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MARINE AMPHIPODS FROM PANTELLERIA AND CATANIA (SICILY)

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ABSTRACT

During two stays, in 1970 and 1973 at Pantelleria and Catania, a total of 48 samples from algae and sand were collected yielding 90 species of Amphipoda. Systematic problems were posed by the following species: *Gammaropsis* cf. *erythrophthalma*, *Gammaropsis* n. sp., *Lysianassa pilicornis*, *Microjassa cumbrensis*, *Micropythia carinata*, *Panoploea minuta*, and *Photis longipes*. *Panoploea* and *Lysianassa* are figured here. The generic name *Micropythia* nom. nov. is proposed for *Pythia* Krapp-Schickel, 1972, nec Bolten, 1798. Faunal successions on three algae-covered slopes near Catania are analyzed. Two diagrams give ecological information: a matrix of homogeneity of those samples taken in 1970 having a high mutual homogeneity, and a schematical succession of the biotopes where algae were sampled along a slope on the coast of the islet of Lachea, with their respective interrelationships.

INTRODUCTION

In September 1970 I had the opportunity to join a group of botanists from the universities of Trieste, Padova, Palermo and Catania who intended to collect algae at the island of Pantelleria. After five days collecting, breakers grew so heavy that skin-diving in the waters of the exposed coasts of the island became too great a risk. The excursion was interrupted and I was invited to spend another five days to collect near Catania. The excursion resulted for me in 19 samples of amphipods from Pantelleria containing 46 species with 2744 specimens, and 12 samples, with 65 species, in 2671 specimens from Catania. In 1973 I paid again a visit to the Strait of Messina to work at the Institute of Botany in Catania. The same stations as in 1970 were visited, and 17 samples now contained 72 species in 4635 specimens.

The 1970 collection from Catania contained as the most spectacular find a specimen of *Microjassa* sp. which we considered for a long time to be an undescribed species. In cooperation with Ulrich Schiecke, Kiel, the entire life cycle of this animal could be established and we could relate

it with high probability to the already known juvenile morphs of *Microjassa cumbrensis* (Stebbing & Robertson). A description of the developmental series up to the hyperadult form has been published in a separate paper (Krapp-Schickel & Schiecke, 1974).

LIST OF SAMPLES

P a n t e l l e r i a: 14 - 19 IX 1970

1 *Cystoseira sedoides*, 1.5 m, Punta Fram: *Stenothoe tergestina* 50%, *Elasmopus pocillimanus* 17%, *Pereionotus testudo* 11%.

2 *Corallina granifera* upon *Cystoseira*, 1 m, Punta Fram: *Elasmopus pocillimanus* 57%, *Dexamine spiniventris* 11%, *Hyale schmidti* 10%.

3 *Laurencia papillosa, Cladophora pellucida, Peyssonelia, Corallina*, 0.5 m, Cuddie Rosse: *Hyale schmidti* 64%, *Amphithoe ramondi* 10%, *Elasmopus pocillimanus* 9%.

4 *Cystoseira brachycarpa, Cystoseira spinosa, Cystoseira sauvageauana*, 12 m, Cuddie Rosse: *Hyale schmidti* 14%, *Amphithoe ramondi* 13%, *Apherusa alacris* 12%.

5 *Cystoseira stricta*, 1.5 m, Cuddie Rosse: *Hyale schmidti* 64%, *Elasmopus pocillimanus* 26%, *Jassa falcata* 8%.

6 *Cystoseira stricta*, 0.5-1.0 m, Cuddie Rosse: *Hyale schmidti* 96%, *Caprella liparotensis* 3%, *Podocerus variegatus* 1%.

7 *Posidonia oceanica*, 1 m, Port of Pantelleria: *Microdeutopus damnoniensis* 36%, *Amphithoe bicuspis* 26%, *Elasmopus pocillimanus* 7%.

8 *Sargassum* sp., *Halopteris scoparia, Pterocladia capillacea*, 1-2 m, Port of Pantelleria: *Hyale schmidti* 25%, *Sunamphithoe pelagica* 23%, *Elasmopus pocillimanus* 10%.

11 *Cystoseira spinosa* and *Posidonia*, 5 m, Punta Scauri: *Amphithoe bicuspis* 31%, *Leucothoe spinicarpa* 8%, *Maera inaequipes* 8%.

12 *Pterocladia capillacea, Laurencia papillosa*, 1 m, Punta Scauri: *Hyale schmidti* 38%, *Amphithoe bicuspis* 16%, *Dexamine spiniventris* 7%.

13 *Dictyopteris membranacea, Cladophora* sp., 1-2 m, Port of Pantelleria: *Elasmopus pocillimanus* 25%, *Hyale schmidti* 16%, *Pereionotus testudo* 14%.

14 *Cladostephus verticillatus, Cystoseira sedoides*, 0.5 m, Punta Scauri: *Hyale schmidti* 38%, *Amphithoe bicuspis* 32%, *Stenothoe tergestina* 9%.

15 *Cystoseira sedoides*, 1 m, Punta Scauri: *Amphithoe bicuspis* 27%, *Amphilochus neapolitanus* 18%, *Gitana sarsi* 13%.

16 *Cystoseira stricta*, 1.5 m, Punta Scauri: *Hyale schmidti* 30%, *Elasmopus pocillimanus* 20%, *Stenothoe tergestina* 13%.

17 *Cystoseira fimbriata, Laurencia papillosa*, 0.0 m, Punta Fram: *Hyale schmidti* 64%, *Stenothoe tergestina* 7%, *Microdeutopus algicola* 6%.

18 *Laurencia papillosa*, 0.2 m, Punta Fram: *Microdeutopus algicola* 45%, *Elasmopus pocillimanus* 20%, *Dexamine spiniventris* 15%.

19 *Anadyomene stellata, Laurencia papillosa, Cystoseira sauvageauana*, 0.5 m, Punta Fram: *Microdeutopus algicola* 52%, *Hyale schmidti* 13%, *Elasmopus pocillimanus* 10%.

20 *Anadyomene stellata*, 0.5 m, Punta Fram: *Microdeutopus algicola* 61%, *Pereionotus testudo* 11%, *Gammarella fucicola* 11%.

22 *Zostera*, only rhizoids, with sand, 1.0-1.5 m, Port of Pantelleria: *Microdeutopus versiculatus* 53%, *Elasmopus pocillimanus* 15%, *Erichthonius brasiliensis* 9%.

C a t a n i a: 21 - 25 IX 1970

23 *Halopteris scoparia*, 1 m, Isola Lachea: *Podocerus variegatus* 10%, *Elasmopus pocillimanus* 10%, *Hyale schmidti* 10%.

24 *Dictyopteris membranacea*, 1.5 m, Isola Lachea: *Hyale schmidti* 33%, *Amphithoe ramondi* 12%, *Stenothoe gallensis* 10%.

25 *Padina pavonia, Jania rubens*, 2-4 m, Isola Lachea: *Maera inaequipes* 11%, *Hyale schmidti* 10%, *Elasmopus pocillimanus* 10%.

26 *Sargassum* sp., *Jania rubens, Zonaria tournefortii* and epiphytes, 6.0 m, Isola Lachea: *Dexamine spiniventris* 20%, *Gammaropsis* cf. *erythrophthalma* 14%, *Hyale camptonyx* 11%.

27 *Posidonia* sp. fronds only, 12 m, Isola Lachea: *Liljeborgia dellavallei* 17%, *Leptocheirus bispinosus* 17%, *Ampelisca tenuicornis* 17%.

28 *Posidonia* sp. rhizoids with sand only, 12-20 m, Isola Lachea: *Ampelisca serraticaudata* 12%, *Pereionotus testudo* 11%, *Leptocheirus bispinosus* 10%.

29 Sand, 40 m, Capo Molini: *Photis longipes* 47%, *Ampelisca tenuicornis* 25%, *Microjassa cumbrensis* 7%.

30 *Codium bursa*, red algae, 25 m, Capo Molini: *Pseudoprotella phasma* 19%, *Lysianassa pilicornis* 15%, *Gammaropsis* cf. *erythrophthalma* 12%, *Stenothoe tergestina* 12%.

31 *Fauchea repens, Lomentaria linearis, Sebdenia monardina, Valonia utricularis*, 35 m, Capo Molini: *Phtisica marina* 36%, *Gammaropsis* nov. sp. 26%, *Stenothoe tergestina* 9%.

32 *Sargassum* sp. with epiphytes, 7 m, Capo Molini: *Pseudoprotella phasma* 15%, *Dexamine spiniventris* 14%, *Pereionotus testudo* 10%.

33 *Cystoseira spicata, Halopteris scoparia*, 4 m, Capo Molini: *Hyale camptonyx* 19%, *Amphilochus neapolitanus* 13%, *Dexamine spiniventris* 11%.

34 *Sargassum* sp. with epiphytes, 7 m, Isola Lachea: *Hyale schmidti* 35%, *Apherusa bispinosa* 19%, *Dexamine spiniventris* 10%, *Amphithoe ramondi* 8%.

C a t a n i a: 11 - 13 X 1973

41 Hydroids, 1.5 m, Capo Molini: *Stenothoe gallensis* 24%, *Hyale schmidti* 18%, *Caprella liparotensis* 16%.

42 Porifera, corals, 6 m, Capo Molini: *Pseudoprotella phasma* 36%, *Phtisica marina* 18%, *Stenothoe dollfusi* 15%.

43 Sand, 28 m, Capo Molini: *Ampelisca serraticaudata* 75%, *Photis longipes* 25%.

44 Porifera, corals, 28 m, Capo Molini: *Guernea coalita* 21%, *Caprella acanthifera* 11%, *Phtisica marina* 10%.

45 *Pterocladia capillacea*, 1-2 m, Capo Molini: *Caprella liparotensis* 34%, *Hyale schmidti* 29%, *Stenothoe gallensis* 19%.

46 *Cystoseira zosteroides* = *opuntioides*, 28 m, Capo Molini: *Lysianassa pilicornis* 13%, *Panoploea minuta* 12%, *Pseudoprotella phasma* 10%.

47 *Cystoseira stricta*, 1 m, Capo Molini: *Jassa*

falcata 43%, *Hyale schmidti* 26%, *Stenothoe gallensis* 18%.

48 *Cystoseira dubia* = *fucoides*, 20 m, Capo Molini: *Cressa dubia* 21%, *Pseudoprotella phasma* 18%, *Pereionotus testudo* 13%.

49 *Cystoseira ercegovici* = *discors*, *Codium bursa*, 18 m, Capo Molini: *Caprella liparotensis* 36%, *Biancolina algicola* 21%, *Pleonexes biscuspis* 14%, *Erichthonius brasiliensis* 12%.

50 *Cystoseira balearica*, with *Aglaophenia tubiformis*, *A. octodonta*, 3 m, Capo Molini: *Elasmopus pocillimanus* 19%, *Stenothoe gallensis* 17%, *Caprella liparotensis* 13%.

51 Sand, 35 m, Isola Lachea: *Erichthonius brasiliensis* 21%, *Phtisica marina* 14%, *Stenothoe dollfusi* 14%.

52 Porifera, Ascidiacea, *Aglaophenia picardi* (cf. Svoboda, 1974) (Hydroida), 32 m, Isola Lachea: *Gammaropsis* n. sp. 16%, *Phtisica marina* 14%, *Lembos* sp. 10%.

53 *Cystoseira dubia*, the octocoral *Eunicella* sp., the hydroids *Aglaophenia kirchenpaueri* and *A. picardi* (cf. Svoboda, 1974), 32 m, Isola Lachea: *Stenothoe gallensis* 24%, *Gammaropsis* n. sp. 17%, *Pseudoprotella phasma* 15%.

54 *Udothea* sp., *Peyssonelia squamaria*, 10 m, Isola Lachea: *Stenothoe dollfusi* 32%, *Gammaropsis* cf. *erythrophthalma* 14%, *Pseudoprotella phasma* 9%.

55 Cave with Porifera and red algae, 10 m, Isola Lachea: *Gammaropsis* n. sp., 35%, *Phtisica marina* 18%, *Pseudoprotella phasma* 9%.

56 *Cystoseira sauvageana*, 10 m, Isola Lachea: *Gammaropsis* n. sp., 13%, *Podocerus variegatus* 10%, *Hyale camptonyx* 10%, *Pereionotus testudo* 10%.

57 *Cystoseira stricta*, *Cystoseira mediterranea*, 1 m, Isola Lachea: *Stenothoe gallensis* 30%, *Sunamphithoe pelagica* 21%, *Elasmopus pocillimanus* 13%, *Caprella liparotensis* 12%.

SYSTEMATICS

In the present paper no reference is given to the synonymies of the species found. This was extensively done in previous publications (Krapp-Schickel, 1969, 1971, 1974; Geldiay, Kocataş & Krapp-Schickel, 1971), and would be a mere repetition, as in all my collections the main emphasis is laid on phytal-inhabiting forms. The present study is intended to give information on the species encountered and the frequency of their occurrence; the important dominances may be found in the list of samples.

Only some systematic details merit special mention: *Gammaropsis* cf. *erythrophthalma* sensu Schellenberg, 1942: *G. erythrophthalma* Liljeborg, 1855, according to Sars, 1894, Stebbing, 1906, as well as Chevreux & Fage, 1925, is said to be identical with *Eurystheus maculatus* (Johnston, 1827). This opinion is erroneous. A solution of the problem is proposed in Myers & Krapp-Schickel, 1976.

Gammaropsis n. sp.: This species is morphologically quite similar to the preceding one, but has two very conspicuous dorsal teeth on the last urosomal segment, and a somewhat different shape of the gnathopods (cf. Myers & Krapp-Schickel, 1976).

Gammaropsis maculatus: this is probably Johnston's species, not the one referred to under this name by Chevreux & Fage, 1925.

Microjassa cumbrensis (fig. 7 below): see Krapp-Schickel & Schiecke, 1974.

Micropythia carinata (*Pythia carinata* Krapp-Schickel, 1972: 177-189, figs. 1-5). In 1972 I created for *Hyale carinata* the new genus *Pythia*. But - as I was informed by an Austrian colleague - this name is preoccupied by an oriental snail genus, described by J.F. Bolten, 1798, so I have to replace it once again by the generic name *Micropythia* nom. nov.

Lysianassa pilicornis (figs. 1, 2, 3). In a previous work (Krapp-Schickel, 1974) I redescribed Heller's *Lysianassa pilicornis* ♂. As it showed no appreciable differences from *Lysianassa* (*Arugella*) *bispinosa*, I thought it to be the adult ♂ of this same species, of which previously only the juvenile ♂ was described. By this synonymy *L. pilicornis* by priority became the valid name for the species hitherto called *L. bispinosa*. As I noticed some occasional reservation as regards this synonymy, I give a figure of a ♀ from Della Valle's type collection to adstruct my arguments. It agrees in all characters with the material from Sicily and Pantelleria.

Panoploea minuta (fig. 4). The figure shows that a distinction between *Iphimedia* and *Panoploea* is rather difficult. Keys lay much attention on the mouth parts and the third epimeral plate. However, the articles of the palp of the maxilliped as well as the maxilla change in their relative proportions during growth of *Panoploea* species. A maxilliped with the external lobe shorter than the penultimate palp article should belong to *Panoploea*, in case it is longer to *Iphimedia*, but this is as little reliable as the characters of the maxillae (see fig. 4). The palp of maxilla 1 in a 2 mm long specimen from Pantelleria is considerably longer than the external lobe (which should be indicative of *Iphimedia*), in an animal of 3.5 mm from Sicily it is shorter (as described for *Panoploea*). The series examined is called *P. minu-*

ta on account of the denticulation of epimeral plate 3 and the form of the palp of maxilla 1, consisting of two slender articles, the second of which is barely twice the length of the first (in *Iphimedia* of threefold length). According to Chevreux & Fage (1925) the lower lip is also of some identification value; Sars, 1895, gives a drawing of the lower lip in *Iphimedia obesa*, which is practically identical with the same appendix in *Panoploea minuta* as illustrated by Chevreux & Fage. The dentation of the base of pereiopod 7 is very apparent in juveniles, and it seems that this becomes less conspicuous during growth. In résumé, both genera are so closely related, that it should be considered to withdraw the more recently established *Panoploea* into the older genus.

Photis longipes (figs. 5, 6, 7 top) (*Cerapopsis longipes* Della Valle, 1893: 388; pl. 3, fig. 10; pl. 9, figs. 20-40; pl. 56, fig. 1. *Photis longicarpa* Chevreux, 1925: 374-376, figs. 18-19). A representative series of this species containing various developmental stages was fully convincing in demonstrating the identity of *Cerapopsis longipes* Della Valle (see fig. 7) with *Photis longicarpa* Chevreux, since the small inner ramus of the third uropod apparently disappears during the maturation process. This means that not only the allocation of these genera into separate families (Barnard, 1958, 1969, included *Cerapopsis* in the family Corophiidae; in Barnard, 1973, Photidae, Aoridae and Isaeidae are all united to Corophiidae), but likewise that the separation of the two genera is not tenable.

A considerable part of the 1970 collection was deposited in the Zoölogisch Museum of the University of Amsterdam, whereas all amphipods collected in 1973 are stored in the Museo Civico di Storia naturale of Verona.

ECOLOGY

In fig. 8 selected samples from Pantelleria and Catania 1970 are plotted against eachother in a homogeneity diagram (cf. Krapp-Schickel, 1969, 1971, 1974 a). Three homogeneity classes are indicated: solid black for combinations exceeding a value of 45%, hatching indicates homogeneity values between 45% and 30%, and open spaces mean homogeneity values below 30%.

Samples 6, 5, 17, and 3 each contain over 60% *Hyale schmidti*; they come from exposed *Cystoseira* and *Laurencia* at the water-line. Samples 12, 14, 16, 24, 34, and 8, next in succession in fig. 8, contain about 35% *Hyale schmidti* and originate from algae growing in more protected, mostly deeper, sites richer in sedimentation (at about 1.5 m). The latter three of these samples contain *Amphithoe ramondi* and *Sunamphithoe pelagica*, whereas the first two present *Amphithoe bicuspis*. The two black triangles formed by this sample group are the largest in the whole diagram; they comprise 8 samples from Pantelleria and only 2 from Catania. This accentuates a conclusion that may be drawn also from the sample list: at Pantelleria samples were taken at several places along its coast, accordingly the habitat: *Cystoseira* exposed to the surf dominates. At Catania an attempt was made to sample a series of different biotopes on the same slope, so each of the samples differs much more from the others in faunal composition. Some lesser groups embrace samples meriting special mention: 13, 25, 4, and 23 come from even greater depth as the preceding ones, viz. 2-12 m; no species is dominant, but the samples possess in common quite a number of species of comparable frequency, among them *Hyale schmidti* with 10-16%. Samples 11 and 15 contain 27-31% *Amphithoe bicuspis*, these sites were situated in a channel carved by splashing surf water, overgrown by *Anadyomene* and *Laurencia* with very much sediment and very slight water motion. Hatched quadrangles in the matrix are good indicators for a transitional fauna, i.e. a faunal composition without distinct concentrations.

Fig. 9 depicts schematically the biotopes along a slope of the coast of Isola Lachea, where samples were taken from 1-12 m. Greatest homogeneity unites samples 23 and 25 (cf. list of samples), both are little exposed and accumulate detritus in the algae *Halopteris* and *Jania*. *Hyale schmidti* and *Elasmopus pocillimanus* are represented with a frequency of 10% each. The supple, floating *Dictyopteris membranacea* (24) holds over 30% *Hyale schmidti*; in common with the equally floating *Sargassum* (26) they hold *Amphithoe ramondi* as well as *Microjassa cumbrensis*, whereas in sample 25 (*Padina pavonia* with epiphytic *Jania*, on rocks and large pebbles) *Photis longipes* occurs, which in some morphological details is convergent with

Microjassa (see fig. 7). It seems justified to deduct from this apparent vicariance of these forcefully clasping forms, that *Photis longipes* with more robust gnathopods is better adapted to cling to a holdfast among pebbles and gravel, whereas *Microjassa* with a slender body and a slender propodus in the second gnathopod preferably chooses sand with detritus. It should be emphasized that both species have the dactyls of second male gnathopod furnished distally with long setae.

Remarkable are the relations between samples 27 and 28: mutually they have very little in common. But the fauna of the strongly moving fronds of *Posidonia* at 12 m (sample 27) is quite similar to that of the superficial *Halopteris* (sample 23); *Posidonia*-rhizomes on the other hand (28) compare well with *Padina* on and among pebbles and boulders (sample 25, 2-4 m), equally rich in detritus.

Another series of samples on a slope of Isola Lachea is formed by 51-57. Sample 51 from sand at 35 m contains a mixed fauna rich in species being not very typical for a sand-fauna. Sample 52 (32 m, dark cave) and 55 (10 m, shadowy niche) share *Gammaropsis* sp. and *Phtisica marina*; 53 (32 m, *Cystoseira*) and 54 (10 m, *Udothea, Peyssonelia*) *Pseudoprotella phasma*. The pairs of samples from the same depth (52/53 and 54/55) show very little correspondence. It should be noticed, that *Gammaropsis* cf. *erythrophthalma* preferably lives at 10 m, at 32 m, however, *Gammaropsis* n. sp. occurs. - Samples 56 and 57 at last are algal samples from shallow waters containing *Elasmopus pocillimanus* and *Amphithoe ramondi*, so mutually quite similar.

The series of samples 29-32 (Capo Molini, Catania) may be lumped into several groups: 29 comes from sand at 40 m and contains *Perioculodes, Metaphoxus*, and *Phtisica*, rather typical sand inhabitants. Samples 30/31 from algae at 25 and 35 m, respectively, have *Leucothoe spinicarpa, Phtisica marina*, and *Stenothoe tergestina* in common. Samples 32/33 from 7 and 4 m depth are characteristically shallow algae samples with *Dexamine spiniventris, Hyale schmidti, Pseudoprotella phasma, Pereionotus testudo*, and *Sunamphithoe pelagica*.

The last series embraces the samples 43-50 from Capo Molini. Sample 43 comes from sand at a depth of 28 m containing *Photis longipes* and *Ampelisca serraticaudata*. Samples 46/48, from *Cystoseira* at 28 and 20 m contain *Cressa dubia, Biancolina algicola, Pseudoprotella phasma* and *Lysianassa pilicornis*. Samples 42/44 come from "sciaphilo" at 10 and 27 m, shadowy caves or niches; in common they possess *Gammaropsis* n. sp. and *Phtisica marina*, the same components as in 52/55 (see above). Samples 49/50 originate from *Cystoseira* taken at 18 and 3 m; the faunal composition is similar, yet the depths are too different to permit close resemblances. *Caprella liparotensis* abounds in the deep sample with 36%, in the shallow one it is represented by 13% only; *Stenothoe gallensis*, the shallow water species of the genus, represents 1% of the faunal spectre at 18 m, 17% at 3 m; *Amphithoe ramondi* is present with 7% in both samples; finally *Elasmopus pocillimanus* amounts to 1% in the deeper sample, against 19% near the surface. It must be stressed that similarities between samples 49 and 50 from sunny *Cystoseira* are greater than those between 48 (*Cystoseira dubia*, shadowy, 20 m) and 49 at the same depth.

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In 1973 my husband, our friend Wim Vader (Tromsø) and myself travelled for the sake of the enlargement of the amphipod collection of the Veronese Natural History Museum; once more we enjoyed the hospitality of the Scammacca family and the kind aid of Prof. F. Furnari. Algae were identified by Drs. Giuseppe Furnari and Blasco Scammacca of Catania; the *Aglaophenia*-species present were identified by Dr. Armin Svoboda (Vienna). For information about the Pantopoda collected in the 1970-samples, see Krapp, 1973.

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Fig. 1 *Lysianax bispinosus* Della Valle, 1893, ♀, from the type series (= ? *Lysianassa pilicornis* Heller, 1886 ?, cf. Krapp-Schickel, 1974).
1, Maxilla I, enlarged; 2, maxilla I, total view; 3, gnathopod II; 4, maxilliped; 5, gnathopod I; 6, lower lip; 7, second maxilla; 8, upper lip.

Fig. 2 *Lysianax bispinosus* Della Valle, 1893, ♀, from the type series.
1, antennae; 2, pereiopod IV; 3, pereiopod III; 4, uropod III; 5, epimeral plate III; 6, telson.

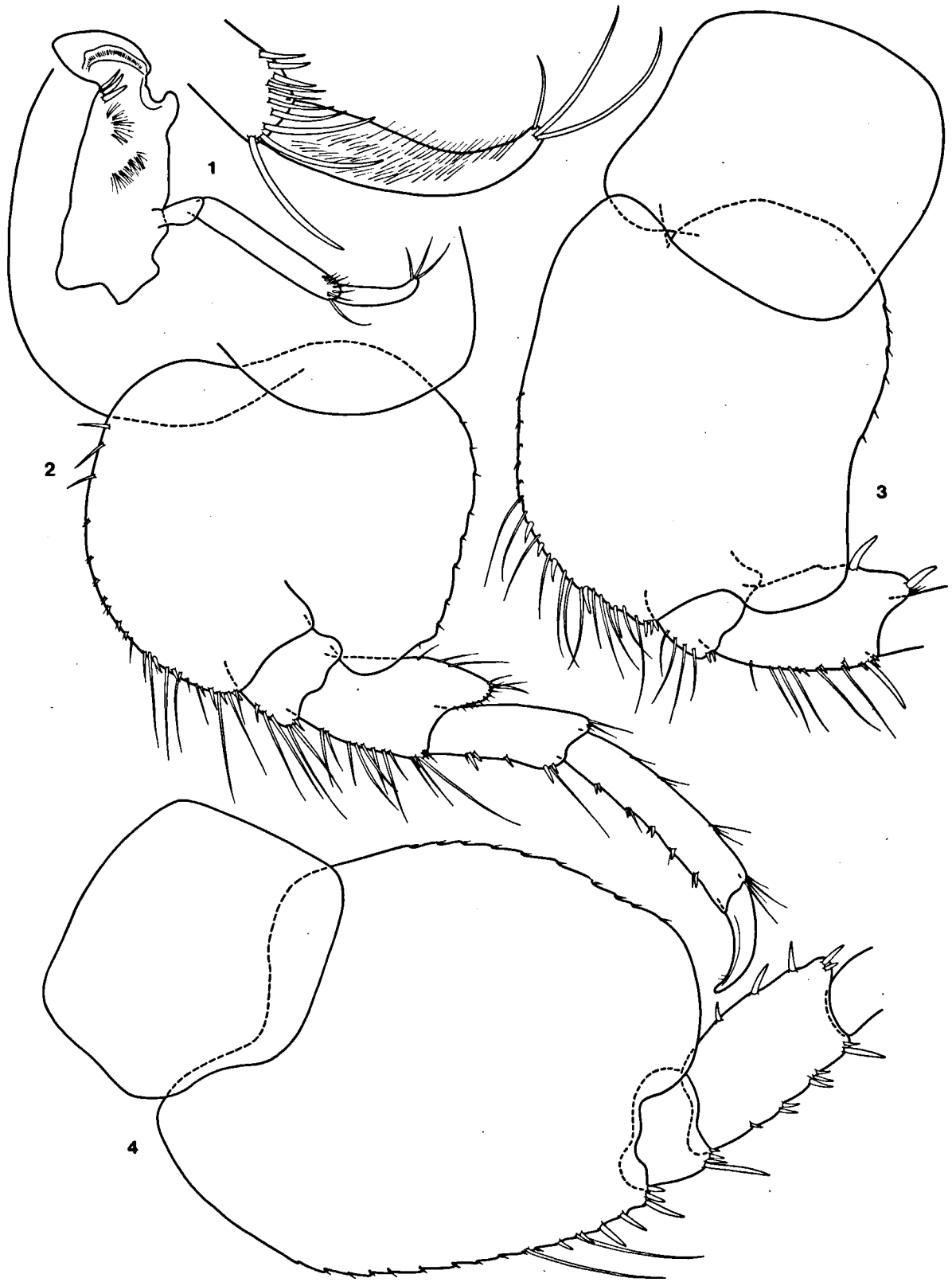

Fig. 3 *Lysianax bispinosus* Della Valle, 1893, ♀, from the type series.
1, mandible, with extremity of palp enlarged; 2, pereiopod V; 3, pereiopod VI; 4, pereiopod VII.

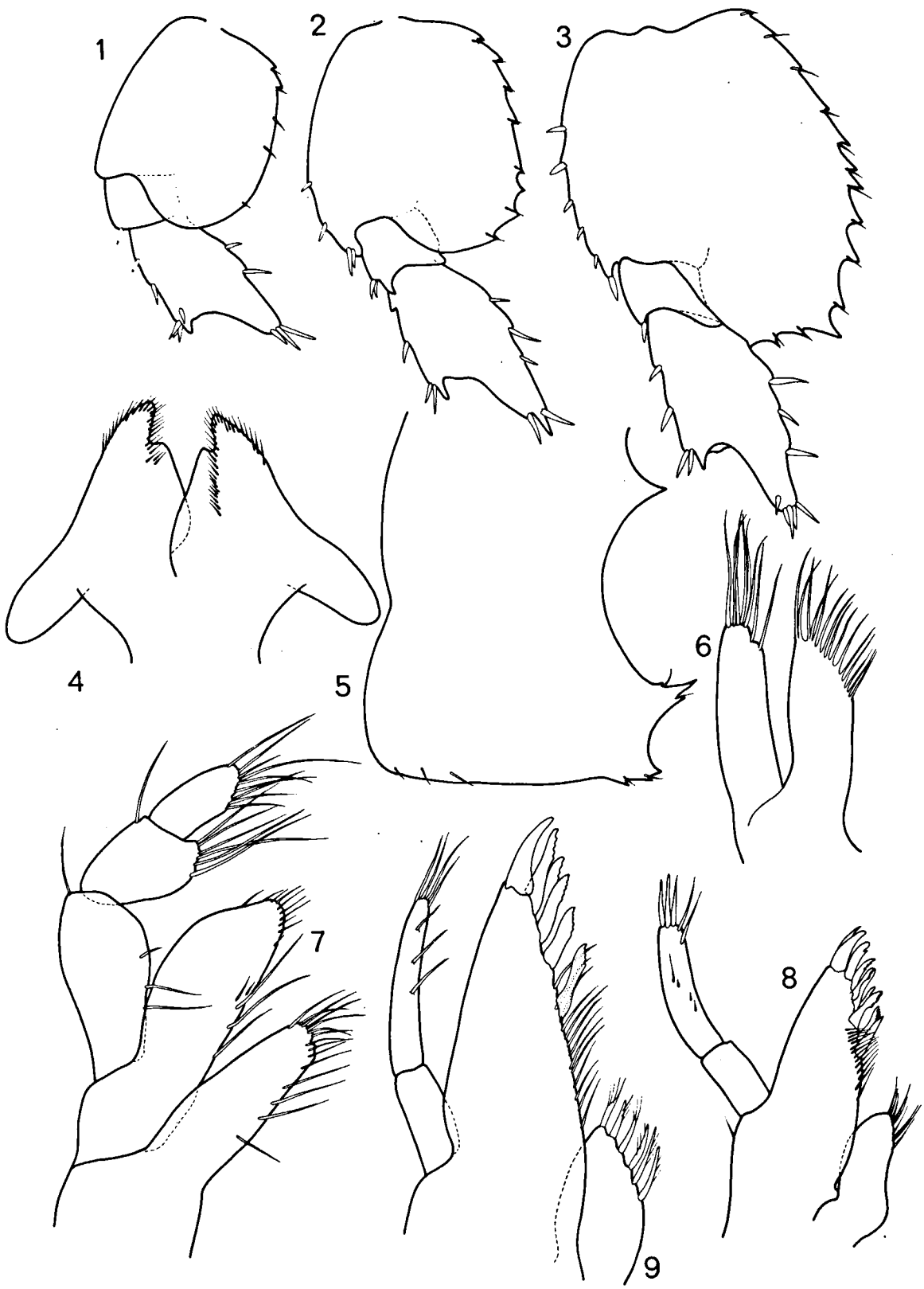

Fig. 4 *Panoploea minuta* (Sars, 1882).
1-3, pereiopods V-VII; 4, lower lip; 5, epimeral plate III; 6, maxilla II; 7, maxilliped; 8, maxilla I of a specimen from Catania; 9, same of a specimen from Ganzirri (Messina).

Fig. 5 *Photis longipes* (Della Valle, 1893).
1, antennae; 2, maxilliped; 3, gnathopod I ♂; 4, upper lip; 5, lower lip; 6, gnathopod I ♀; 7, gnathopod II ♀.

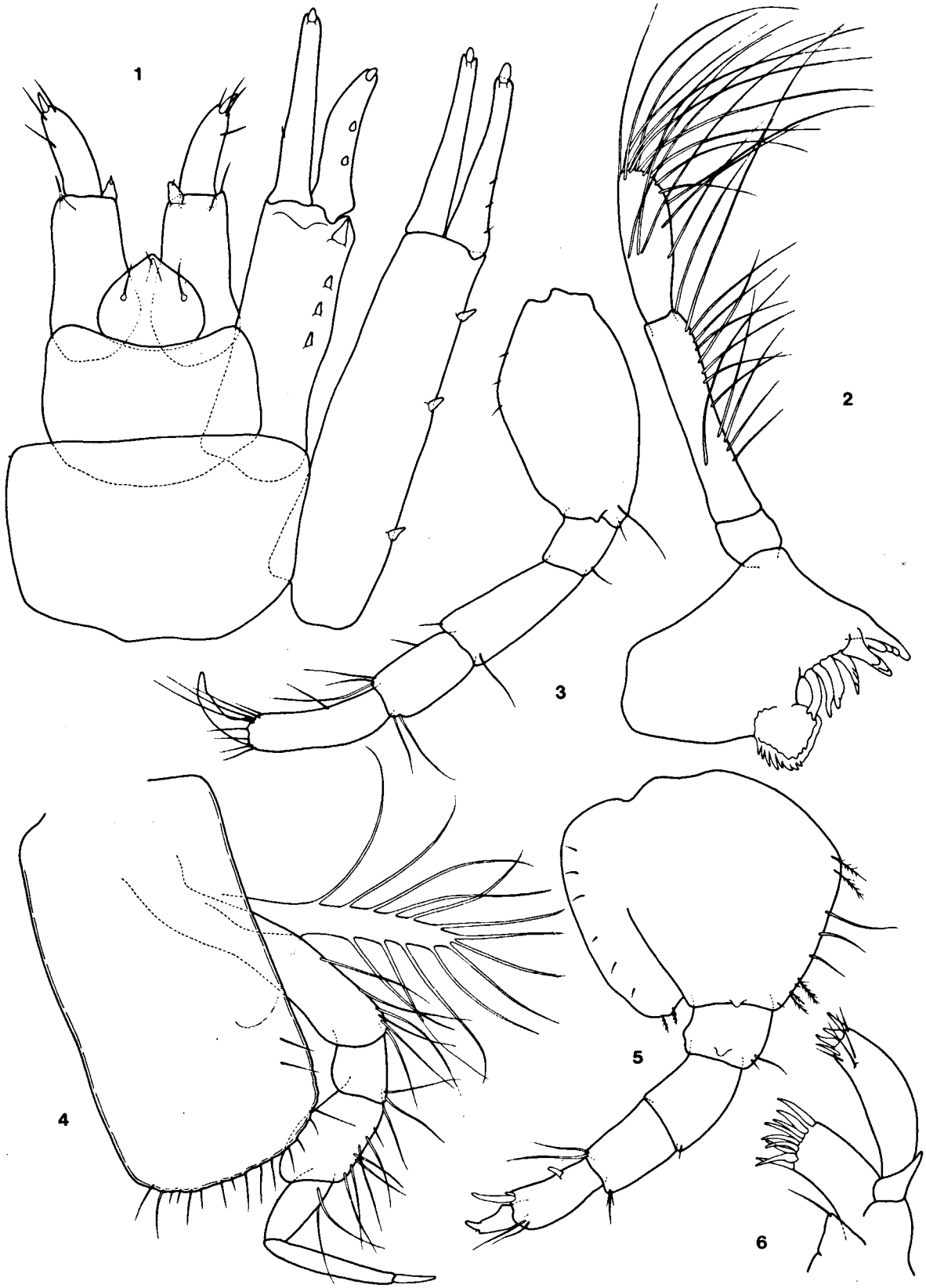

Fig. 6 *Photis longipes* (Della Valle, 1893).
1, last urosome segments with telson and uropods; 2, mandible; 3, pereiopod VII; 4, pereiopod IV ♀; 5, pereiopod V; 6, maxilla I.

Fig. 7 Top: *Photis longipes* (Della Valle, 1893), gnathopod II ♂.
Bottom: *Microjassa cumbrensis* (Stebbing & Robertson, 1891), gnathopod II ♂.

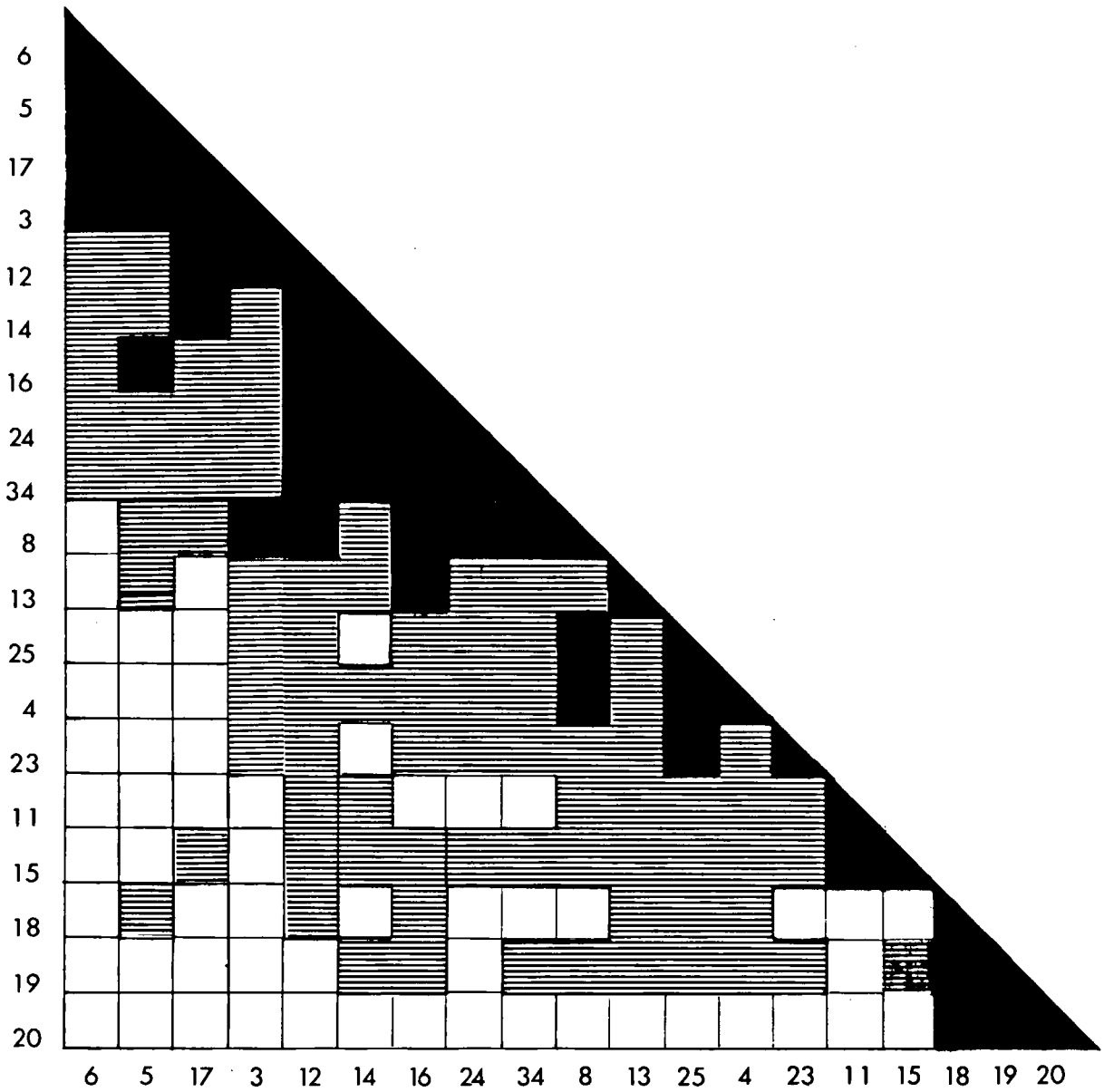

Fig. 8 Homogeneity-diagram of a part of the 1970 samples.
On the axes the samples numbers, at the intersections the values of the homogeneity of the sample pairs. Black: more than 45% homogeneity; hatched: 30-45%; white: less than 30%. Samples not cited in the figure did not yield values greater than 45% in any combination; in most cases the homogeneity values were inferior to 30%.

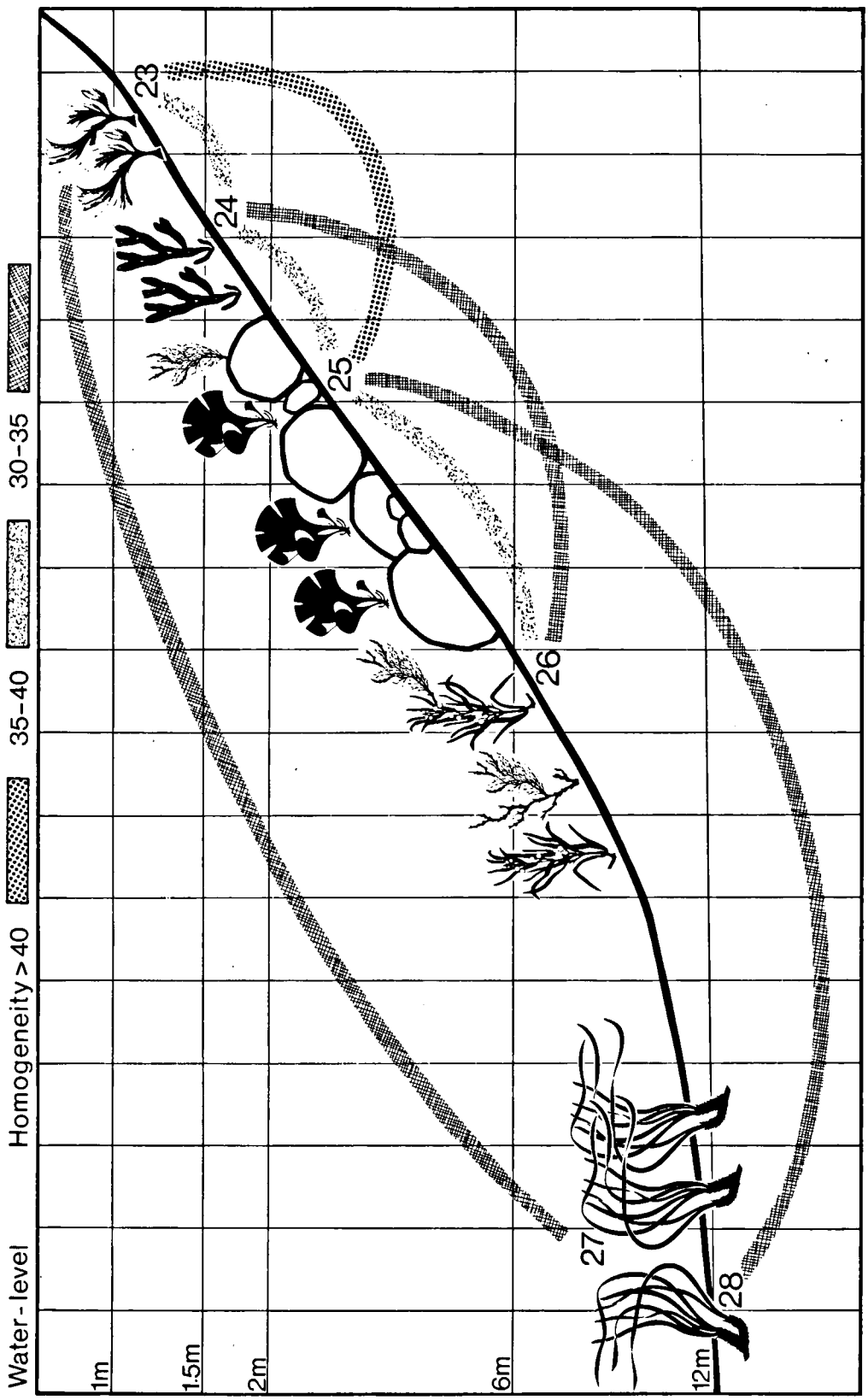

Fig. 9 Diagrammatical representation of the S.W.- slope of Isola Lachea (Catania). Depth in logarithmic scale. The numerals 23-28 refer to the corresponding samples (see list of samples). The connecting curves bring in evidence the homogeneity values of two compared samples based on their faunal composition.