1 ♂, 1 ♀ with eggs, Stat. 2 ; 25 fath.
1 ♀ without eggs, Stat. 103 ; 16 fath.
1 juv, Stat. 105 b ; 6 fath.

Habitat.—On sandy and muddy grounds with algæ and seaweeds, westward from the Peninsula of Abukir only.

Geographical distribution.—East Atlantic from the Murman coast to the estuary of the Congo. Mediterranean : western half (Algiers, Oran, Bône and others). Aegean Sea, Beirut.

38. *Macropodia* (*Stenorhynchus*) *longirostris* (Fabr.). (● in Fig. 26).

Pesta, 1918, p. 314.
Monod, 1931, p. 427.
Monod, 1933, p. 46.
Steinitz, 1933, p. 148.

Localities : 1 ♂, Stat. 101 ; 5½ fath. Sandy ground beset with algæ and *Posidonia*, in the utmost west. Stenohalin ?

Habitat.—Frequent in the upper littoral, also met with in greater depths.

Geographical distribution.—East Atlantic, Faer Oer to Senegal, Cape Verde Islands. Mediterranean : western half (Oran, Algiers and others) ; eastern half : Beirut, Haifa. Black Sea.

39. *Acanthonyx lunulatus* (Risso). (Fig. 27).

Pesta, 1918, p. 334.
Santucci, 1928, p. 351.
Monod, 1933, p. 49.
Steinitz, 1933, p. 149.

Localities : Stat. 35 ; 7 fath.
Stat. 43.
East Harbour off the Laboratory.
Stat. 78 ; 5–6 fath.
Stat. 82.
Stat. 122 ; 5 fath.
Stat. 126 ; 9½ fath.
Sidi Bishr.

Habitat.—From crags near the coast to depths of about 9 fath. on mostly rocky and sandy bottom with algæ and *Posidonia*; westward from the Peninsula of Abukir only.

Geographical distribution.—East Atlantic, Portugal, Cape Verde Islands to Cabinda; Mediterranean: western and eastern half, Algiers, Bône, Oran and others. Greece, Haifa, Aegean Islands.

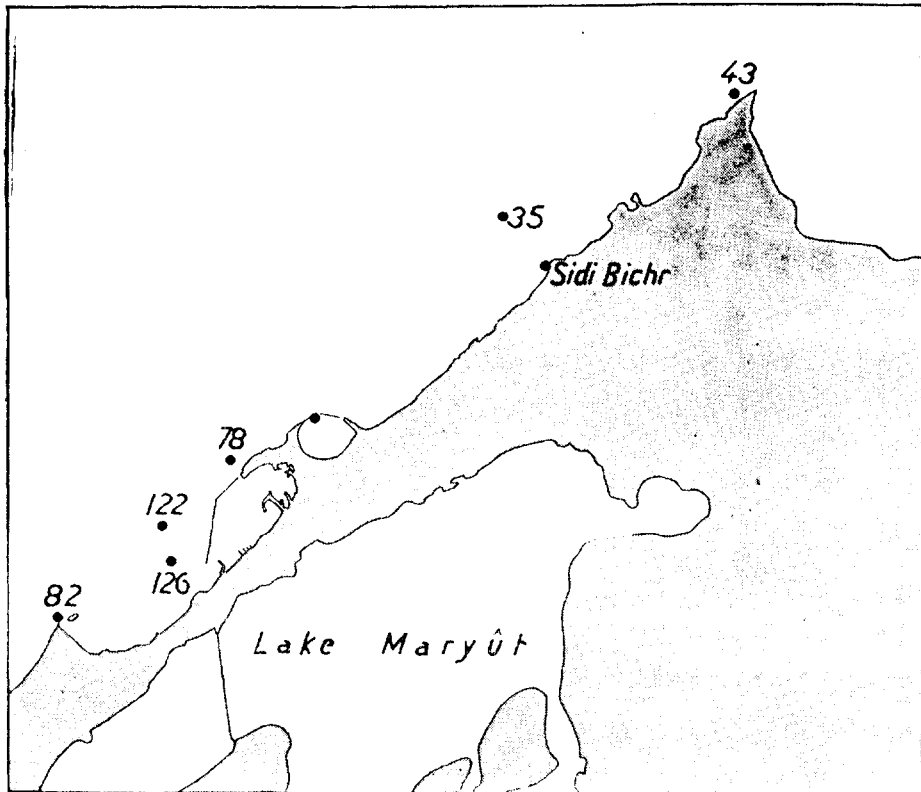


FIG. 27.—*Acanthonyx lunulatus*

40. *Pisa nodipes* Leach. (Fig. 28).

Pesta, 1918, p. 344.

Localities: 1 ♂, Stat. 18; 10–11 fath. (Cl. 17 mm.).

1 ♂, Stat. 94; 4½ fath. (Cl. 12.8 mm.).

Habitat.—On mud and sea-weeds; in the Western Harbour and in the Dekhela Bay only.

Geographical distribution.—Mediterranean : western and eastern half.

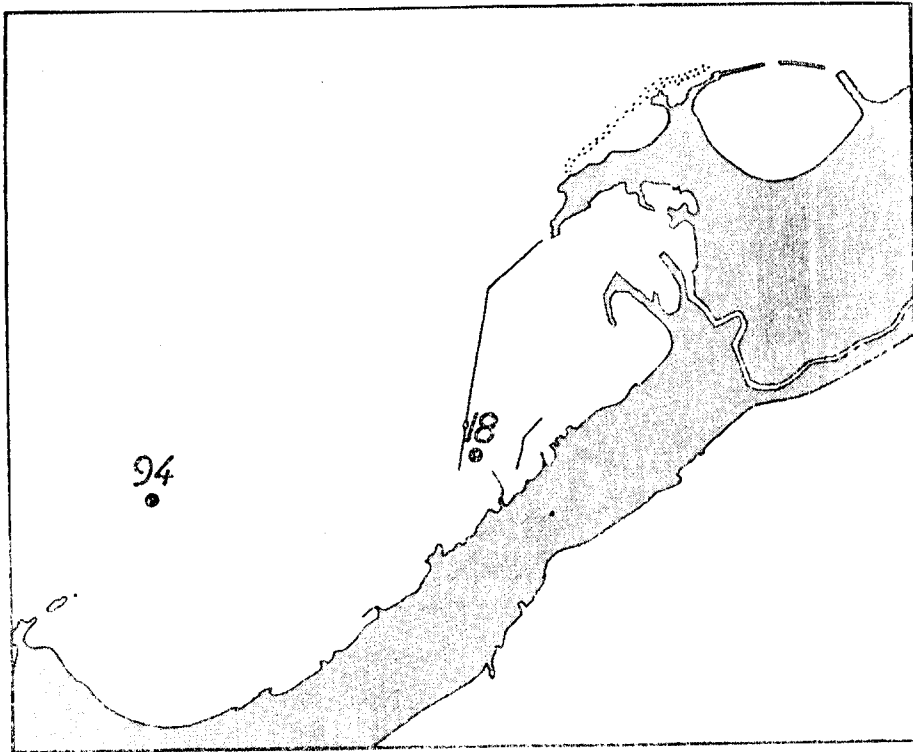


FIG. 28.—*Pisa nodipes*.

41. *Pisa tetraodon* (Pennant). (Fig. 29).

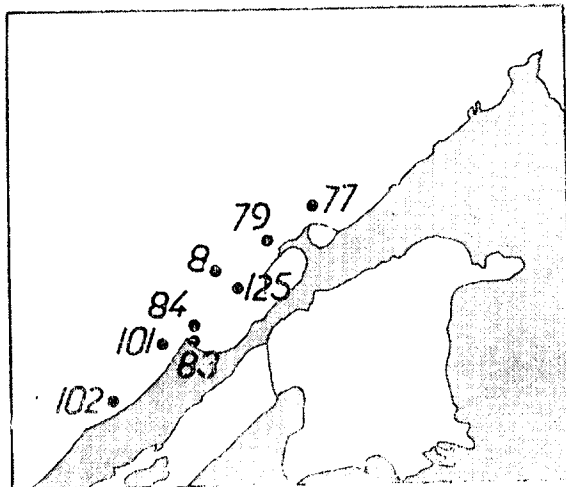


FIG. 29.—*Pisa tetraodon*.

Pesta, 1918, p. 338.
Santucci, 1928, p. 351.
Monod, 1931, p. 428.

Localities : Stat. 8., 1 ♂ (Cl. 14 mm.); 15 fath.
Stat. 77; 1 ♂ (Cl. 17, 9 mm.); 7 fath.
Stat. 79; 1 ♀ with eggs, (Cl. 17 mm.); 14 fath.
Stat. 83; 1 ♂ (Cl. 22 mm.).
Stat. 84; 1 ♀ (Cl. 16.5 mm.).
Stat. 101; 1 ♀ (Cl. 15.5 mm.); 5½ fath.
Stat. 102; 2 ♂ (Cl. 13.5 mm.); 5-6 fath.
Stat. 125; 1 ♀ (Cl. 18.5 mm.); 6 fath.

Habitat.—From the coast to 15 fathoms on mostly stony and sandy ground with algæ or sea-weed; westward from the Eastern Harbour only.

Geographical distribution.—East Atlantic from England to Gibraltar; Mediterranean: western half, eastern half: Beirut, Cos.

42. *Eurynome aspera* Pennant (+ in Fig. 30).

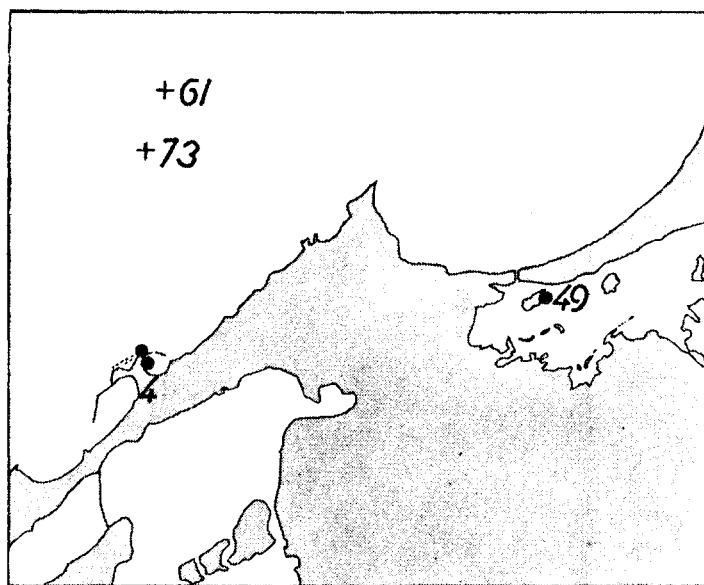


FIG. 30.—*Eurynome aspera* (+) *Carcinus maenas* (●).

Pesta, 1918, p. 351.

Monod, 1933, p. 49.

Localities : 1 ♂, 1 ♀, Stat. 61; 50 fath. On muddy ground off Alexandria.

1 ♀, Stat. 73; 38 fath. On muddy ground off Alexandria.

Habitat.—Frequent in the Adriatic from 20 to 50 m., and deeper; avoids shallow water.

Geographical distribution.—East Atlantic, from Norway to Morocco and the Cape Verde Islands; Mediterranean: western, half, e.g. Bône.

Fam. *Cancriidae* Ortmann

43. *Carcinus maenas* (L.) (● in Fig. 30).

Pesta, 1918, p. 392.

Steinitz, 1933, p. 149.

Localities: 2 ♂, (Cl. 33 and 35 mm.), 1 ♀ without eggs, (Cl. 40 mm.), Stat. 4, East Harbour, 3 fath.

2 ♂ ♀ juv., 1 ♀ without eggs (Cl. 19, 5 mm.), Stat. 49. landside Lake Edku.

1 ♂ (Cl. 37 mm.). Fort Ada, on crags.

Habitat.—The vulgar shore crab; size to about 42 mm.

Geographical distribution.—Almost cosmopolitan (transported); original in the East Atlantic and Mediterranean; Black Sea.

44. *Pirimela denticulata* (Montagu). (+ in Fig. 31).

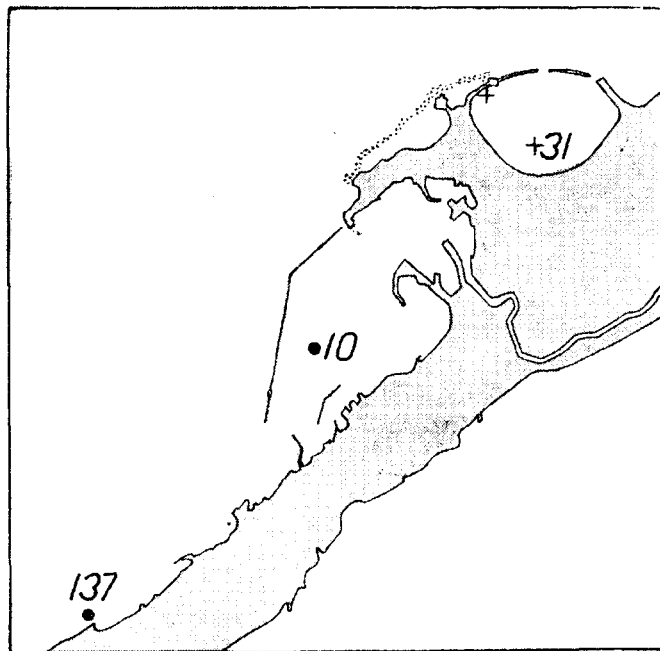


FIG. 31.—*Pirimela denticulata* (+) *Portunus arcuatus* (●)

Klunzinger, 1913, p. 323.

Pesta, 1918, p. 390.

Steinitz, 1933, p. 149.

Monod, 1933, p. 52.

Localities: 1 ♂ (Cl. 16 mm.), 1 ♀, Stat. 31, Eastern Harbour, 2 fath. Caulerpa-ground.

1 ♀, Eastern Harbour, off the Laboratory, bottom sample.

Habitat.—In the Adriatic on sandy grounds in the deeper littoral region, most frequent in depths of about 20 m.

Geographical distribution.—East Atlantic from the western coast of Norway to the Cape Verde Islands. Mediterranean: western half (Algiers, Bône and others); eastern half: Haifa. Once met near Suez (KLUNZINGER), very likely transported but not settled, the Cambridge Expedition not having met this form in the Suez Canal.

Family Portunidae Ortmann

45. *Portunus latipes* (Pennant). (● in Fig. 32).

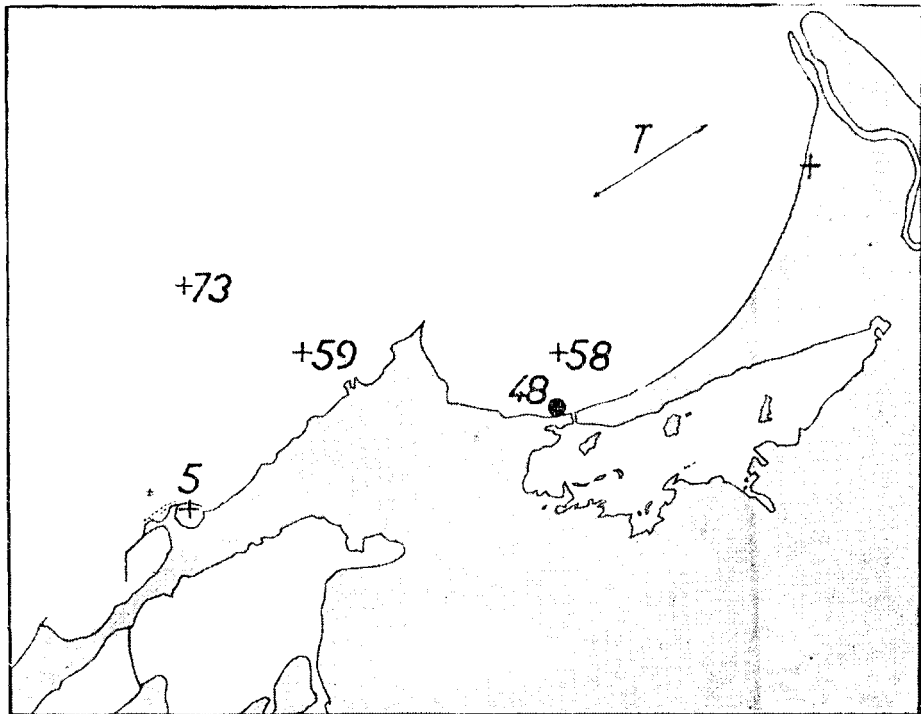


FIG. 32.—*Portunus latipes* (●). *Portunus depurator* (+) and (†).

Pesta, 1918, p. 397.

Locality: 6 ♂, 4 ♀, Stat. 48, Edku bridge, sea-side, sandy beach (largest ♂, Cl. 15. 7 mm.).

Habitat.—In the Adriatic in shallow water, on the sandy beach. Length to 28 mm.

Geographical distribution.—From the south coast of England to the Azores and Mediterranean (Algiers, Bône and others).

46. *Portunus depurator* (L.). (+ and T. in Fig. 32).

Pesta, 1918, p. 401.

Steinitz, 1933, p. 149.

Localities : 1 ♀ with eggs (Cl 27 mm.), 1 ♂ (Cl. 20 mm.), 2 ♀ without eggs (Cl. 27 mm.). Trawl, 10 fath., covered with the Cirriped *Chelonibia patula* Ranzani.

1 ♀ without eggs, (Cl. 17, 5 mm.), Stat. 5, East Harbour, 2-3·5 fath.

1 ♀ without eggs, (Cl. 20 mm.), Stat. 58; 4 fath.

1 ♀ without eggs, (Cl. 7 mm.), Stat. 59; 15-17 fath.

1 ♂ (Cl. 10 mm.), Stat. 73; 38 fath.

1 spec. at the coast of the Bay of Abukir, washed ashore near Rosette. 18. XI.

Habitat.—2-38 fathoms, usually on sandy bottom covered with algæ in the Bay of Abukir; goes westward to the Eastern Harbour. In the Adriatic on fine sand; size 30-40 mm.

Geographical distribution.—North Atlantic, eastern part, from Scotland to Spain; Mediterranean: western half (Algiers, Bône and others); eastern half: Haifa.

47. *Portunus arcuatus* Leach (● in Fig. 31).

Pesta, 1918, p. 400.

Santucci, 1928, p. 352.

Localities : 1 ♀ juv., Stat. 10; 6 fath.

1 ♂, 1 ♀ juv., Stat. 137; 4-5 fath.

Habitat.—On sandy grounds with sea-weeds in the Bay of Dekhela and in the Western Harbour only.

Geographical distribution.—East Atlantic from Norway to Spain; Mediterranean (Oran, Algiers, Bône, Kos, Rhodes and others). Black Sea.

48. *Neptunus pelagicus* (L.). (+ in Fig. 33).

Fox, 1924, p. 741.

Calman, 1927, p. 231.

Steinitz, 1929, p. 78.

Monod, 1931, p. 429.

Steinitz, 1933, p. 150.

Localities: 1♂ (Cl. 16 mm.), Stat. 10; 6 fath.

1♂ (Cl. 15 mm), Stat. 19; 9 fath.

1♂ juv., Stat. 34a.

1 spec., Eastern part of the Bay of Abukir. 9. X. from the Aquarium of the Laboratory.

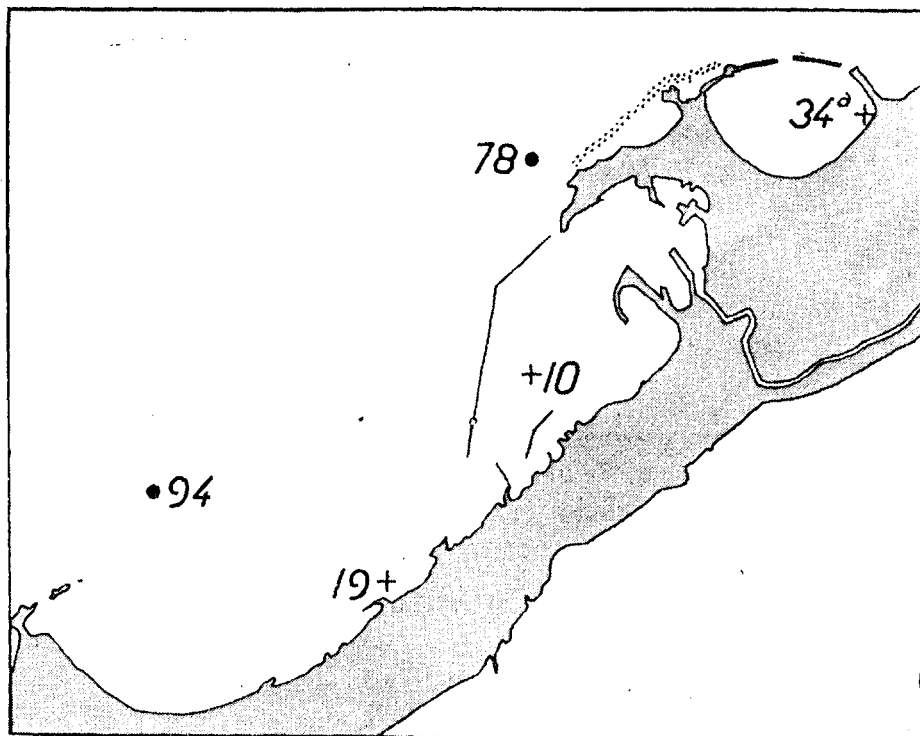


FIG. 33.—*Neptunus pelagicus* (+). *Xantho floridus* (●).

Remarks.— In contrast to *N. hastatus* the frontal region of this species is provided with three spinules, the middle one being situated on the epistom. Frontside of the merus of the cheliped with three spinules.

Habitat.—From the coast to 9 fathoms on mostly sandy ground beset with *Caulerpa*; in the Bay of Dekhela and Abukir, and in both harbours of Alexandria.

Geographical distribution.—Common form of the Indo-pacific; since 1898 immigrated in the Mediterranean (Port Said), since that time spread eastward to Haifa, Beirut and the Bay of Alexandrette; westward it is met with in the Egyptian coast as far as Mersah Matruh (260 kilometres westward from Alexandria). Is to be found on the fish market of Alexandria.

49. *Neptunus hastatus* (L.). (+ in Fig. 34).

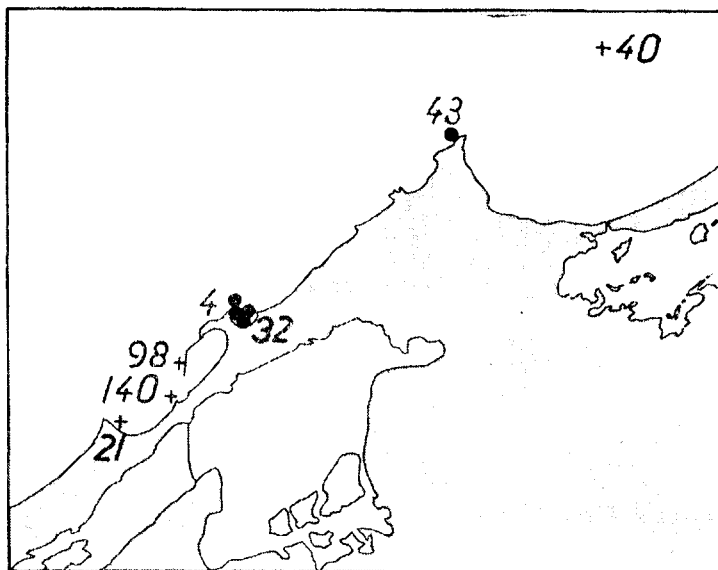


FIG. 34.—*Neptunus hastatus* (+) *Xantho hydrophilus* (●).

Pesta, 1918, p. 411.

Santucci, 1928, p. 353.

Monod, 1931, p. 428.

Steinitz, 1933, p. 150.

Localities: 1 ♂, Stat. 21; 1½ fath.

3 juv., Stat. 40; 8 fath.

1 ♂ (Cl. 19, 2 mm.), 1 ♀ without eggs, (Cl. 13, 8 mm.),
Stat. 98; 4 fath.

1 juv., Stat. 140; 4–8 fath.

Characteristics.—Difference from *N. pelagicus*: frontal region with four spines, the two middle ones smaller than the side ones. Frontside of the merus of the cheliped with two larger and two smaller spines.

Habitat.—On sandy ground mostly with vegetation in depths of 1½–8 fathoms in the Bay of Abukir and Dekhela, in contrast with the former species not in both harbours.

Geographical distribution.—Mediterranean, western half; in the eastern half off Beirut and Haifa; Aegean islands. Western coast of Africa to the Isle of São Thomé.

50. *Charybdis* (*Goniosoma*) *merguiensis* de Man (Fig. 35).

Alcock, 1899, p. 55.

Steinitz, 1929, p. 79. 1933, p. 151.

Monod, 1930, p. 140. 1931, p. 428.

- Localities : 1 ♂ (Cl. 28,7 mm.). Stat. 42.
1 juv., Stat. 50.
1 ♂ (Cl. 27. 5 mm.), Stat. 98 ; 4 fath.
1 ♀ juv. (Cl. 8, 5 mm.), Stat. 105 b ; 6 fath.
1 ♂ (Cl. 16 mm.). 1 ♀ juv. (Cl. 10 mm.), Stat. 134 ; 6 fath.
1 ♂ (Cl. 13 mm.), 1 ♀ juv. (Cl. 9 mm.), Stat. 136 ; 5-6 fath.
1 ♂ (Cl. 11 mm.), 1 ♂ (Cl. 6, 5 mm.), Stat. 138 ; 3-6 fath.
1 ♀ juv. (Cl. 8, 5 mm.), 1 ♂ juv. (Cl. 8 mm.), Stat. 139 ;
2½-5 fath.
1 ♂ (Cl. 6, 6 mm.), Stat. 144 ; 18 fath.
1 ♂ East Harbour, beginning of September, near the bath.

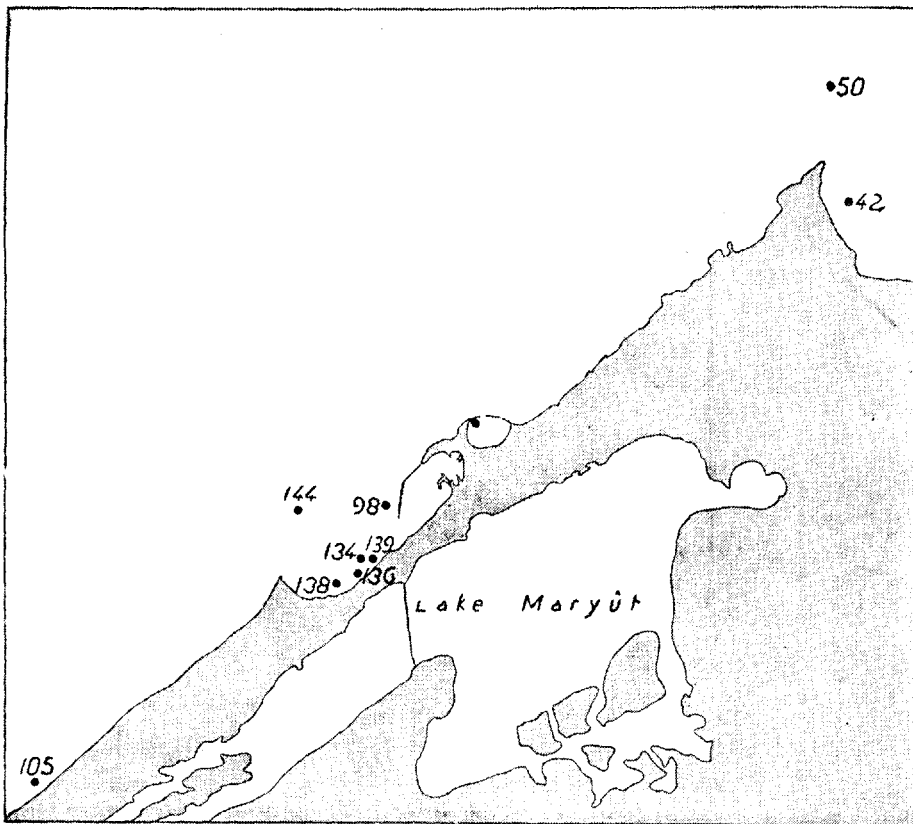


FIG. 35.—*Charybdis merguensis*.

Habitat.—From the sandy, shallow, sea-weedy beach to 18 fathoms. Only on sandy grounds with sea-grass or algæ, chiefly near the Peninsula of Abukir and in the Bay of Dekhela.

Geographical distribution.—Indo-pacific, from the Red Sea to Hongkong. Not met with in the Suez Canal, but immigrated and naturalized in the Mediterranean : Jaffa (MONOD), Haifa (STEINITZ).

Fam. Xanthidae Alcock

51. *Xantho hydrophilus* (Herbst). (● in Fig. 34).

Pesta, 1918, p. 420.

Calman, 1927, p. 213.

Santucci, 1928, p. 353.

Monod, 1931, p. 429.

Steinitz, 1933, p. 152.

Localities: 1 ♂ (Cl. 9 mm.); Stat. 4; 3 fath., East Harbour.

1 ♀ juv., Stat. 32., East Harbour., 5½ fath.

3 ♂ (Cl. about 12, 6 mm.); 1 ♀ without eggs (Cl. 12, 6 mm.).

2 juv., Stat. 43.

1 ♂ (Cl. 16 mm.). Fort Ada.

1 ♀ with eggs, (Cl. 11, 8 mm.), East Harbour, near the bath.

Habitat.—Down to 5 fathoms; lives on crags or on sandy ground with vegetation, only near the Peninsula of Abukir and in and near the Eastern Harbour.

Geographical distribution.—East Atlantic, from Norway to Angola: Mediterranean, western and eastern half, Port Said, Rhodes, Saida, Syria, Haifa, Cyprus, Greece. Black Sea.

52. *Xantho floridus* (Montagu). (● in Fig. 33).

Pesta, 1918, p. 423.

Localities: 1 ♂ (Cl. 15 mm.), Stat. 78; 5–6 fath.

1 ♂ (Cl. 9,5 mm.), Stat. 94; 4½ fath.

Habitat.—4–6 fathoms, between stones, algæ and sea-weed round the Western Harbour, scarce.

Geographical distribution.—East Atlantic, from England to the Cape Verde Islands. Mediterranean, western half (Bône and others).

53. *Actaea rufopunctata* (Milne-Edwards). (○ in Fig. 36).

Heller, 1863, p. 70.

Odhner, 1925, p. 60.

Monod, 1933, p. 71.

Localities: 1 ♂ (Cl. 11,2 mm., Cb. 15, 4 mm.), Stat. 115.

30 fath., in the utmost west, on stony ground with vegetation, stenohalin.

Geographical distribution.—Principally in the Indo-pacific (from the Red Sea to Hawaii and Polynesia); in the Mediterranean met once by LUCAS off Algiers and another time by RISSO (Provence).

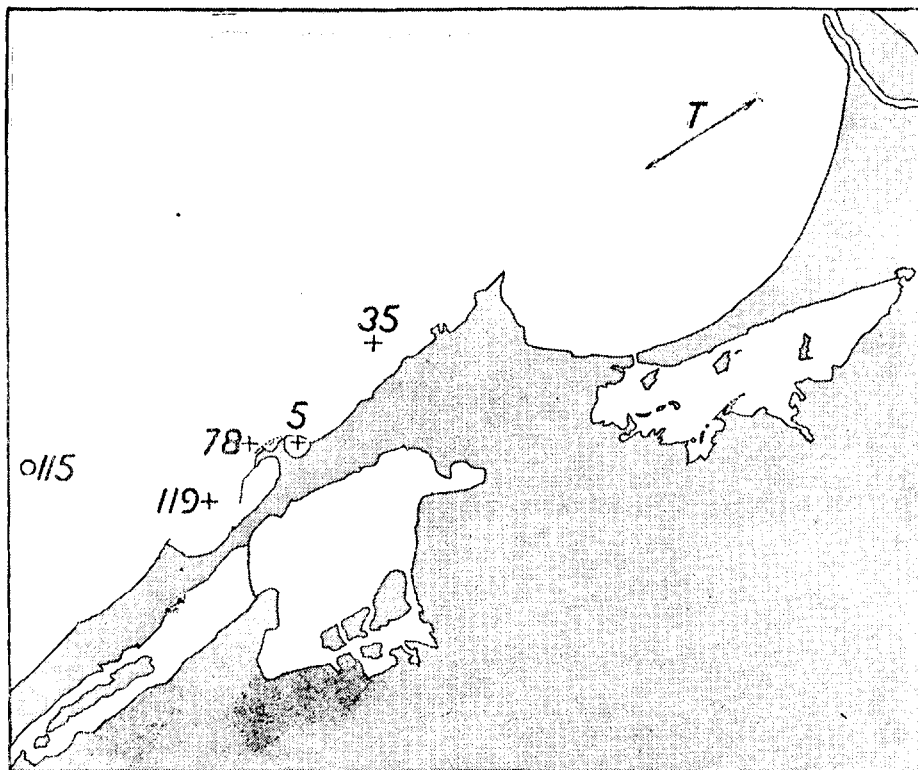


FIG. 36.—*Actaea rufopunctata* (○) *Xanthias granosus* (+ and T).

East Atlantic: Cape Verde Islands, Canaries, Azores, San Thome Annobon. In the West Indies represented by the subspecies *nodosa* Stimpson.

54. *Xanthias granosus* (A.M.E. and Bouv.) (+ and T. in Fig. 36).

Xanthodes granosus A. Milne Edwards and Bouvier 1900, p. 87, Pl. XVI. (Fig. 6-13).

Localities:

- 2 ♂ 3 ♀, (one of them with eggs), Trawl, 3. IX; 10 fathoms.
- 2 ♂ 5 ♀, (without eggs), Stat. 5, East Harbour, 2-3½ fath.
- 1 ♂ 1 ♀, (without eggs), Stat. 35; 7 fathoms.
- 2 ♂ 2 ♀, Stat. 78; 5-6 fath.
- 1 ♀, Stat. 119; 5½ fath.

Notes.—Owing to the kindness of Professor Dr. GRAVIER-Paris I could compare the types with our specimen. They differ in size only. I give some of the measurements: Cl. 7 mm., Cb. 10 mm.; (♀ with eggs): Cl. 5, 3 mm., Cb. 7 mm.; further: Cl. 12 mm., Cb. 17 mm.

Habitat.—2-10 fathoms on sandy, stony bottom with algæ and sea-weed in the Bay of Abukir and in the west.

Geographical distribution.—The species has been described as yet once only from the Cape Verde Islands, so its presence in the Mediterranean means a great surprise; it may perhaps appear in other places (North coast of Africa ?) and may have been overlooked on account of its relative smallness.

The form belongs to a genus occurring otherwise principally in the tropic Indo-pacific (but not in the Red Sea); its next relative is *X. lamarcki*, met with from Madagascar to Polynesia and Hawai.

55. *Pilumnus hirtellus* (L.). (Fig. 37).

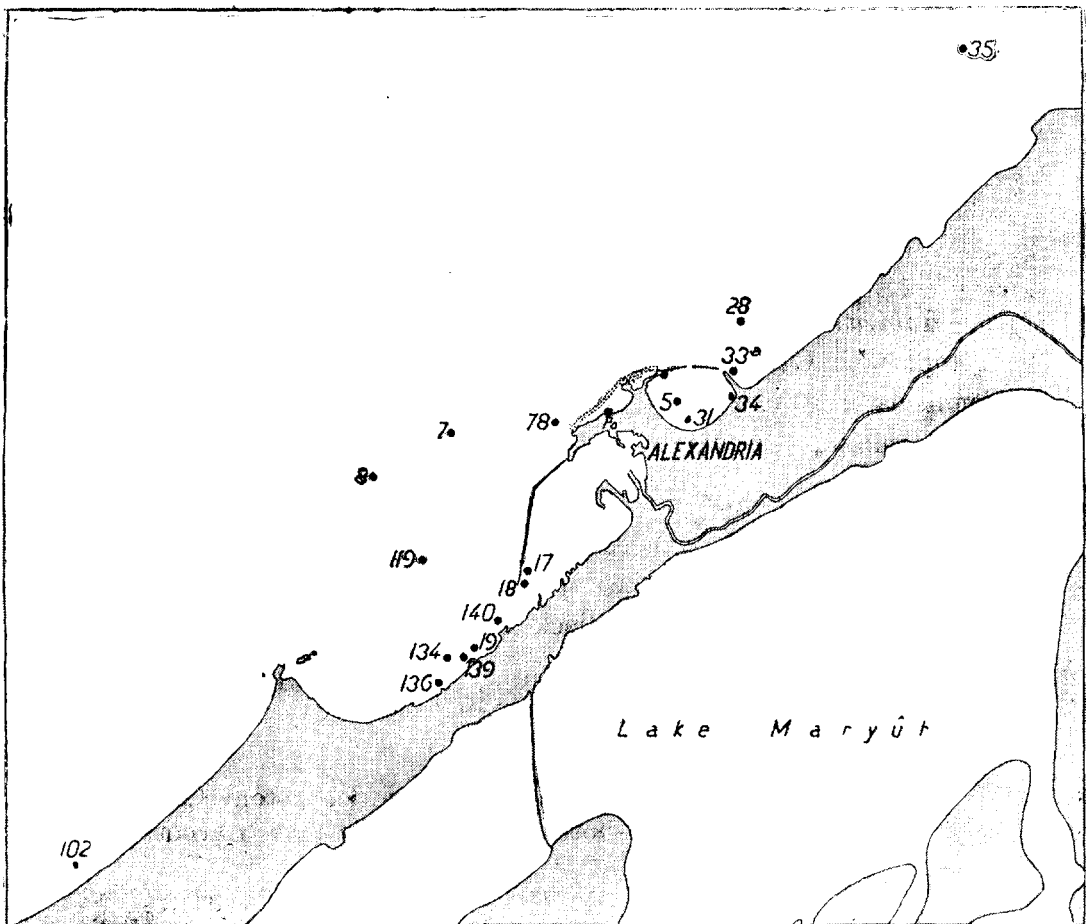


FIG. 37.—*Pilumnus hirtellus*

Pesta, 1918, p. 415.

Santucci, 1928, p. 353.

- Localities : 1 ♂ 2 ♀ with eggs (Cl. 9, 3 mm.), East Harbour.
1 ♂, East Harbour, near the bath.
1 ♂, 1 ♀ with eggs (Cl. 6, 3 mm.), Stat. 5, East Harbour.
1 ♀ with eggs (Cl. 10 mm.), 1 ♀ juv., Stat. 7; 17 fath.
1 ♂ (Cl. 11 mm.), Stat. 8; 15 fath.
1 ♂ juv., Stat. 17, West Harbour, 5-12 fath.
1 ♂ juv., Stat. 18, West Harbour, 10-11 fath.
1 ♂ (Cl. 7 mm.), 1 ♀ with eggs. (Cl. 6, 5 mm.), Stat. 19; 9 fath.
1 ♂ juv., Stat. 28, 10-12 fath.
1 ♀, Stat. 31, East Harbour, 2 $\frac{1}{4}$ fath.
1 ♀ with eggs (Cl. 8, 7 mm.), Stat. 33a.
1 ♀ (Cl. 10 mm.), Stat. 34.
1 ♂, (Cl. 8 mm.), 1 ♂ juv., Stat. 35; 7 fath.
1 juv. Pok, crags.
1 ♂ (Cl. 10 mm.), 4 ♀ juv., 1, ♂ juv., Stat. 78; 5-6 fath.
2 ♂ (Cl. 9, 7 mm.), Stat. 102; 5-6 fath.
1 ♂ (Cl. 10 mm.), 3 juv., Stat. 119, 5 $\frac{1}{2}$ fath.
1 ♀ without eggs (Cl. 8, 7 mm.), Stat. 134; 6 fath.
1 ♀ without eggs (Cl. 10 mm), Stat. 136; 5-6 fath.
1 ♀ without eggs, (Cl. 8 mm.), Stat. 139; 2 $\frac{1}{2}$ -5 fath.
1 ♂ (Cl. 10 mm.), Stat. 140; 4-8 fath.

Habitat.—From the rocky coast to 15 fathoms on stony, sandy bottom with *Caulerpa* and banks of sea-weed, westward from the Peninsula of Abukir only, especially in the environs of Alexandria very common. In the Adriatic length to 19 mm.

Geographical distribution.—East Atlantic; Northern Sea to West Africa (Angola); here represented by the subsp. *africana* which has more and greater spines. Mediterranean, western and eastern half (e.g. Rhodes); Black Sea.

56. *Pilumnus hirsutus* Stimpson. (+in Fig. 38).

Balss, 1933, p. 20.

Locality : 1 ♂, Stat. 28; 12 fath., on deep, stony *Caulerpa*- and *Halimeda*-bottom, off the Eastern Harbour.

Geographical distribution.—The species is met with from Ceylon to Japan; unknown as yet from the Red Sea and new for the Mediterranean.

57. *Pilumnopeus vauquelini* (Aud.). (○ in Fig. 38).

Heteropanope vauquelini Klunzinger, 1913, p. 287, Pl. 3.
Calman 1927, p. 214, Fig. 8.

Pilumnopeus vauquelini Balss, 1933, p. 33.

Locality: 1 ♂ (Cl. 7, 7 mm.), 3 ♀ without eggs, (Cl. 8, 8 mm.). East Harbour, near the Laboratory.

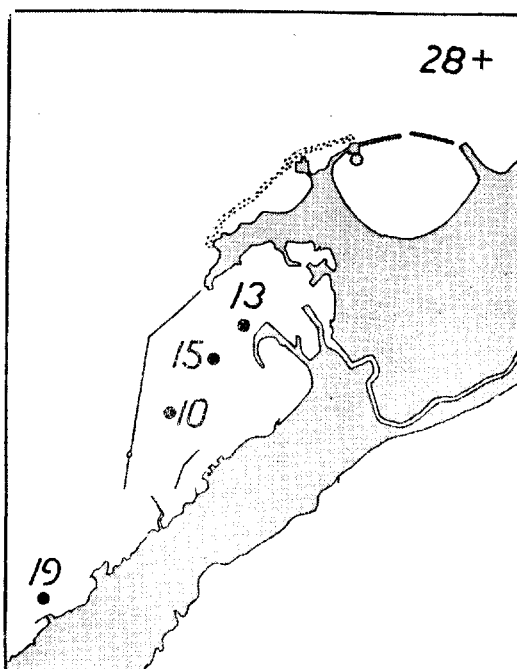


FIG. 38.—*Pilumnus hirsutus* (+), *Pilumnopeus vauquelini* (○), *Ecrate crenata* (●).

Geographical distribution.—Originally endemic in the Red Sea, this form has immigrated by the Suez Canal. The Cambridge Expedition, 1924 had found it off Port Said, in the Lake of Timsah, in the Bitter Lakes, near Kubri and Port Taufiq.

58. *Eriphia spinifrons* (Herbst).

Parisi, 1913 p. 1.

Pesta, 1918, p. 428.

Steinitz, 1933, p. 152.

Locality: 1 spec. from the Aquarium of the Laboratory (descent?).

Habitat.—A form that prefers rocky bottoms and is, therefore, apparently missing in the closer surroundings of Alexandria; Prof. STEUER's collection does not contain it.

Geographical distribution.—Mediterranean; western half frequent; eastern half: Rhodes, Greece, “litora Aegypti” (Savigni): Sea of Marmara, Black Sea. East Atlantic: Portugal, Azores.

Fam. Goneplacidae Dana.

59. *Eucrate crenata* de Haan. (● in Fig. 38).

Eucrate sulcatifrons Tesch, 1918, p. 158.

Eucrate crenata Calman, 1927, p. 214.

Localities: 2 ♀ juv., Stat. 10; 6 fath.

4 ♂, 1 ♀, Stat. 13, Western Harbour, 6 fath.

1 ♂, 1 ♀, Stat. 15, 6 fath; Western Harbour.

1 ♀, Stat. 19; 9 fath.

Habitat.—Only 6–9 fathoms on sandy grounds, sometimes mixed with mud, together with *Caulerpa*; in the Western Harbour only and off its entrance. All specimens are very small (Cl. ca. 10 mm.), no ♀ with eggs.

Geographical distribution.—All over the Indo-pacific, from the Red Sea to Japan. The Cambridge Expedition met the species near Port Said, in Lake Timsah and in the Bitter Lakes.

60. *Goneplax angulata* (Pennant). (⊕ in Fig. 39).

Pesta, 1918, p. 436.

Monod, 1931, p. 429.

Locality: 1 ♂, Stat. 55. (Cl. 8, 5 mm), 40 fath. On mud overgrown with *Caulerpa* off the Peninsula of Abukir.

Geographical distribution.—East Atlantic from England to the Cape of Good Hope. Mediterranean, western half (Algiers and others). Eastern half: Greece, Bay of Alexandrette.

Fam. Ocypodidae Ortmann

61. *Ocypoda hippeus* Olivier (● in Fig. 39). according to the collector's notes).

Balss, 1922, p. 79.

Monod, 1933, p. 82.

Locality: 1 ♂ Sidi Bishr. Sandy beach.

3 ♂ Edku bridge, marine beach.

Habitat.—On the sandy beach of the coast off Rosetta to westward of the Peninsula of Dekhela, in holes, often far away from the water.

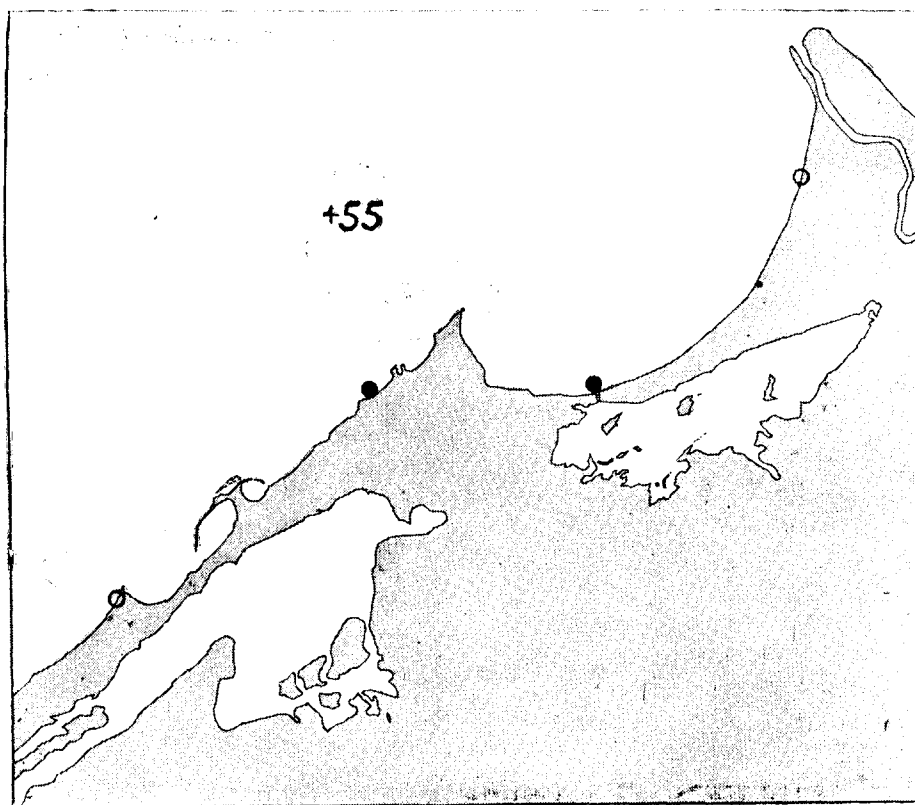


FIG. 39.—*Goneplax angulata* (+) *Ocypoda hippeus* (●).

Geographical distribution.—Greece, Syria, Egypt, African coast of the Mediterranean; western coast of Africa, from Morocco to the Great Fish Bay.

Fam. Grapsidae Dana

62. *Brachynotus sexdentatus* (Risso). (+ in Fig. 40).

Brachynotus lucasi Pesta, 1918, p. 448.

Brachynotus sexdentatus Calman, 1927, p. 215.

Brachynotus sexdentatus Monod, 1932, p. 219. Fig. 7.

Localities :

2 ♀ without eggs (Cl. 7, or 9 mm.), Edku bridge, under stones, and among sea-weeds.

1 ♂, 1 ♀ without eggs, Stat 48, Edku bridge, sea-side.

1 ♀, with eggs (Cl. 4 mm.), Stat. 57; 3 fath.

1 ♂ (Cl. 8 mm.), Stat. 58; 4 fath.

Habitat : 3-4 fathoms deep in sand, in the Bay of Abukir only ;
on sea-weeds and Caulerpa-banks.

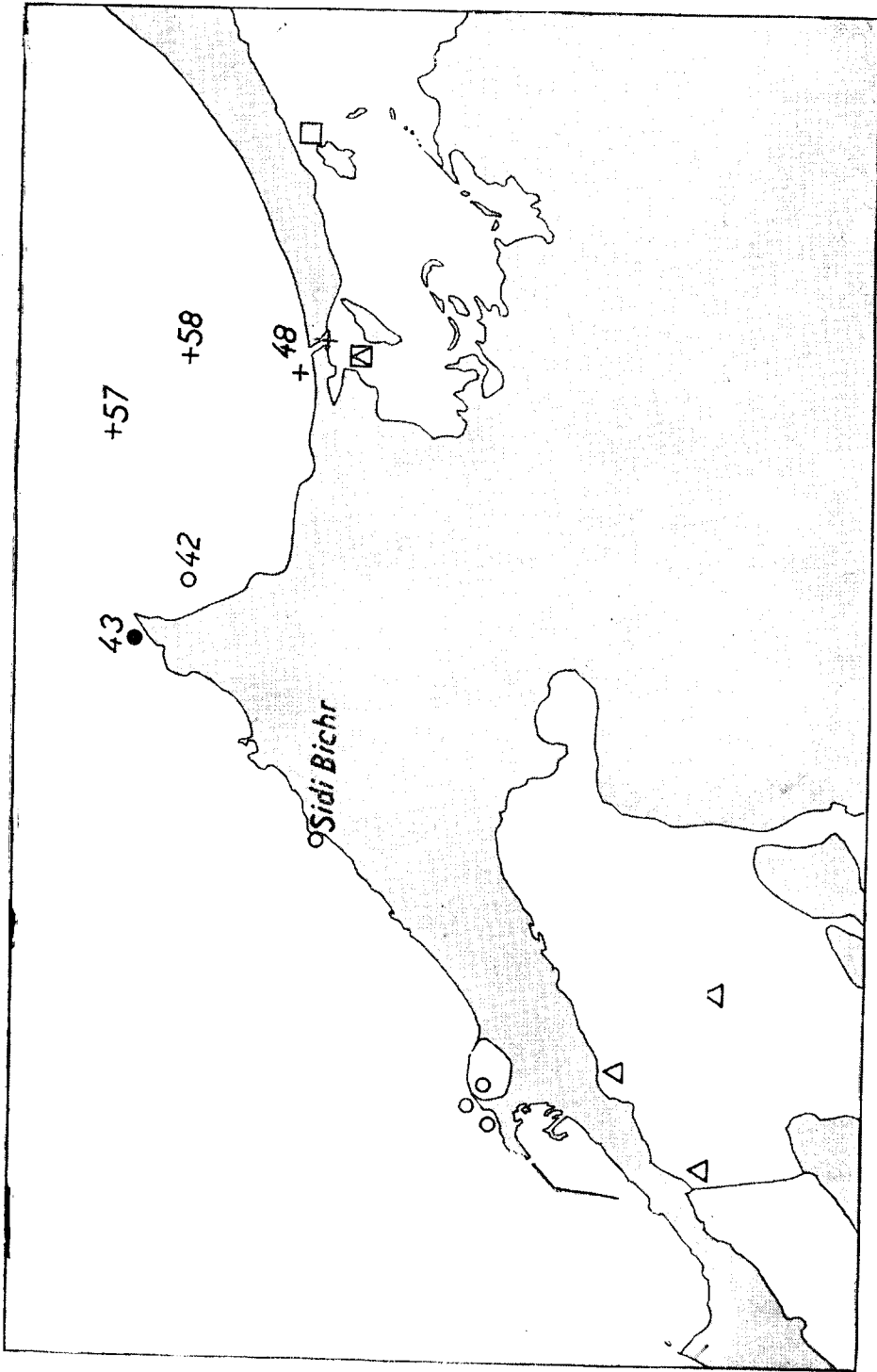


FIG. 40.—*Brachynotus exdentatus* (+). *Pachygrapsus marmoratus* (■), *Pachygrapsus transversus* (●)
Meropodopsis alaberi (△). *Diangysis bahirensis* (◻).

Geographical distribution.—Mediterranean (not frequent):Marseille, Nice, Genua, Naples. Adriatic; Morocco, Algiers, Bône; Cyprus, Crete; Black Sea. Lately also met with in the Suez Canal, Port Said, Lake Menzaleh, Lake Timsah.

The only species of the genus outside the Indo-pacific.

63. *Pachygrapsus marmoratus* (Fab.). (C in Fig. 40).

Pesta, 1918, p. 451.

Santucci, 1928, p. 354.

Steinitz, 1933, p. 152.

Localities :

- 1 ♂ (Cl. 22, 5 mm.), 1 ♀ without eggs, (Cl. 17, 5 mm.), East Harbour, bath.
- 1 ♀ without eggs, (Cl. 23, 5 mm.). Pok crags, near the barracks of Ras el Tin.
- 3 ♂ (largest Cl. 38 mm.), 1 ♀ without eggs (Cl. 35 mm.), Pharos, outside.
- 1 ♂ (Cl. 28 mm.), Stat. 42. Abukir.
- 1 ♂ Sidi Bishr.

Habitat.—On stones of the coast between algæ and sea-grass. Near the Peninsula of Abukir, near Sidi Bishr, in the Eastern Harbour and in the Anfushi Bey.

Geographical distribution.—Atlantic, western coast of France to the Canaries, Azores; Mediterranean, western half, eastern half; Cyprus, Haifa, Aegean Islands. Black Sea.

64. *Pachygrapsus transversus* (Gibbes). (● in Fig. 40).

Calman, 1927, p. 216.

Monod, 1933, p. 80.

Locality: 1 ♀ without eggs, Stat. 43, at the point of the Peninsula of Abukir, on crags.

Geographical distribution.—Western coast of Africa from Morocco and Madeira to Angola; West Indies; California to Peru; Tahiti; New Zealand; East-Australia.

In the Mediterranean the species has been noted once only from Marseille, where it had been transported very likely by a ship. The Cambridge Expedition met it near Port Said. From the Red Sea it has not yet been noted.

APPENDIX

SCHIZOPODA

(DET. PROF. DR. C. ZIMMER, BERLIN)

It is striking that no Schizopods had been found near the coast, though they had been looked for, *e.g.* in the Posidonia-banks of the Anfushi Bay (October 10, 1933) and the Cambridge Expedition had obtained 9 species (Fox counted only 8, p. 198) in winter 1934 off Port Said (Tattersal, 1927).

1. *Mesopodopsis slabberi* (Van Beneden) (Δ in Fig. 40).

Lake Mareotis, near the Mex Experimental Station, adult females, September 12, 1933.

Lake Mareotis, more eastward at a fresh-water fish-market in the plankton of the lake (Salinity according to Dr. Abu Samra Cl. 6,15 ‰, S-11,13 ‰), off the shore in a depth of about $\frac{1}{2}$ m. breeding females, near the coast many juv. on September 14, 1933.

Lake Edku, near the connecting canal with the Bay of Abukir (Salinity by Dr. ABU SAMRA Cl. : 1, 12 ‰, S-2,07 ‰,) frequent in the plankton of October 17, 1933.

This curyhalin species is widely spread on the eastern coast of the Atlantic districts from Ireland to South Africa, in the North Sea and Baltic Sea to the Bay of Kiel, in the Mediterranean and Black Sea. It penetrates into the estuaries of the rivers and on other places into brackish water. (In the Nile, however, it had neither been met with near Rosetta nor near Bughaz in the plankton (St. 147 and 148, September 18, 1933).

2. *Diamysis baharensis* (G. O. Sars). (\square in Fig. 40).

Lake Edku, near the connecting canal with the Bay of Abukir, frequent in the plankton, October 17, 1933.

Lake Edku, further westward near the Isle Derfil, breeding females, October 1, 1933.

Also curyhalin, met with in the Mediterranean and Black Sea. In Egypt known from Port Said and from Lake Menzaleh (TATTERSALL, 1927, p. 191).

PART. II.—List of Stations and of the Decapods
and Mysids found at them

- Eastern Harbour, near the bath, 2. IX. 1933. Sand, Caulerpa, Bottom sample.
Pirimela denticulata.
- Trawl, 10 fathoms. 3. IX.
Penaeus trisulcatus, *Metapeneus stebbingi*, *Metapeneus monoceros*, *Upogebia litoralis*, *Portunus depurator*, *Xanthias granosus*.
- Stat. 2; 25 fathoms, sand, mud, Halimeda-bottom, 6. IX.
Macropodia rostrata.
- Eastern Harbour, near the bath. 4. IX.
Porcellana platycheles, *Pachygrapsus marmoratus*, *Pilumnus hirtellus*, *Charybdis merguensis*.
- Sidi Bishr, 9. IX.
Ocyropa hippeus (on the sandy beach); *Acanthonyx lunulatus*, *Pachygrapsus marmoratus* (zone of algæ).
- Eastern Harbour, Epifauna. 10. IX.
Leander squilla elegans.
- Stat. 4; 3 fathoms. Sandy bottom, Caulerpa. 11. IX. Eastern Harbour.
Leander adpersus fabricii, *Alpheus crassimanus*, *Synalpheus laevimanus*, *Porcellana platycheles*, *Paguristes oculatus*, *Carcinus maenas*, *Xantho hydrophilus*.
- Stat. 5. Eastern Harbour, sandy bottom, 2-3½ fathoms, Caulerpa and Codium-banks, 11. IX.
Leander adpersus fabricii, *Alpheus dentipes*, *Synalpheus laevimanus*, *Diogenes pugilator*, *Portunus depurator*, *Xanthias granosus*, *Pilumnus hirtellus*.
- Stat. 7. stony, 17 fathoms, Caulerpa-bottom, 16. IX.
Aegeon cataphractus, *Upogebia deltaura*, *Paguristes oculatus*, *Eupagurus cuanensis*, *Inachus dorhynchus*, *Pilumnus hirtellus*.
- Stat. 8. stony, 15 fathoms, Caulerpa-, Halimeda-bottom. 16. IX.
Pisa tetraodon, *Pilumnus hirtellus*.
- Stat. 10. Mud, sand, 6 fathoms, Caulerpa-bottom. 17. IX.
Leander xiphias, *Sicyonia carinata*, *Alpheus crassimanus*, *Portunus arcuatus*, *Neptunus pelagicus*, *Eucrate crenata*.
- Stat. 11. Black mud, 6 fathoms, 18. IX.
Alpheus crassimanus.
- Stat. 12. Sand, some mud, 3 fathoms, Caulerpa-, Posidonia-, Codium-ground. 18. IX.
Alpheus crassimanus.
- Stat. 13. Sand, some mud, 6 fathoms, 19. IX. Western Harbour.
Myra fugax, *Eucrate crenata*.
- Stat. 15. Sand, 6 fathoms, 19. IX. Western Harbour.
Alpheus crassimanus, *Upogebia litoralis*, *Ilia nucleus*, *Eucrate crenata*.
- Stat. 17. Sand, black mud, 5-12 fathoms, little Caulerpa. Western Harbour. 19. IX.
Alpheus crassimanus, *Ethusa mascarone*, *Pilumnus hirtellus*.

Stat. 18. Western Harbour. Black mud, very little Caulerpa. 10–11 fathoms.
19. IX.

Synalpheus laevimanus, *Upogebia litoralis*, *Ethusa mascarone*, *Pisa nodipes*,
Pilumnus hirtellus.

Stat. 19. Sand, 9 fathoms, Caulerpa-bottom. 20. IX.

Porcellana longicornis, *Neptunus pelagicus*, *Pilumnus hirtellus*, *Eucrate crenata*.

Stat. 21; 1½ fathoms, Amphioxus-ground, Posidonia, Caulerpa, brown algæ,
20. IX.

Paguristes oculatus, *Neptunus hastatus*.

Stat. 22: 7 fathoms, rocky, yellow sand, Posidonia, Caulerpa, brown algæ.
20. IX.

Athanas nitescens.

Stat. 25. Boat-drive. At the outside of the bank, sand with *Cystosira*, red
algæ, Caulerpa, *Ulva*. Near the land sandy sea-grass-meadows. *Ulva*.
21. IX.

Leander xiphias, *Leander adpersus fabricii*, *Leander squilla elegans*.

Stat. 28. Stony. 10–12 fathoms, Caulerpa-Halimeda-bottom. 25. IX.

Eupagurus cuanensis, *Pilumnus hirtellus*, *Pilumnus hirsutus*.

Stat. 31. Eastern Harbour, sand, 2¼ fathoms, Caulerpa-bottom, 27. IX.

Leander adpersus fabricii, *Diogenes pugilator*, *Pirimela denticulata*, *Pilumnus hirtellus*.

Stat. 32. Eastern Harbour, rough sand, stones, little mud, 5½ fathoms, Caulerpa-
bottom, 27. IX.

Processa canaliculata, *Porcellana longicornis*, *Diogenes pugilator*, *Xantho hydrophilus*.

Lake Mareotis, 12. IX, near the Mex Experimental Station.

Mesopodopsis slabberi.

Lake Mareotis, 14. IX, more eastward, near the fresh-water fish-market, at
the coast and further away from the coast in the plankton.

Mesopodopsis slabberi.

Lake Mareotis, 28. IX, near the Mex Experimental station between water
plants.

Caridina nilotica.

Lake Edku, 1. X, near the Isle Derfil.

Diamysis bahirensis.

Lake Edku, 17. X, near the connecting canal with the Bay of Abukir.

Mesopodopsis slabberi, *Diamysis bahirensis*.

Stat. 33a. Boat-drive. Head of the pier of Silsila. 2. X.

Alpheus dentipes, *Pilumnus hirtellus*.

Stat. 33b. Boat-drive, Silsila, sandy ground with *Cypraea*, 2. X.

Diogenes pugilator.

Stat. 34a. Eastern Harbour, point of Silsila, Boat-drive, Caulerpa-, *Codium*-
bottom. 4. X.

Leander adpersus fabricii, *Athanas nitescens*, *Neptunus pelagicus*, *Porcellana longicornis*, *Eupagurus anachoretus*, *Pilumnus hirtellus*.

- Stat. 35. Rough sand with stones. 7 fathoms, Caulerpa-, Halimeda-, Posidonia-, Brown algæ-, Amphioxus-bottom. 7. X.
Athanas nitescens, Alpheus dentipes, Porcellana longicornis, Eupagurus anachoretus, Xanthias granosus, Pilumnus hirtellus, Acanthonyx lunulatus,
- Stat. 38. Stony, 17 fathoms, Halimeda-, Caulerpa-, brown algæ-bottom. 12. X.
Eupagurus anachoretus.
- Pok crags, off Posidonia-bottom, near the barracks at Ras el Tin.
Halimeda-, Caulerpa- bottom, brown algæ. 10. X.
Clibanarius misanthropus, Pilumnus hirtellus, Pachygrapsus marmoratus
- Stat. 39. Sand, little mud, 17 fathoms, Caulerpa- bottom. 12. X.
Synalpheus laevimanus.
- Stat. 40. Stones, sand, 8 fathoms, Amphioxus-bottom. 12. X.
Upogebia litoralis, Porcellana longicornis, Diogenes pugilator, Neptunus hastatus.
- Stat. 41. Crags, brown-algæ-, Caulerpa-bottom. 14. X.
Clibanarius misanthropus.
- Stat. 42. Gray sand, mud, sea-grass-meadows. 14. X.
Leander xiphias, Leander squilla elegans, Sicyonia carinata, Hippolyte pri-deauxiana, Clibanarius misanthropus, Charybdis merguiensis, Pachygrapsus marmoratus.
- Stat. 43. Crags, sand, brown algæ, Posidonia, Caulerpa. 14. X.
Leander squilla elegans, Clibanarius misanthropus, Acanthonyx lunulatus, Xantho hydrophilus, Pachygrapsus transversus.
- Stat. 45. Much mud, little sand, 9 fathoms. 15. X.
Upogebia gracilipes.
- Stat. 48. Lake Edku, near the bridge, sea-side. 17. X, sandy ground.
Portunus latipes, Brachynotus sexdentatus.
- Lake Edku, on stones and under the bridge. 17. X.
Ocypoda hippeus, Brachynotus sexdentatus.
- Stat. 49. Lake Edku, shallow sea-grass meadows. 17. X.
Leander squilla elegans, Carcinus maenas.
- Stat. 50. Off Abukir, sand and stones, 9 fathoms, Amphioxus-bottom, 18. X.
Porcellana longicornis, Paguristes oculatus, Charybdis merguiensis, Processa canaliculata, Upogebia deltaura.
- Stat. 51. Sandy ground, 13 fathoms, Amphioxus-ground. 18. X.
Porcellana longicornis, Myra fugax.
- Stat. 52. Mud, 22 fathoms, Phoronis-bottom. 18. X.
Callianassa subterranea minor Gourret (?).
- Stat. 53. Yellow mud, 33 fathoms, 26. X.
Alpheus ruber, Upogebia gracilipes.
- Stat. 55. Mud, 40 fathoms, 26. X.
Leptochela aculeocaudata, Jaxea nocturna, Goneplax angulata.
- Stat. 56. Rough sand, 4 fathoms, Amphioxus-bottom 28. X.
Diogenes pugilator.

- Stat. 57. Finer sand, 3 fathoms, Caulerpa-bottom, 28. X.
Diogenes pugilator, *Brachynotus sexdentatus*.
- Stat. 58. Sand, 4 fathoms, Caulerpa-,Cymodocea-bottom. 28. X.
Diogenes pugilator, *Portunus depurator*, *Brachynotus sexdentatus*.
- Stat. 59. Sand, 15-17 fathoms, 28. X.
Portunus depurator.
- Stat. 61. Mud, 50 fathoms, 30. X.
Alpheus ruber, *Eurynome aspera*.
- Eastern Harbour, near the bath, end of October.
Xantho hydrophilus, *Pilumnus hirtellus*.
- Fort Ada, on crags, 2. XI.
Leander adpersus fabricii, *Leander squilla elegans*, *Clibanarius misanthropus*,
Xantho hydrophilus, *Carcinus maenas*.
- Stat. 62. Mud, 28 fathoms, 31. X.
Leptochela aculeocaudata, *Processa canaliculata*.
- Stat. 64. Mud with rough sand, 110 fathoms. 1. XI.
Paguristes oculatus.
- Stat. 67. Sand, mud, 22 fathoms, 2. XI.
Eupagurus cuanensis.
- Stat. 68. Mud, 37 fathoms, Caulerpa-bottom, 2. XI.
Leptochela aculeocaudata.
- Stat. 69. Mud, 48 fathoms, Caulerpa-bottom, 2. XI.
Leptochela aculeocaudata.
- Stat. 73. Mud, 38 fathoms, Caulerpa-,Halimeda-bottom. 4. XI.
Portunus depurator, *Eurynome aspera*.
- Stat. 74. Mud, 23 fathoms, little Caulerpa, Udotea, *Dasycladus*. 4. XI.
Upogebia gracilipes, *Paguristes oculatus*.
- Stat. 77. Stony, 7 fathoms, Caulerpa-,Halimeda-bottom. 5. XI.
Paguristes oculatus, *Pisa tetraodon*.
- Stat. 78. Stony, 5-6 fathoms, Caulerpa-,Halimeda-,Posidonia-,brown
algæ-bottom. 5. XI.
Alpheus dentipes, *Synalpheus laevimanus*, *Calcinus ornatus*, *Eupagurus*
anachoretus, *Acanthonyx lunulatus*, *Xantho floridus*, *Xanthias granosus*,
Pilumnus hirtellus.
- Stat. 79. Rough sand and stones, 14 fathoms, Caulerpa-,Halimeda-bottom.
5. XI.
Pisa tetraodon.
- Stat. 82. Boat-drive. 5. XI.
Acanthonyx lunulatus (like the Amphipods living here adapted in their colour
to the brown algæ).
- Stat. 83. Boat-drive. Inner side of the Fort el Ayana, rocky and Posidonia-
meadows. 5. XI.
Porcellana platycheles, *Clibanarius misanthropus*, *Pisa tetraodon*.

Stat. 84. Isle Agami, Inside shoal beach with stones, Posidonia, brown algæ,
little Caulerpa. 5. XI.

Pisa tetraodon.

East Harbour off the Laboratory, 6. XI.

Acanthonyx lunulatus, *Pirimela denticulata*, *Pilumnopeus vauquelini*.

Stat. 87. Gray sand, 4 fathoms, Caulerpa-bottom. 5. XI.

Processa canaliculata, *Upogebia litoralis*.

Stat. 90. Mud, 18 fathoms, Caulerpa-bottom. 6. XI.

Ethusa mascarone.

Stat. 94. $4\frac{1}{2}$ fathoms, Caulerpa-, Halimeda-, Posidonia-Sargassum. 6. XI.

Pisa nodipes, *Xantho floridus*.

Stat. 97. Stony, 4 fathoms, Caulerpa-, Halimeda-, Posidonia-, brown-
algæ-, *Amphioxus*-bottom. 6. XI.

Alpheus dentipes.

Stat. 98. Finer sand., 4 fathoms, Caulerpa-, Posidonia-bottom. 7. XI.

Leander xiphias, *Sicyonia carinata*, *Neptunus hastatus*, *Charybdis merguensis*.

Stat. 100. Mussel-sand, $5\frac{1}{2}$ -6 fathoms, Caulerpa-, Halimeda-bottom. 7. XI.

Hippolyte prideauxiana (green).

Stat. 101. Sand, $5\frac{1}{2}$ fathoms, Caulerpa-, Halimeda-, Posidonia-, brown algæ.

7. XI.

Inachus dorhynchus, *Macropodia longirostris*, *Pisa tetraodon*, (beset with
Hydroids).

Stat. 102. Stones, 5-6 fathoms, *Cystosira*-, Halimeda-Caulerpa. 7. XI.

Athanas nitescens, *Porcellana longicornis*, *Eupagurus anachoretus*, *Pisa*
tetraodon, *Pilumnus hirtellus*.

Stat. 103. Sand, mud, 16 fathoms, Caulerpa-bottom, 7. XI.

Diogenes pugilator, *Macropodia rostrata*.

Stat. 105 b. Dark sand, rotten, 6 fathoms, Posidonia with *Cystosira*. 8. XI.

Upogebia gracilipes, *Charybdis merguensis*, *Macropodia rostrata*.

Stat. 108. Sand, stones, 14 fathoms. Halimeda-, Caulerpa-, brown-algæ
bottom. 8. XI.

Diogenes pugilator.

Stat. 112. Finer sand, little mud, 15 fathoms, Caulerpa-, Halimeda-, *Amphioxus*-
bottom. 9. XI.

Upogebia litoralis.

Stat. 113. Mud, Sand, 20 fathoms, Caulerpa-bottom. 9. XI.

Myra fugax.

Stat. 114. Stones, mud, sand. 25 fathoms, Caulerpa-Halimeda. 11. XI.

Sicyonia carinata, *Paguristes oculatus*, *Ethusa mascarone*.

Stat. 115. Stones. 30 fathoms, Caulerpa-, Halimeda-bottom. 11. XI.

Actaea rufopunctata.

Stat. 116. Sand, mud, 35 fathoms, Caulerpa. Brown-algæ-, Halimeda-bottom.
11. XI.

Paguristes oculatus.

- Stat. 117. Mud, stones. 55 fathoms, Halimeda-, Caulerpa-bottom. 11. XI.
Athanas nitescens.
- Stat. 119. Yellow sand, stones, mud. 5½ fathoms. Caulerpa-, Posidonia-,
Amphioxus-bottom. 12. XI.
Synalpheus laevimanus, *Porcellana longicornis*, *Diogenes pugilator*, *Xanthias*
granosus, *Pilumnus hirtellus*.
- Stat. 122. Rough sand, 5 fathoms, Caulerpa-, Amphioxus-bottom. 12. XI.
Acanthonyx lunulatus.
- Stat. 125. Yellow sand, stones, 6 fathoms. Caulerpa-, Halimeda-, brown-algæ-,
Amphioxus-bottom. 12. XI.
Sicyonia carinata, *Diogenes pugilator*, *Pisa tetraodon*.
- Stat. 126. Dark sand, 9½ fathoms, Caulerpa-, Posidonia-bottom. 13. XI.
Acanthonyx lunulatus.
- Stat. 134. Rough sand, little mud. 6 fathoms-, Caulerpa-Posidonia. Amphioxus-
bottom. 14. XI.
Porcellana longicornis, *Charybdis merguensis*, *Pilumnus hirtellus*.
- Stat. 135. 4 fathoms, Caulerpa-, Posidonia-, Halimeda-bottom. 14. XI.
Porcellana platycheles, *Porcellana longicornis*.
- Stat. 136. 5-6 fathoms, Caulerpa-, Posidonia-, Amphioxus-bottom. 14. XI.
Leander xiphias, *Processa canaliculata*, *Charybdis merguensis*, *Pilumnus*
hirtellus.
- Stat. 137. Dark sand, 4-5 fathoms, Caulerpa-, *Cymodocea*-, brown algæ. 14. XI.
Portunus arcuatus.
- Stat. 138. 3-6 fathoms, Caulerpa-brown-algæ-, Posidonia-, Amphioxus-bottom.
14. XI.
Charybdis merguensis.
- Stat. 139. Rough sand, 2½-5 fathoms. Caulerpa-, Posidonia-bottom. 14. XI.
Porcellana longicornis, *Charybdis merguensis*, *Pilumnus hirtellus*.
- Stat. 140. Stones, rough sand. 4-8 fathoms. Caulerpa-, Posidonia-, Amphioxus-
bottom. 14. XI.
Porcellana platycheles, *Neptunus hastatus*, *Pilumnus hirtellus*.
- Stat. 143. Stony, 13 fathoms, Halimeda-, Amphioxus-bottom. 15. XI.
Synalpheus laevimanus.
- Stat. 144. Rough sand, mud, nearly 18 fathoms. Caulerpa-, Halimeda-bottom.
15. XI.
Charybdis merguensis, *Ethusa mascarone*.
- Stat. 145. Light-gray sand, 21 fathoms, Caulerpa-, bottom. 15. XI.
Inachus dorsettensis.
- Stat. 146. 10-11 fathoms. Caulerpa-, Posidonia-, Halimeda-bottom. 15. XI.
Calcinus ornatus, *Achaeus cranchii*, *Inachus dorsettensis*.
- Pharo, Outside. 16. XI.
Clibanarius misanthropus, *Pachygrapsus marmoratus*.
- Coast of the Bay of Abukir, washed ashore, near Rosetta. 18. XI.
Portunus depurator.

III.—GENERAL PART

1.—*Horizontal Distribution of the Decapods of Alexandria.*

Among the hauls made by Professor STEUER those made in the Bay of Abukir are the most interesting. By the influence of the discharge of the water of the Nile (Rosetta Branch) the water has evidently got more brackish (*vide* STEUER'S introduction, p. 14) so that only euryhalin forms may be expected in it. There had been taken (Stations 40, 41, 42, 44, 46, 47, 48, 50, 51, 52, 56, 57, 58, and trawl) :

- Penaeus trisulcatus.
- Metapenaeus stebbingi } trawl.
- „ monoceros } trawl.
- + Sicyonia carinata (Stat. 42).
- Leander xiphias (42).
- Leander squilla elegans (43).
- Hippolyte prideauxiana (42).
- Processa canaliculata (50).
- Upogebia litoralis (trawl).
- + Upogebia gracilipes (45).
- Porcellana longicornis (50, 51).
- + Paguristes oculatus (50).
- Clibanarius misanthopus (41, 42).
- + Diogenes pugilator (56, 57, 58).
- Portumnus latipes (48).
- Portunus depurator (58).
- Neptunus hastatus (40).
- + Charybdis merguensis (42, 50).
- Myra fugax (51).
- Brachynotus sexdentatus (48, 57, 58, limited to the Bay).
- Pachygrapsus marmoratus.

(The species signed with + had also been noted from the utmost west of the area investigated).

There are altogether 21 species (out of 62) which reach that east most part of the area investigated (without counting of course the shore crab, *Ocypoda hippeus* and the fresh-water shrimp *Caridina nilotica*). As to their habitat they are according to the nature of the bottom sand—and mud-forms, while the species living on plants, that is above all *Oxyrhyncha* are missing, with the only exception of *Hippolyte prideauxiana*.

In the utmost West (St. 105, 106, 107, 108, 109, 114, 115, 116, 117) had been noted :

- + *Sicyonia carinata* (114).
- Athanas nitescens* (117).
- + *Upogebia gracilipes* (105).
- + *Paguristes oculatus* (114, 116).
- + *Diogenes pugilator* (108).
- + *Charybdis merguensis* (105b).
- Ethusa mascarone* (114).
- Macropodia rostrata* (105b).
- Actaea rufopunctata* (115).

(The species signed with + go as far as the Bay of Abukir).

Of these species the rare *Actaea rufopunctata* only is confined to the West (very likely stenohalin), while all the rest reach further eastward.

The principal quantity of Decapods has consequently been found on the way from Abukir to Dekhela; here the crags and above all the algæ-bottoms (*Caulerpa*, *Halimeda*) offer a suitable residence especially for the Oxyrhynchæ.

In Lake Mariotis only *Caridina nilotica*, the notorious fresh-water shrimp, had been met with; in Lake Edku, which is still in communication with the sea, we find *Carcinus maenas* and *Leander squilla elegans* (St. 49, Salinity 2,07 ‰).

The differences between the fauna of the Eastern and Western Harbours, the different character of which STEUER has explained (Introduction, p. 11, 12) are very remarkable.

The Eastern Harbour (less used) is shallow, at its entrance only 8 fathoms deep; the bottom is muddy and covered with *Caulerpa*, *Ulva* and other algæ; it contains a richer Decapod fauna than the Western Harbour.

22 species had been found in it, that is twice as many as in the Western Harbour. They are :

- Processa canaliculata* (St. 32).
- + *Synalpheus laevimanus* (4, 5).
- Alpheus dentipes* (5).
- + *Alpheus crassimanus* (4).
- Athanas nitescens* (34a).
- Leander squilla elegans* (Ep fauna).
- Leander adpersus fabricii* (4, 5, 31, 34a).

- Eupagurus anachoretus (34).
- Diogenes pugilator (5, 31, 32, 33b).
- Paguristes oculatus (4).
- Porcellana longicornis (32, 34).
- Porcellana platycheles (4, near the bath).
- Acanthonyx lunulatus (near the station).
- Carcinus maenas (4).
- Pirimela denticulata (31).
- Portunus depurator (5).
- + Neptunus pelagicus (34a, Point of Silsila).
- Xantho hydrophilus (4, 32, near the bath).
- Xanthias granosus (5).
- + Pilumnus hirtellus (5, 31, 34, near the bath).
- Pilumnopeus vauquelini (Epifauna).
- Pachygrapsus marmoratus (bath).

(The species signed with + occur in the Western Harbour also).

The Western Harbour, being the principal trading harbour is covered in its north-western part with mud and *Caulerpa*; the rest of it is covered with black, stinking mud that contains a scarce euroxybiontic fauna; only from the coal pier there stretches forth in south-western direction a strip of almost clean sand mixed with a little mud only and there occurred *Ilia nucleus* and *Myra fugax* as characteristic forms. There were 11 species of Decapods:

- + *Alpheus crassimanus* (Stat. 10, 11, 12, 15, 17).
- + *Synalpheus laevimanus* (18, at the entrance).
- Upogebia litoralis* (15, 18).
- Ethusa mascarone* (17, 18).
- Ilia nucleus* (15).
- Myra fugax* (13).
- Pisa nodipes* (18, at the entrance).
- Portunus arcuatus* (10).
- + *Neptunus pelagicus* (10).
- + *Pilumnus hirtellus* (17, 18).
- Eucrate crenata* (10, 13, 15).

(The species signed with + had also been found in the Eastern Harbour).

It is striking that only 4 species are common to both harbours and that in the Western Harbour with its more frequent traffic 4 Indo-pacific species (*Eucrate crenata*, *Alpheus crassimanus*, *Myra fugax* and *Neptunus pelagicus*) had been found.

2.— *The Vertical Distribution of the Decapods of Alexandria.*

It is about the same as is known from the Adriatic (compare PESTA'S excellent list, 1918).

Ocypoda hippeus, the well-known horse crab of the Eastern Mediterranean (as well as of the northern and western coast of Africa) is characteristic of the sandy beach, dry at low tide, while one meets *Clibanarius misanthropus*, *Carcinus maenas* (the shore crab), *Xantho hydrophilus*, *Pachygrapsus marmoratus* on crags (supralittoral zone) which are often exposed to air and sun.

In the real littoral zone one can distinguish forms which are less dependent of the depth and reach to about 2-30 fathoms (eurybath forms) and such ones which are bound to certain depths (stenobath forms).

(a) To the first, eurybath forms belong, e.g.:

Paguristes oculatus (1½-110 fathoms).

Processa canaliculata: 4-28 fathoms. (in the Adriatic also 5-200 m. and deeper).

Athanas nitescens: 5-55 fathoms. (in the Adriatic usually between 40-70 m.).

Upogebia gracilipes: 6-33 fathoms. (in the Adriatic also in the upper littoral).

Portunus depurator: 2-38 fathoms. (otherwhere 2-200 m.)

(b) Among the stenobath forms the *uppermost littoral zone* is preferred by:

Leander xiphias: 0-6 fathoms. (in the Adriatic also 2-6 m. in places with rich vegetation).

Leander adpersus fabricii: 0-3½ fathoms. (in the Adriatic the same).

Leander squilla elegans (in the Adriatic the same).

Hippolyte prideauxiana (in the Adriatic on places with rich vegetation, in trifling depths, but also down to 60 m.).

Alpheus dentipes: 0-7 fathoms. (in the Adriatic 4-40 m. especially on stony bottom).

Portunus arcuatus: 4-6 fathoms. (in the Adriatic 5-20 m. and deeper).

Neptunus pelagicus: 0-9 fathoms.

Neptunus hastatus: 1½-8 fathoms (in the Adriatic also in greater depths and pelagic).

Xantho floridus: 4-6 fathoms (in the Adriatic (40-100 m., lower littoral region).

Pilumnus hirtellus: 0-15 fathoms (in the Adriatic 4-50 m. and deeper).

Eucrate crenata: 6-9 fathoms.

Brachynotus sexdentatus: 3-4 fathoms (in the Adriatic in the upmost littoral, $\frac{1}{2}$ -2 m.).

Forms reaching a little *deeper* are :

Penaeus trisulcatus and the two species of *Metapenaeus* (p.t. in the Adriatic 20-360 m.).

Aegeon cataphractus: 17 fathoms (in the Adriatic 10-50 m.).

Eupagurus cuanensis: 10-22 fathoms (in the Adriatic frequently 10-30 m. but occurring also at 400 m.).

Myra fugax: 6-20 fathoms.

Inachus dorrhynchus: $5\frac{1}{2}$ -17 fathoms (in the Adriatic only once between 60 and 80 m.).

Inachus dorsettensis: 10-21 fathoms (in the Adriatic 4-131 m.).

Forms met with still lower down and confined to these depths in the districts near Alexandria are :

Leptochela aculeocaudata: 28-48 fathoms (muddy ground).
Alpheus ruber: 33-50 fathoms, muddy bottom (in the Adriatic 50-100 m.).

Jaxea nocturna: 40 fathoms, muddy ground.

Eurynome aspera: 38-50 fathoms, muddy ground (in the Adriatic 20-50 m. and deeper).

Actaea rufopunctata: 30 fathoms, stony ground.

Goneplax angulata: 40 fathoms, muddy ground (in the Adriatic 40-80 m.).

3.—*Comparison of the Species of Decapods met with near Alexandria with those of the Adriatic.*

Here too PESTA's monograph must serve as a basis ; HELLER's work, fundamental for its time (1863), cannot be used any more for such comparisons, though it is still very useful for determining the species not occurring in the Adriatic. Of course we can at once exclude those Adriatic species mentioned by PESTA which occur in the pelagic or in the lower littoral only or in the deep sea, as the few present hauls from greater depths (more than 50 fathoms) did not contain any Decapods. But also those forms occurring in the littoral of the Adriatic, living in rocks and their creeks may not be expected to be met with near Alexandria, as muddy and sandy bottom is prevailing here. This formation of the ground excludes from the very beginning the lobster (*Homarus gammarus* L.), which lives

between the stones and caves of the bottom where it is hidden during the day. Thus *Scyllarides latus*, the spiny lobster (*Palinurus vulgaris*), living in depths over 60 m. on rocky grounds may not find suitable conditions here, nor the shame crab (*Calappa granulata*) and above all not the common edible crab, *Cancer pagurus*.

The Norwegian lobster (*Nephrops norvegicus*) might be expected there, but it occurs in greater depths only, on sandy and muddy bottom. It is surprising that the common shrimp (*Crangon crangon* (L.)) was not fished, as it is elsewhere met with on sandy and muddy bottom in depths of 20–50 m. and is very eurytherm and eurybath; perhaps the temperature of the water in the upper layers near Alexandria is too high for it and it may be found in greater depths, as well as its close relation *Pontophilus fasciatus* (Risso). One might have expected to catch the sponge crab, *Dromia vulgaris* H.M.E., which is common near the coasts on muddy ground, as well as *Scyllarus arctus* and *Portunus corrugatus* (Pennant), the swimming crab. These species might very likely still be met there, as well as *Eupagurus prideauxi*, *Spirontocaris cranchi* and *Pandalina brevirostris*.

If, however, in the Material taken by STEUER the *Galathea*- and *Munida*-species and the species *Ebalia* are missing the reason is again their preferring stony and rocky bottom.

It is, however, striking that the big spider crabs *Maja squinado* and *Maja verrucosa* are missing in STEUER's material, as they prefer the uppermost littoral and bottoms with much vegetation.

The species *Pontonia* sp., *Typton spongicola*, etc., living in sponges, Ascidians and mussels may still be met there and their absence in our collection may only be explained because they had not been especially looked for.

In the whole one may call the Decapod-fauna near Alexandria a poor one compared with that of the Adriatic; of the 92 species of the Adriatic, which I suppose might be expected near Alexandria on account of the nature of the bottom and of the depth there had been met 45 species only.

The Alexandrian Decapod fauna is, however, richer in some species than the Adriatic. Above all the indo-pacific forms recently immigrated by way of the Suez Canal into the Mediterranean (*vide* p. 63) have not yet reached the Adriatic. Besides, three species are

missing in the Adriatic which occur in the Mediterranean only on the northern coast of Africa ; they are :

Actaea rufopunctata (M.E.) (as yet found only once near Algiers),

Xanthias granosus (A.M.E.&B.) (*see* p. 38).

Ocypoda hippeus Ol., which has altogether a very remarkable distribution (*see* p. 42) and does not deny its descent from a tropical genus.

The following littoral species not met with in the Adriatic but recorded from the rest of the Mediterranean were not found in STEUER's collection :

Albunea carabus (L.) (=guerini Lucas) : Algiers, Oran, Liberia.

Portunus biguttatus Risso : Nice, Genua, Naples, Bône, Cape Verde Islands, Concarneau.

Euchirograpsus liguricus H.M.S. : Nice.

4.—*The Size of the Decapods near Alexandria compared with that of the Same Species in the Adriatic.*

STEUER stated in his introduction (p. 14) that the material from the benthos collected by him did not contain any large forms. This statement concerns also the Decapods. The missing of common lobster, spiny lobster, *Scyllarides latus*, common edible crab (*Cancer pagurus*), *Calappa granulata*, the largest Mediterranean Decapods, has formerly (p. 57) been explained by the want of suitable conditions of the bottom for these forms. Besides, it is however striking that several forms, recorded in greater quantities in Alexandria, very often do not reach the size recorded from the Adriatic. I quote some examples (length of the carapace) :

ADRIATIC	ALEXANDRIA
<i>Ethusa mascarone</i> (♀ with eggs) 16 mm.	7 spec. 8,3-9 mm., 1 ♀ with eggs 8 mm.
<i>Ilia nucleus</i> 15-30 mm.	1 ♂ 11,6 mm.
<i>Pisa tetraodon</i> 30-40 mm. (♀ with eggs upward from 20 mm.).	9 spec. 13,5-22 mm., among them 1 ♀ with eggs of 17 mm.

ADRIATIC	ALEXANDRIA
<i>Pisa nodipes</i> 30-40 mm., ♀ with eggs upward from 22 mm.	2 ♂ 12,8-17 mm.
<i>Carcinus maenas</i> 42 mm.	7 spec. 12-40 mm.
<i>Pirimela denticulata</i> 27 mm.	3 spec. 10-16 mm.
<i>Portumnus latipes</i> 28 mm.	6 spec. up to 15,7 mm.
<i>Portunus depurator</i> 40 mm. (♀ with eggs of 13 mm.).	9 spec. 7-27 mm.
<i>Xantho floridus</i> 18 mm. (♀ with eggs).	2 spec. 9,5 and 15 mm.
<i>Xantho hydrophilus</i> 18 mm. (♀ with eggs).	5 spec. 9-16 mm.
<i>Pilumnus hirtellus</i> 20 mm. (♀ with eggs upward from 9 mm.)	9 spec. 6,3-11 mm., among them 2 ♀ with eggs 6,3-6, 5 mm.
<i>Goneplax angulata</i> 23,5 mm.	1 spec. 8,5 mm.
<i>Brachynotus sexdentatus</i> 8 mm.	5 spec. 4-9,5 mm.

Thus, while there is, *e.g.* no difference in the size of *Brachynotus sexdentatus* and *Carcinus maenas* there is a remarkable one in *Pisa tetraodon*, *Ethusa mascarone* and *Pilumnus hirtellus*. Of course the number of specimens is too small to furnish a proof; they may, however, give a support for further investigations in this direction (to this problem *see* REMANE, 1934, p. 62).

5.— *Further Geographical Relations.*

Among the littoral Decapods from Alexandria one may distinguish two large groups, namely:

a. forms belonging originally to the Mediterranean fauna.

b. forms immigrated or transported lately in consequence of the opening of the Suez Canal, deriving from the Indo-pacific.

(1) The Mediterranean fauna of Alexandria:

(*a*) The main quantity of Mediterranean forms are such ones, as are peculiar not only to the Mediterranean but are also met with in the East Atlantic up to the Northern Sea even to Norway. They are the so-called Lusitanian species, advancing not only as far as the Mediterranean but also to the western coast of Africa (about as far as Gorree, Senegambia).

I mention as such :

<i>Penaeus trisulcatus.</i>	<i>Inachus dorhynchus.</i>
<i>Leander adspersus fabricii.</i>	<i>Inachus dorsettensis.</i>
<i>Hippolyte prideauxiana.</i>	<i>Macropodia rostrata.</i>
<i>Athanas nitescens.</i>	<i>Macropodia longirostris.</i>
<i>Alpheus ruber.</i>	<i>Pisa tetraodon.</i>
<i>Processa canaliculata.</i>	<i>Eurynome aspera.</i>
<i>Jaxea nocturna.</i>	<i>Carcinus maenas.</i>
<i>Upogebia litoralis.</i>	<i>Primela denticulata.</i>
<i>Upogebia deltaura.</i>	<i>Portumnus latipes.</i>
<i>Porcellana platycheles.</i>	<i>Portunus depurator.</i>
<i>Porcellana longicornis.</i>	<i>Portunus arcuatus.</i>
<i>Clibanarius misanthropus.</i>	<i>Xantho hydrophilus.</i>
<i>Diogenes pugilator.</i>	<i>Xantho floridus.</i>
<i>Eupagurus anachoretus.</i>	<i>Pilumnus hirtellus.</i>
<i>Eupagurus cuanensis.</i>	<i>Goneplax angulata.</i>
<i>Achaeus cranchii.</i>	<i>Pachygrapsus marmoratus.</i>

(b) A part of the Mediterranean species does not reach the Northern Sea but only Portugal and the western coast of Africa. They prefer warmer water. Of the Decapods from Alexandria there belong to them :

<i>Sicyonia carinata.</i>	<i>Ethusa mascarone.</i>
<i>Leander squilla elegans.</i>	<i>Iia nucleus.</i>
<i>Alpheus dentipes.</i>	<i>Acanthonyx lunulatus.</i>
<i>Aegeon cataphractus.</i>	<i>Neptunus hastatus.</i>
<i>Calcinus ornatus.</i>	<i>Xanthias granosus.</i>
<i>Paguristes oculatus.</i>	<i>Ocyroda hippeus.</i>

(c) Only a few species from Alexandria are quite endemic in the Mediterranean, namely :

Leander xiphias.
Synalpheus laevimanus.
Upogebia gracilipes.
Pisa nodipes.
Brachynotus sexdentatus.

PESTA'S list of the species endemic in the Mediterranean (1918, p. 473) is no more quite reliable to-day.

OLD RELATIONS BETWEEN THE MEDITERRANEAN AND THE INDO-PACIFIC

Among the littoral Decapods of the Mediterranean we meet many species, belonging to genera, which are otherwise chiefly Indo-pacific; their occurrence must, therefore, be regarded as a relic of the old Tethys Ocean.

This Tethys Ocean (*see* EKMAN, 1934) existed since Cambrian down to about the middle of the Tertiary Period (though not always in the same extension) and parted the continents by way of a girdle round the globe in a northern and a southern half. It showed a

uniform faunistic appearance of tropical character. Especially the East Atlantic showed at the Cretaceous Period a fauna that is closely related to the Indo-pacific fauna of to-day. Only later did the Mediterranean get a fauna adapted to colder temperatures from the North Atlantic which has, therefore, no representatives in the Indo-pacific of to-day.

As a criterium for genera that had belonged to the Tethys fauna we must put the following conditions as to their present distribution :

(1) The species must live in the upper littoral, because forms from greater depths might be expected to have a communication on the bottom of the Atlantic as, *e.g.* it must be assumed for *Bathynectes superbus* Costa, which has the following distribution :

Europe, Norway to the Cape Verde Islands, Mediterranean, Black Sea ; America : New England to Florida. Depths of 128-1410 m.

(2) The species must be warm water-forms so that it may be assumed impossible that they wander round West Africa at the Cape of Good Hope with the cold Benguela Current in the Namanquanenian District (*see* BALSS, 1922, p. 103).

(3) They may not occasionally occur pelagic and may not be forms fastened to floating wood, etc., as is the case, *e.g.* with *Percnon*, a form that is still at the present time transported passively over far distances of the ocean.

I quote the following examples which may be regarded as such old relics from the Tethys Ocean :

Species	Tropical Indo-pacific	Tropical West-Africa	Tropical America	
			Eastern Coast	Western Coast
Penacus	+	+	+	+
Solenocera	+	+	+	+
Sicyonia	+	+	+	+
Alpheus	+	+	+	+
Upogebia	+	+	+	+
Callianassa... ..	+	+	+	+
Paguristes	+	+	+	+
Clibanarius... ..	+	+	+	+
Calcinus	+	+	+	+
Xantho	+	+	+	+
Actaea	+	+	+	+
Eriphia	+	+	+	+

At a further analysis we are chiefly interested in such species of the Mediterranean that have their next relatives in the Indo-pacific, and the distribution of which is therefore to be explained by the Syrian-Persian communication of the sea at the Cretaceous Period (see *Fig. 1*, Ekman, 1934, p. 334). As such forms I quote:

Athanas nitescens : The whole genus is recorded besides only from the Indo-pacific (except *Athanas grimaldi* from the western coast of Africa.

Lysmata seticaudata : Recorded from the Mediterranean, East Atlantic, besides as subsp. *ternatensis* from Japan (?) and the Malayan Archipelago.

Typton spongicola : The next relation of the species is *T. Bouvieri Nobili* from the Red Sea.

Paguristes oculatus : Closely related to *P. balanophilus* from India.

Diogenes pugilator : The species is tropical, from the Old World only, occurs along the western coast of Africa, however not reaching America.

Ilia nucleus : This species (and the closely related *I. spinosa* Miers from West Africa) are the only ones of the genus that are closely related to *Heterolithadia* Wood-Mason (Indic, Malayan Archipelago). *Ilia* has also been found in several species in the Pliocene in Italy.

Actaea rufopunctata : This species is circumtropical, in the West Indies however replaced by the vicarious subsp. *nodosa* ; at the western coast of America it is replaced by the species *A. sulcata*.

Xanthias granosus : The genus is circumtropical; the species however is most closely related to the indo-pacific *X. lamarekii*.

Pachygrapsus transversus : The species is also at the present time almost circumtropical: Mediterranean, western coast of Africa, West Indies, California to Peru, Tahiti, New Zealand, East-Australia.

Portunus corrugatus : This species is spread not only in the Mediterranean and East Atlantic (from England to Angola) but is also met with in the Indo-pacific (Japan, south-east and south coast of Australia and North New-Zealand.

6.—*The more Recent Immigrants from the Indo-pacific.*

Of the Decapods immigrated more recently, that is since the existence of the Suez Canal, the following forms occur in Prof. STEUER'S material from Alexandria, this being for them a new locality :

(a) Species already known from the Mediterranean :

(i) *Metapenaeus stebbingi* Nob.

(ii) *Metapenaeus monoceros* (Fabr.).

These two species had been found in the only trawl in the Bay of Abukir; they had been recorded already by the Cambridge Expedition in 1924 out of the Suez Canal and from Port Said, where *M. stebbingi* is so common, that it is brought to the fish-market.

(iii) *Myra fugax* Fabr.

This species also recorded by the same expedition from the Suez Canal has spread along the Syrian coast, where it has been noted in Jaffa and in the Bay of Alexandrette by Monod.

(iv) *Charybdis merguensis* de Man.

This form too is recorded from Jaffa (Monod) and Haifa (Steinitz) (up to now not yet met with in the Suez Canal).

(v) *Neptunus pelagicus* (L.).

We are a little better informed on the history of distribution of this frequent (edible) crab (see STEINITZ, 1929, p. 79); it had first been met with in the Bitter Lake in 1886, appeared 1898 in Port Said and is recorded at the present time westward of Mersa Matruh (about 500 kilometres westward from Port Said), as well as along the Syrian coast in the Gulf of Alexandrette (MONOD), Beirut and Haifa (STEINITZ).

(vi). *Pilumnopus vauquelini* (Aud).

This form too had been taken in 1886 in the Bitter Lake, had been recorded by the Cambridge Expedition in 1924 from Port Said but apparently has not spread along the Syrian coast.

(vii) *Eucrate crenata* de Haan.

This species too is recorded up to now from the Suez Canal and Port Said only.

(viii) *Leptochela aculeocaudata* Paulson.

This species (up to the present not yet recorded from the Suez Canal, however found in the Red Sea) is very likely more widely spread and can easily be overlooked on account of its smallness. Its acclimatisation may be taken for granted, there having been a ♀ with eggs. in STEUER's material.

(ix) *Alpheus crassimanus* Heller.

It has also not yet been recorded from the Suez Canal. It has been met with in the Eastern and Western harbours only, very likely having been transported there by ships. As there had been 1 ♀ with eggs we may regard it too as acclimatised.

(x) *Pilumnus hirsutus* Stimpson.

It has not yet been known from the Suez Canal. As there was only 1 ♂ in the material nothing certain may be said on its likely acclimatisation in the Mediterranean.

Finally, I enumerate the species known till now from the Mediterranean but not found by Professor STEUER :

Penaeus canaliculatus Ol. is recorded from the Suez Canal and from Port Said. (BALSS, 1927).

Penaeus japonicus Bate has been noted from the Gulf of Alexandrette (MONOD, 1931, p. 420).

Penaeus semisulcatus De HAAN also noted from the Gulf of Alexandrette (MONOD, 1931, p. 420).

Trachypenaeus curvirostris (Stimpson) has also been recorded from the Suez Canal and from Haifa (STEINITZ, 1934).

These Penacids might perhaps be found near Alexandria in further trawls.

Alpheus audouini Cout. is recorded from Port Said (BALSS, 1927, p. 222).

Periclimenes calmani Tatt. is known from the Suez Canal and from Port Said (BALSS, 1927, p. 223).

Charybdis sexdentata Fabr. is recorded by STEINITZ from Haifa.

Ocypoda cordimana Latr. also comes from Haifa (STEINITZ).

GUERIN's old statements on the occurrence of *Petrolisthes bosci* Aud. and *Thalamita admeta* Latr. off Greece may be neglected, as these species have never since been met with in the Mediterranean so that we may have doubts on the exact determination or locality of GUERIN's specimens. We need also not occupy ourselves with *Thenus orientalis*, *Neptunus sanguinolentus* and *Uca coarctata* which have once been met with near Fiume ; they have merely been transported but not acclimatized (see STEINITZ, 1929, p. 79).

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