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BIOLOGICAL RESEARCHES ON THE SUBTERRANEAN PHREATIC WATERS OF NORTHERN GREECE

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The previous, occasional, discoveries in Greece of many interesting aquatic subterranean species, which were reported in numerous papers by CHAPPUIS (1929), KARAMAN (1933, 1934), KIEFER (1928, 1938), SCHAFFER (1945), RUFFO (1953), LINDBERG (1953, 1954, 1955, 1955), STEPHANIDES (1960, 1964), BOU (1970), COINEAU (1970), RUFFO and SCHIECKE (1976), LESCHER-MOUTOUÉ (1973), HENRY (1975), GITTENBERGER (1977), etc., prompted us to promote, in February 1976, a program of studies and researches on the biology of the underground water systems of this region.

In the following paper we report the first preliminary results of our researches, regarding the phreatic faunas of the Northern Greece, of the Northern Peloponnesus and of the Island of Cephalonie.

In the course of the field investigations, carried out on February 1976, May 1977 and April 1978 by the Zoological Institute of University of L'Aquila, 92 collecting stations (man-made, fresh and brackish-water wells, springs and some caves) were sampled, and for each of these localities the main geographical, topographical and chemio-physical data, together with the biological samples, were obtained.

The biological collections are noteworthy for the presence of a considerable number of rare or little known aquatic subterranean species, as well as several new crustaceans (copepods, amphipods, syncarids, isopods, etc.) which display a remarkable degree of adaptation to the underground phreatic environments; some other species are new for the Greek fauna, as well as of considerable biogeographical value. In association with these groups, we collected other ones, as cladoce-

rans, oligochaetes, isopods, turbellarians, gastropods, etc., which represent recent or occasional immigrants in the phreatic waters and, together with the other forms, constitute the normal biocoenosis of these environments.

Among the copepods, numerous samples of specialised interstitial harpacticoids and cyclopids were obtained. Some harpacticoids are referable to new interstitial and well adapted species of the genus *Elaphoidella* and *Nitocrella* s.l. (COTTARELLI, in press), other ones were already known from Greece. As regards cyclopids, a few had been recorded from both subterranean and surface waters of Greece by Chappuis, Lindberg and Stephanides, some other species were not known from this region, and two, *Acanthocyclops (Acanthocyclops) cephalenus* Pesce (in press) and *Acanthocyclops (Megacyclops) dussarti* Pesce and Maggi 1977, respectively from the Island of Cephalonie and from the Epirus, are new to science. Moreover, some hypogean species of the genus *Diacyclops* (*D. antrincola* Kiefer 1967; *D. crassicaudis* (Sars 1863); *D. cf. pelagicus* Petkovski 1971, etc.) as well as numerous specimens of the species *Halicyclops troglodites* Kiefer 1954 were collected; the former were already known from the underground waters of many other Balkan localities, but not from Greece, the latter one was known from type-locality (Grotte des Fées de Leucade, France) and from the Nettuno cave, Sardinia (LINDBERG, 1956). Therefore, the present records of the above species considerably enlarge their known geographical range and help to better define not only their distribution but also their systematic value.

Anostracan branchiopods were obtained from a single locality, a fresh-water well near the Village of Parga (Epirus), in association with the specialised amphipod *Niphargus orcinus* Joseph 1882, the cyclopids copepods *Diacyclops bicuspidatus odessanus* (Schmankevich 1875), *Acanthocyclops (Megacyclops) viridis viridis* (Jurine 1820) and the asellid isopod *Proasellus coxalis* (Dollfus 1892).

They belong to the widespread epigeous species *Chirocephalus diaphanus* Prévost 1893, which, as it has been known for long time, lives in surface waters only. Therefore, this is the first record of this species, and generally of the anostracan branchiopods, in this kind of environment, in which they are evidently occasional immigrants.

Syncarids have been found in two man-made, fresh-water wells

in the Island of Cephalonie and in Northern Peloponnesus, in association with many other specialised species as *Salentinella angelieri* Ruffo and Delamare Deboutteville 1952, *Microparasellus puteanus* Karaman 1933, *Microcharon latus latus* Karaman 1933, *Acanthocyclops (Acanthocyclops) cephalenus*, harpacticoid copepods, ostracods, etc.

According to V.COTTARELLI, who is studying this material, the two available specimens (one female and one juv.) belong to the Bathynellacea, but these are not sufficient for a determination at specific level; however, this record is of great biogeographical value and interest as it improves and completes our knowledge about the geographical range of this very interesting group in the Eastern Mediterranean.

Amphipods occur in a wide range of phreatic waters in the examined areas, but they are most abundant in localities of Epirus, Macedonia and Island of Cephalonie from which large samples were obtained. The majority of these are still in study; however, among the samples we already examined and studied, the following species were recognized : *Salentinella angelieri*, *Niphargus* gr. *orcinus*, *Hadzia* (?) sp., *Bogidiella longiflagellum*, as well as some very interesting representatives of the family Hyalidae ((RUFFO, pers. comm.) from fresh-water systems of the Island of Cephalonie.

Until now *S.angelieri* had only been recorded, in Greece, from Southern Peloponnesus; its discovery in the phreatic waters of Epirus and of the Island of Cephalonie is of some importance as, besides Southern Greece, this species is known only from Yugoslavia (Skoplje), Central Italy (PESCE in press), Sardinia and Balearic Islands.

On the other hand, amphipods of the group *Hadzia* were not yet reported from Greece; the present one is the first record of these amphipods from this region. Up to now, this group was represented in the Mediterranean region by the species *H. minuta* Ruffo 1947 from Southern Italy, *H. fragilis* Karaman 1932 from groundwater habitat in Northern Yugoslavia and Southern Yugoslavia respectively, *H. tavaresi* Mateus and Mateus 1972 from phreatic waters of Portugal and by a cavernicolous *Hadzia* from Southern Turkey (VIGNA TAGLIANTI, pers. comm.).

The specimens we examined (males, females and some juveniles from fresh-water wells in the Island of Cephalonie) are referable to a

new species, in course of study, which shares a close morphological affinities with *H. fragilis* and *H. minuta*, from which it differs mainly by the length of the body and of the antennae I and by the shape and the armature of the telson. Particularly, as regards the telson, it is interesting that it is armed, besides apical and internal spines, also with 1-3 external ones as in the Caribbean species of this group. Moreover, as regards this last feature, and according to STOCK (1977), the above specimens could be regarded as *Metaniphargus*, once considered synonymous of *Hadzia* (STOCK and NIJSSEN 1965) but now considered as separated genus (STOCK 1977).

The specimens of *Bogidiella* (some females and one male) were from two fresh-water wells among the houses of Poros, in the Island of Cephalonie. On account of the shape and ornamentation of the telson, for the length of the accessory flagellum as well as for the other features in common, they are undoubtedly referable to the species *B. longiflagellum* Karaman which till now was known only from Yugoslavie (welles in Negorci, Gegvelia and intersitial waters of Vardar, Demir-Kapija) (KARAMAN, 1959; RUFFO, 1973).

However, all these materials differ from the above species by the armature of the spines on the outer lobe of the maxilla I (2 unidentate spines, 1 pectinated spine, 4 simple instead of 2 unidentate spines and 5 simple ones) and in view of this feature we think they could be regarded as a separated population, up to now confined to the Island of Cephalonie.

Among the isopods, a large number of Asellidae and Microparasellidae were obtained from the subterranean waters of Epirus, Attica, Northern Thessalia, Etolia and from the Island of Cephalonie.

The majority of Asellidae belong to the perimediterranean, widespread, species *Proasellus coxalis*, which is a common immigrant in the phreatic waters; other ones belong to the species *Proasellus monodi* Strouhal 1942; others are to be ascribed to a new specialised, interstitial, *Proasellus* (*P. ambracicus* PESCE and ARGANO, in press), which is to be considered in the same phyletic line of the other known interstitial species from Greece, *P. sketi* Henry 1975. In addition, some other specimens from Northern Peloponnesus are referable to the species *Asellus aquaticus* which is an occasional immigrant in the phreatic biocoenosis.

The Microparasellidae are referable to the genus *Microcharon*, up to this time represented in Greece with the species *M. latus* Karaman 1933 and *M. stygius hellenae* Chappuis and Delamare Deboutteville 1954, and to the genus *Microparasellus* which is new to the Greek fauna. As regard the former, three species were obtained; particularly, our records enlarge the geographical range in Greece of *M. latus prespensis* (known only from Yugoslavie) and of *M.latus latus* (known from the Island of Lefkas); moreover, a new species, *M.othrys* ARGANO and PESCE (in press) was obtained from phreatic waters of Thessalia and Attica. As regards *Microparasellus*, numerous samples of the species *M.puteanus*, till now known from the type-locality only (Yugoslavia) and a new species, *M.hellenicus* ARGANO and PESCE (in press) were obtained from Northern Greece, from Northern Peloponnesus and from the Island of Cephalonie. Particularly, the discovery of the genus *Microparasellus* in Greece represents a great increase in the known geographical distribution of this rare microparasellid as, to date, it was reported only from the type-localities of the three known species, i.e. *M.puteanus* from Yugoslavia, *M.libanicus* Chappuis and Delamare Deboutteville 1954 from Lebanon and *M.aloufi* Coineau 1968 from Lebanon also.

All the other materials we collected are still in course of study; however, among these materials, the preliminary examinations of some samples, already pointed out the presence of numerous very interesting species, particularly among gastropods (Giusti, pers.comm.), which include a large number of interstitial species of Hydrobioidea (Prosobranchia) quite adapted and well specialised to the subterranean habitat, some of these new to science as well as belonging to undescribed genus.

In conclusion, as we shortly exposed, all the above materials and results indicate that the underground aquatic fauna of Greece is rather varied and rich in specialised and adapted species. However, the species we reported in the present paper, together with those previously described and reported from Greece, are still considered to represent only a small portion of the subterranean aquatic fauna of this region. Thus, it is likely that the study of the remaining samples we collected as well as the continued biological investigations of the subterranean biotopes in Southern Greece (Peloponnesus) and in the other islands, will undoubtedly reveal additional discoveries and could complete the

knowledge of the systematic, the ecology and the biogeography of the underground waters faunas of this very interesting region.

Résumé

Les auteurs présentent les premiers résultats d'un programme de recherches sur la biologie des eaux souterraines phréatiques de la Grèce du Nord, du Peloponnèse septentrional et de l'île de Céphalonie.

Le matériel recueilli est particulièrement intéressant parcequ'il comprend un grand nombre de formes aquatiques souterraines très rares ou peu connues ainsi que certains Crustacés nouveaux pour la Grèce ou pour la science et qui présentent des adaptations remarquables. On a recueilli, en outre, de nombreuses autres formes d'immigration récente ou occasionnelle, dans le domaine souterrain aquatique et qui constituent avec les formes troglobies (phréatobies), des peuplements stables dans ce milieu.

Il est enfin donné une liste des stations explorées, avec une description sommaire de chacune, destinée surtout aux chercheurs et spécialistes susceptibles d'effectuer des recherches sur les différents groupes faunistiques représentés dans les collections rassemblées au cours de l'expédition.

List of collecting localities (*)

- Loc. G/1 — Epirus, Lefkthea-Igoumenitza (450 m a.s.), fresh-water well (water level on 10 m; water depth:5 m; temperature:15.5° C; pH:7) February 21, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops bicuspidatus odesanus*, *Diacyclops languidoides* s.l.); Ostracoda; Oligochaeta.
- Loc. G/2 — Epirus, Main Road Ioannina-Konitza, cross road Papingon (520 m a.s.) fresh-water well (water level on 12 m; water depth:10 m; tempera-

(*) Temperatures and pH have been determined with the aid of electric portable electrodes YSI mod. 54(— 5°C + 45°C; + 7%) and FISHER/mod. 50(0.10 pH) respectively; NO₂ and Fe were tested by Merk indicators (Merckoquant 10.017). Biological samples (waters with bottom sediment) were preserved with formalin 4% and, successively, with a solution (10:1) of a absolute alcohol (60-70%) and glycerol. Waters mites were preserved in alcohol 50%.

- ture:9.5° C; pH: 9.5). February 21, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*; *Diacyclops languidus*)
- Loc. G/3 — Epirus, Aristi, Ioannina (650 m a.s.), fresh-water well (water level on 9 m; water depth:6 m; temperature:9.5° C; pH:7) February 21, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Tropocyclops prasinus*, *Diacyclops languidoides languidoides*, *Diacyclops bicuspidatus odessanus*); Copepoda Harpacticoida (*Elaphoidella* sp.); Ostracoda; Isopoda Asellota (*Proasellus coxalis*); Mosquito larvae.
- Loc. G/4 — Epirus, Katsikà, Ioannina (500 m a.s.l.), fresh-water well (water level on 9 m; water depth:6 m; temperature:11.5° C; pH:7) February 23, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Thermocyclops stephanidesi*, *Eucyclops serrulatus*); Isopoda Asellota (*Proasellus coxalis*); Ostracoda.
- Loc. G/5 — Epirus, Katsikà, Ioannina (500 m a.s.l.), fresh-water well (water level on 9 m; water depth:5 m; temperature:11.5° C; pH:7) February 23, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops* sp.); Ostracoda; Water mites.
- Loc. G/6 — Epirus, surroundings of Katsikà, Ioannina (500 m a.s.l.), fresh-water well (water level on 9 m; water depth:7 m; temperature:11.5° C; February 23, 1976; coll. Argano; Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*); Isopoda Asellota (*Proasellus coxalis*); Gastropoda; Ostracoda; Turbellaria (Tricladida).
- Loc. G/7 — Epirus, Kalenzi, Ioannina (1) (620 m a.s.l.), fresh-water well (water level on 8 m; water depth:1.50 m; temperature:7.8° C; pH:7) February 23, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Amphipoda (*Niphargus* sp.); Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Eucyclops serrulatus*); Gastropoda; Turbellaria (Tricladida); Coleoptera, larvae; Ostracoda; Oligochaeta.
- Loc. G/8 — Epirus, Kalenzi, Ioannina (2) (620 m. a.s.), fresh-water well (water level on 8 m; water depth: 2 m; temperature: 9.5° C; pH:7) February 23, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Amphipoda (*Niphargus* sp.); Copepoda Cyclopidae (*Eucyclops serrulatus*); Copepoda Harpacticoida; Ostracoda.
- Loc. G/9 — Epirus, Plesion, Ioannina, (1) (620 m a.s.l.) fresh-water well (water level on 8 m; water depth: 5 m; temperature: 11.5° C; pH:6.5) February 23, 1976; coll. Argano Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Diacyclops languidoides languidoides*); Insecta, larvae.
- Loc. G/10 — Epirus, Plesion; Ioannina (2) (620 m a.s.l.), fresh-water well (water level on 7 m; water depth:3 m; temperature:9.5° C; pH:6.4) February 23, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Collembola; Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops bicuspidatus odessanus*).
- Loc. G/11 — Epirus, main road Arta-Kommenon, along the Arachthos River (10 m a.s.l.), fresh-water well (water level on 10 m; water depth:3 m; tempera-

- ture: 12.5° C; pH:6.8) February 24, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Amphipoda (*Salentinella angelieri*); Ostracoda; Copepoda Cyclopidae (*Diacyclops antrincola*); Gastropoda; Oligochaeta; Isopoda (*Proasellus ambracicus*, *Microcharon latus prespensis*).
- Loc. G/12 — Epirus, Sikee, Arta, (5 m a.s.l.), fresh-water well (water level on 6 m; water depth: 4 m; temperature: 11.5° C; pH:6.4) February 24, 1976; coll. Argano, Pesce and Bianco. *Biological sample:* Copepoda Cyclopidae (*Thermocyclops dybowskii*); Gastropoda; Ostracoda; Mosquito larvae.
- Loc. G/13 — Epirus, village of Sikee, Arta, (5 m a.s.l.), fresh-water well (water level on 6.5 m; water depth: 5 m; temperature: 11.5°c; pH: 7) February 24, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Thermocyclops dybowskii*, *Diacyclops sp.*); Ostracoda; Insecta (larvae); Gastropoda; Ephemeroptera, larvae.
- Loc. G/14 — G/18 — Epirus, Glikorizo, Arta, (10 m a.s.l.), fresh-water well (water level on 8 m; water depth: 2 m; temperature:11.5°C; pH: 7) February 24, 1976; coll. Argano, Pesce and Bianco; May 6, 1977 coll. Pesce, Maggi and Miranda; April 2, 1978 coll. Pesce, Maggi and Silverii.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Acanthocyclops (Megacyclops) viridis viridis*, *Paracyclops fimbriatus*); Ostracoda; Amphipoda (*Salentinella angelieri*, *Niphargus gr. orcinus*); Isopoda Asellidae (*Proasellus ambracicus*) Isopoda Microparasellidae (*Microcharon latus prespensis*, *Microparasellus puteanus*, *Microparasellus hellenicus*); Oligochaeta; Water mites; Gastropoda; Nematoda; Hydrozoa.
- Loc. G/19 — Epirus, Ioannina, (500 m a.s.l.), fresh-water well (water level on 3 m; water depth: 0.5 m; temperature: 10.9°C; pH: 6.3) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Cyclops sp.*); Gastropoda; Oligochaeta; Collembola; Insecta, larvae.
- Loc. G/20 — Epirus, main road Ioannina-Igoumenitza between Lefkthea and crossroad Monasteri Pallouri, (385 m a.s.l.), fresh-water well (water level on 7 m; water depth: 3.5 m; temperature: 13.1°C; pH: 7) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Paracyclops fimbriatus*, *Tropocyclops prasinus*, *Diacyclops bicuspidatus odessanus*); Amphipoda (*Niphargus gr. orcinus*); Ostracoda; Insecta, larvae.
- Loc. G/21 — Epirus, main road Ioannina-Igoumenitza near the crossroad Monasteri Pallouri, (300 m a.s.l.), fresh-water well (water level on 12.5 m; water depth: 1.5 m; temperature: 11.5°C; pH: 7) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Turbellaria (*Tricladida*); Mosquito larvae; Copepoda Cyclopidae (*Diacyclops languidoides hypnicola*, *Paracyclops fimbriatus*, *Eucyclops serrulatus*); Ostracoda; Amphipoda (*Niphargus sp.*); Oligochaeta; Insecta, larvae.
- Loc. G/22 — Epirus, Igoumenitza, Ladocorion, fresh-water well (water level on 2 m; water depth: 0.8 m; temperature: 11°C; pH: 7.3) February 27, 1976; coll. Argano, Pesce and Bianco.

- Biological sample:* Copepoda Cyclopidae (*Diacyclops antrincola*); Ostracoda; Collembola; Water mites; Gastropoda; Turbellaria (Tricladida).
- Loc. G/23 — Epirus, Ladocorion, Igoumenitza, fresh-water well (water level on 2 m; water depth: 0.5 m; temperature: 10.2°C; pH: 7) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops bisetosus*); Ostracoda; Oligochaeta; Collembola; Gastropoda; Nematoda.
- Loc. G/24 — Epirus, Argirotopon, Igoumenitza (20 m a.s.l.), fresh-water well (water level on 9 m; water depth: 2.5 m; temperature: 12.1°C; pH: 6.5) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Acanthocyclops (Megacyclops) viridis viridis*); Oligochaeta; Ostracoda; Gastropoda.
- Loc. G/25 — Epirus, Platarià, main road Kanallakion-Igoumenitza, fresh-water well (water level on 4 m; water depth: 3 m; temperature: 13.2°C; pH: 6.9) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Amphipoda (*Niphargus gr. orcinus*); Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Acanthocyclops (Megacyclops) viridis viridis*); Ostracoda; Homoptera, larvae.
- Loc. G/26 — Epirus, Platarià, main road Kanallakion-Igoumenitza, fresh-water well (water level on 10 m; water depth: 3.5 m; temperature: 13.2°C; pH: 7) February 27, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Diacyclops antrincola*, *Cyclops sp.*); Ostracoda; Gastropoda; Isopoda Asellota (*Proasellus sp.*, *Microparasellus puteanus*); Amphipoda (*Niphargus gr. orcinus*).
- Loc. G/27 — Epirus, Platarià, Igoumenitza (1), fresh-water well (water level on 3.5 m; water depth: 1.5 m; temperature: 11.2°C; pH: 6.9) February 28, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Acanthocyclops (Megacyclops) viridis viridis*); Ostracoda; Mosquito larvae; Nematoda.
- Loc. G/28 — Epirus, Platarià, Igoumenitza, fresh-water well (water level on 3.5 m; water depth: 1.5 m; temperature: 11.5°C; pH: 6.9) February 28, 1976; coll. Pesce and Bianco.
Biological sample: Isopoda Asellota (*Proasellus sp.*); Cladocera; Copepoda Cyclopidae (*Eucyclops serrulatus*, *Acanthocyclops (Megacyclops) viridis viridis*); Ostracoda; Turbellaria (Tricladida); Amphipoda (*Salentinella angelieri*, *Niphargus sp.*).
- Loc. G/29 — Epirus, main road Platarià-Karterion, Km 8.8 from the crossroad Platarià Igoumenitza (110 m a.s.l.), fresh-water well (water level on 4 m; water depth: 2 m; temperature: 12.5°C; pH: 6.5) February 28, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Ostracoda; Copepoda Cyclopidae (*Diacyclops bicuspidatus odessanus*, *Acanthocyclops (Megacyclops) viridis viridis*); Isopoda Asellota (*Proasellus coxalis*); Anostraca Branchiopoda (*Chirocephalus diaphanus*); Amphipoda (*Niphargus gr. orcinus*); Oligochaeta.
- Loc. G/30 — Epirus, Perdikà, Igoumenitza (I) (280 m a.s.l.), fresh-water well (water level on 6 m; water depth: 2.8 m; temperature: 12.5°C; pH: 6.9) February 28, 1976; coll. Argano, Pesce and Bianco.

- Biological sample:* Copepoda Cyclopidae (*Thermocyclops stephanidesi*); Isopoda Asellota (*Proasellus coxalis*); Ostracoda; Gastropoda; Mosquito, larvae.
- Loc. G/31 — Epirus, Perdikà, Igoumenitza (2) (280 a.s.l.), fresh-water well (water level on 6 m; water depth: 2.8 m; temperature: 12.5°C; pH: 6.9) February 28, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Thermocyclops stephanidesi*); Cladocera; Ostracoda; Amphipoda (*Niphargus gr. orcinus*); Gastropoda; Isopoda Asellota (*Proasellus coxalis*); Mosquito, larvae.
- Loc. G/32 — Epirus, Perdikà, Igoumenitza (3) (280 a.s.l.), fresh-water well (water level on 5.5 m; water depth: 2.5 m; temperature; 12.5 m: pH: 6.9) February 28, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Thermocyclops stephanidesi*, *Eucyclops serrulatus*); Cladocera; Gastropoda; Nematoda.
- Loc. G/33 — Epirus, Perdikà, Igoumenitza (180 m a.s.l.), fresh-water well (water level on 3 m; water depth: 2 m; temperature: 13.5°C; pH: 7); February 28, 1976; coll. Argano, Pesce and Bianco.
Biological sample: Copepoda Cyclopidae (*Paracyclops fimbriatus*, *Eucyclops serrulatus*); Isopoda Asellota (*Proasellus coxalis*); Nematoda; Mosquito, larvae.
- Loc. G/34 — Epirus, main road Igoumenitza-Préveza, Kalodixi, fresh water well (water level on 11 m; water depth: 5 m; temperature: 14.2°C; pH: 7.8; NO₂ mg/l); May 5, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Diacyclops bicuspidatus odessanus*); Gastropoda; Nematoda; Mosquito, larvae.
- Loc. G/35 — Epirus, main road Igoumenitza-Préveza, between Kanallakion and Velanidià, fresh-water well (water level on 7 m; water depth: 1 m; temperature: 12.8°C; pH: 8; NO₂: 1 mg/l; Fe: 0.5 mg/l); May 5, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Tropocyclops prasinus*, *Paracyclops fimbriatus*); Oligochaeta; Isopoda Asellota (*Proasellus coxalis*); Insecta, larvae.
- Loc. G/36 — Epirus, main road Igoumenitza-Préveza, Velanidià, fresh-water well (water level on 8 m; water depth: 5.5 m; temperature: 13.2°C; pH: 8; NO₂: 1 mg/l); May 5, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Diacyclops bisetosus*, *Diacyclops languidoides zschokkei*); Ostracoda; Insecta, larvae; Nematoda.
- Loc. G/37 — G/39 — Epirus, Kalamìa, Arta, fresh-water well (water level on 6.5 m; water depth: 1.3 m; temperature: 16.5°C; pH: 7.6); May 5, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*); Copepoda Harpacticoida; Ostracoda; Amphipoda (*Salentinella angelieri*, *Niphargus sp.*); Isopoda Asellota (*Proasellus coxalis*); Oligochaeta; Water mites; Mosquito, larvae.
- Loc. G/40 — Epirus, Glikorizo, Arta, fresh-water well (water level on 7 m; water depth: 3 m; temperature: 17.2°C; pH: 7.3; NO₂: 0.1 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.

- Biological sample:* Copepoda Cyclopidae (*Eucyclops serrulatus*); Amphipoda (*Salentinella angelieri*); Isopoda Asellota (*Proasellus coxalis*, *Microparasellus puteanus*); Mosquito, larvae.
- Loc. G/41 — Epirus, Glikorizo, Arta, fresh-water well (water level on 10 m; water depth: 1.8 m; temperature: 17.2°C; pH: 7.4; NO₂: 0.1 mg/l; Fe: 0.2 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda; April 10, 1978 Pesce and Maggi.
Biological sample: Amphipoda (*Salentinella angelieri*); Ostracoda; Isopoda Microparasellidae (*Microcharon latus prespensis*, *Microparasellus puteanus*, *Microparasellus hellenicus*); Gastropoda; Oligochaeta; Copepoda Cyclopidae (*Acanthocyclops Megacyclops dusarti*, *Eucyclops serrulatus*, *Diacyclops antrincola*, *Diacyclops languidoides zschokkei*).
- Loc. G/42 — Epirus, main road Arta-Agrinion, Anfitea (Neokorakion), fresh-water well (water level on 8 m; water depth: 6 m; temperature: 15.5°C; pH: 7.3); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops sp.*); Isopoda Microparasellidae (*Microparasellus puteanus*); Ostracoda; Amphipoda (*Niphargus sp.*); Oligochaeta; Nematoda.
- Loc. G/43 — Epirus, main road Arta-Agrinion, cross road Limini, fresh-water well (water level on 5 m; water depth: 2 m; temperature: 15.5°C; pH: 7.7; Fe: 0.3 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops crassicaudis crassicaudis*); Ostracoda; Water mites.
- Loc. G/44 — Epirus, main road Arta-Agrinion, Menidi, fresh-water well (water level on 10 m; water depth: 0.5 m; temperature: 17.5°C; pH: 7.6); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Eucyclops serrulatus*); Water mites; Gastropoda; Ostracoda.
- Loc. G/45 — Etolia, main road Arta-Agrinion, cross-road Loutron, fresh-water well (water level on 9.5 m; water depth: 5 m; temperature: 15.5°C; pH: 7.5; Fe: 0.2 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*); Ostracoda; Water mites; Mosquito, larvae.
- Loc. G/46 — Etolia, main road Arta-Agrinion, cross-road Loutron, fresh-water well (water level on 9.5 m; water depth: 5 m; temperature: 16°C; pH: 7.5; NO₂: 0.1 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Niphargus gr. orcinus*); Copepoda Cyclopidae (*Eucyclops serrulatus*); Ostracoda; Copepoda Harpacticoida; Water mites.
- Loc. G/47 — Etolia, main road Arta-Agrinion, cross-road Stanòs, fresh-water well (water level on 16 m; water depth: 11 m; temperature: 16.2°C; pH: 7.3; NO₂: 0.2 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Salentinella angelieri*); Isopoda Microparasellidae (*Microcharon latus prespensis*); Copepoda Cyclopidae (*Eucyclops serrulatus*, *Thermocyclops dybowskii*); Ostracoda; Copepoda Harpacticoida; Water mites.
- Loc. G/48 — Etolia, main road Arta-Agrinion, Kouvarà, fresh-water well (water

- level on 15 m; water depth: 6 m; temperature: 17.6°C; pH: 7.5); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*); Mosquito, larvae.
- Loc. G/49 — Etolia, main road Arta-Agrinion, Agrinion, fresh-water well (water level on 10 m; water depth: 6 m; temperature: 18°C; pH: 7.2; Fe: 0.2 mg/l) May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Diacyclops languidoides zschokkei*); Copepoda Harpacticoida; Isopoda Microparasellidae (*Microcharon latus prespensis*).
- Loc. G/50 — Akarnania, main road Agrinion-Patras, Siderà, fresh-water well (water level on 13 m; water depth: 2 m; temperature: 16.9°C; pH: 7.5; NO₂: 0.2 mg/l); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Paracyclops fimbriatus*, *Eucyclops serrulatus*); Mosquito, larvae.
- Loc. G/51 — Akarnania, main road Agrinion-Patras, near the sea coast, fresh-water well (water level on 6 m; water depth: 1.5 m; temperature: 16°C; pH: 7.5); May 6, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Eucyclops* sp., *Diacyclops bicuspidatus odessanus*); Ostracoda; Insecta, larvae.
- Loc. G/52 — G/56 — Island of Cephalonie, fresh-water well (water level on 6.5 m; water depth: 2 m; temperature: 17.1°C; pH: 7.3); May 5, 1977; coll. Pesce, Maggi and Miranda; April 2, 1978; coll. Pesce, Maggi and Silverii.
Biological sample: Copepoda Cyclopidae (*Thermocyclops stephanidesi*, *Diacyclops languidoides zschokkei*); Copepoda Harpacticoida (*Nitocrella* sp., *Elaphoidella* sp.); Ostracoda; Amphipoda (*Salentinella angelieri*); Isopoda Microparasellidae (*Microcharon latus latus*); Gastropoda; Water mites; Nematoda; Oligochaeta; Insecta, larvae.
- Loc. G/57 — Island of Cephalonie, S. Efimia (1), fresh-water well (water level on 6 m; water depth: 0.7 m; temperature: 16.5°C; pH: 7.3); May 7, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Acanthocyclops* (*Acanthocyclops*) *cephallenus*, *Paracyclops fimbriatus*); Amphipoda (*Salentinella angelieri*); Isopoda Microparasellidae (*Microcharon latus latus*); Ostracoda; Nematoda; Gastropoda; Copepoda Harpacticoida (*Nitocrella* sp.).
- Loc. G/58 — Island of Cephalonie, S. Efimia (2), fresh-water well (water level on 4 m; water depth: 0.5 m; temperature: 16.5°C; pH: 7.3); May 7, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Thermocyclops stephanidesi*); Copepoda Harpacticoida (*Nitocrella* sp., *Elaphoidella* sp.); Ostracoda; Turbellaria (*Tricladida*); Gastropoda; Water mites.
- Loc. G/59 — Island of Cephalonie, S. Efimia, Crini (Potamianota) (1), fresh-water well (water level on 6 m; water depth: 2 m; temperature: 15°C; pH: 7.3); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Salentinella angelieri*, *Niphargus* sp.); Copepoda Cyclopidae (*Eucyclops serrulatus*, *Thermocyclops stephanidesi*); Ostracoda; Water mites; Nematoda.

- Loc. G/60 — Island of Cephalonie, S. Efimia, Crini (Potamianota) (2) fresh-water well (water level on 5m; water depth: 0.3m; temperature: 15°C; pH: 7; NO₂: 0.1mg/l); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample. Amphipoda (*Salentinella angelieri*), Isopoda Asellota (*Proasellus coxalis*); Copepoda Cyclopidae (*Eucyclops serrulatus*, *Tropocyclops prasinus*); Ostracoda.
- Loc. G/61 — Island of Cephalonie, S. Efimia, Crini (Potamianota) (3), Spring (water level on 0.2m; water depth: 0.2m; temperature: 17°C; pH: 7); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Niphargus* sp., Hyalidae); Isopoda Asellota (*Proasellus coxalis*); Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops* sp.); Mosquito, larvae.
- Loc. G/62 — G/65 — Island of Cephalonie, Assos, along the sea coast, fresh-water well (water level on 6.5m; water depth: 0.5m; temperature: 15.5°C; pH: 7.2); May 8, 1977 coll. Pesce, Maggi and Miranda; April 3, 1978 coll. Pesce, Maggi and Silverii.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Thermocyclops stephanidesi*, *Diacyclops languidoides zschokkei*, *Halicyclops troglodites*, *Tropocyclops prasinus*); Ostracoda; Amphipoda (*Salentinella angelieri*, *Hadzia* (?) sp., *Niphargus* gr. *orcinus*); Isopoda Asellota (*Proasellus coxalis*); Oligochaeta; Water mites; Gastropoda.
- Loc. G/66 — Island of Cephalonie, main road Assos-Argostolion, Agkon fresh-water well (water level on 6m; water depth: 0.8m; temperature: 14.5°C; pH: 7.2; NO₂: 0.1mg/l); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Isopoda Microparasellidae (*Microcharon latus latus*); Amphipoda (*Hadzia* (?) sp., *Salentinella angelieri*); Copepoda Cyclopidae (*Diacyclops languidoides zschokkei*, *Eucyclops serrulatus*); Ostracoda.
- Loc. G/67 — Island of Cephalonie, main road Assos-Argostolion, Kardakàta (I) fresh-water well (water level on 6m; water depth: 1.5m; temperature: 15.2°C; pH: 7.3); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops languidoides s.l.*); Ostracoda; Amphipoda (*Niphargus* sp.); Gastropoda.
- Loc. G/68 — Island of Cephalonie, main road Assos-Argostolion, Kardakàta (2) fresh-water well (water level on 6m; water depth: 2.5m; temperature: 15.2°C; pH: 7.2; NO₂: 0.2mg/l); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops languidoides s.l.*); Gastropoda; Turbellaria (Tricladida).
- Loc. G/69 — Island of Cephalonie, Argostolion fresh-water well (water level on 5m; water depth: 0.5m; temperature: 17.2°C; pH: 7; NO₂: 0.2mg/l); May 8, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Salentinella angelieri*, *Hadzia* (?) sp.); Copepoda Cyclopidae; Isopoda Microparasellidae (*Microcharon latus latus*, *Microparasellus puteanus*); Syncarida (Bathynellacea); Water mites; Gastropoda; Oligochaeta; Ostracoda, Collembola.
- Loc. G/70 — G/71 — Northern Peloponnesus, main road Patras-Athens, Ag. Vassilion, fresh-water well (water level on 10.5m; water depth: 2.5m;

temperature: 16.2°C; pH: 6.9); May 9,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Copepoda Cyclopidae (*Diacyclops languidoides zschokkei*, *Diacyclops bicuspidatus odessanus*, *Eucyclops serrulatus*); Copepoda Harpacticoida; Ostracoda; Amphipoda (*Niphargus gr. orcinus*); Isopoda Microparasellidae (*Microparasellus hellenicus*, *Microcharon latus prespensis*); Oligochaeta; Collembola; Mosquito, larvae; Water mites.

- Loc. G/82 — Northern Attica, main road Thèbes-Lamia (old road), between Thèbes and Lévidia fresh-water well (water level on 10m; water depth: 4.5m; temperature: 16°C; pH: 6.8; NO₂:0.2mg/l); May 10,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Isopoda Microparasellidae (*Microparasellus puteanus*); Ostracoda; Copepoda Cyclopidae (*Macrocyclus albidus*, *Tropocyclops prasinus*); Copepoda Harpacticoida; Water mites; Mosquito, larvae; Coleoptera, larvae.

- Loc. G/83 — G/84 — Viotia, main road Thèbes-Lamia (old road), Levàdia fresh-water well (water level on 9m; water depth: 1.5m; temperature: 16°C; pH: 6.9; NO₂:1mg/l); May 10,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Isopoda Microparasellidae (*Microparasellus puteanus*); Copepoda Cyclopidae (*Paracyclus fimbriatus*); Ostracoda; Water mites; Copepoda Harpacticoida; Amphipoda (*Niphargus gr. orcinus*); Collembola.

- Loc. G/85 — Fthiotis, main road Thèbes-Lamia (old road), Sigma-Davlia fresh-water well (water level on 6m; water depth: 0.3m; temperature: 14.5°C; pH: 6.5; NO₂: 1mg/l); May 10, 1977; coll. Pesce, Maggi and Miranda.

Biological sample: Copepoda Cyclopidae (*Diacyclops languidoides zschokkei*); Ostracoda; Water mites; Gastropoda.

- Loc. G/86 — Fthiotis, main road Thèbe-Lamia (old road), Scamno-Lamias (I) fresh-water well (water level on 11.5m; water depth: 6.5m; temperature: 14°C; pH: 6.5; NO₂: 1mg/l); May 10,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Copepoda Cyclopidae (*Diacyclops sp.*, *Eucyclops serrulatus*); Copepoda Harpacticoida; Oligochaeta; Mosquito, larvae.

- Loc. G/87 — Fthiotis, main road Thèbes-Lamia (old road), Scamno-Lamias (2), fresh-water well (water level on 8m; water depth: 4m; temperature: 12.8°C; pH: 6.6; NO₂:1mg/l); May 10,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Isopoda Microparasellidae (*Microcharon othrys*); Copepoda Cyclopidae (*Diacyclops bisetosus*, *Eucyclops serrulatus*); Ostracoda; Oligochaeta; Gastropoda; Copepoda Harpacticoida; Collembola; Turbellaria (Tricladida).

- Loc. G/88 — G/89 — Tessalia, main road Lamia-Làrisa (old road), cross road Palamàs, fresh-water well (water level on 7m; water depth: 4m; temperature: 14°C; pH: 6.7; NO₂:1mg/l); May 11,1977; coll. Pesce, Maggi and Miranda.

Biological sample: Isopoda Microparasellidae (*Microcharon othrys*);

- Copepoda Cyclopidae (*Eucyclops serrulatus*, *Cyclop* sp.); Copepoda Harpacticoida.
- Loc. G/90 — G/91 — Epirus, main road Ioannina-Igoumenitza, Boutera, fresh-water well (water level on 9m; water depth: 1m; temperature: 13.5°C; pH: 6.5; NO₂:1mg/l); May 12, 1977; coll. Pesce, Maggi and Miranda.
Biological sample: Turbellaria (Tricladida); Oligochaeta; Copepoda Cyclopidae (*Paracyclops fimbriatus*, *Diacyclops antrincola*, *Diacyclops languidoides zschokkei*); Ostracoda; water mites; Copepoda Harpacticoida; Amphipoda (*Salentinella angelieri*); Isopoda Microparasellidae (*Microcharon latus prespensis*); Collembola.
- Loc. G/92 — Island of Cephalonie, Melissani cave, Sami (water level on 6m; water depth: 6m; temperature: 15°C; pH:6.5; NO₂: 0.1mg/l); May 8,1977; coll. Pesce, Maggi and Miranda.
Biological sample: Amphipoda (*Hyalidae*); Copepoda Cyclopidae (*Eucyclops serrulatus*); Ostracoda; Isopoda (*Ianiridae*); Water mites; Gastropoda.
- Loc. G/139 — Island of Cephalonie, main road Sami-S.Efimia fresh-water well (water level on 5m; water depth: 4m; temperature: 13.1°C; pH:6.5); April 2,1978; coll. Pesce, Maggi and Silverii.
Biological sample: Copepoda Harpacticoida (*Nitocrella* sp., *Elaphoidella* sp.); Ostracoda; Mosquito, larvae.
- Loc. G/140 — Island of Cephalonie, Argostolion (1) fresh-water well (water level on 10m; water depth: 0.4m; temperature: 16°C; pH:6.8); April 2,1978; coll. Pesce, Maggi and Silverii.
Biological sample: Amphipoda (*Salentinella angelieri*); Copepoda Cyclopidae (*Eucyclops serrulatus*); Gastropoda; Oligochaeta.
- Loc. G/141 — Island of Cephalonie, Argostolion (2) fresh-water well (water level on 5.5m; water depth: 0.4m; temperature: 16.5°C; pH:6.8); April 4,1978; coll. Pesce, Maggi and Silverii.
Biological sample: Isopoda Microparasellidae (*Microparasellus puteanus*); Oligochaeta; Amphipoda (*Salentinella angelieri*); Copepoda Cyclopidae (*Eucyclops serrulatus*); Copepoda Harpacticoida (*Nitocrella* sp.).
- Loc. G/142 — G/144 — Island of Cephalonie, Poros fresh-water well (water level on 5.5m; water depth: 1.5m; temperature: 16.5°C; pH: 6.8); April 2,1978; coll. Pesce, Maggi and Silverii.
Biological sample: Copepoda Cyclopidae (*Diacyclops antrincola*, *Acanthocyclops* (*Megacyclops*) *viridis viridis*, *Acanthocyclops* (*Acanthocyclops*) cf. *cephallenus*); Copepoda Harpacticoida (*Elaphoidella* sp.); Ostracoda; Amphipoda (*Bogidiella longiflagellum*, *Salentinella angelieri*); Isopoda Microparasellidae (*Microcharon latus latus*); Oligochaeta; Gastropoda; Insecta, larvae; Collembola.
- Loc. G/145 — Northern Peloponnesus, main road Patras-Pirgos, surroundings of Patras fresh-water well (water level on 6m; water depth: 3m; temperature: 15°C; pH:7); April 4,1978; coll. Pesce, Maggi and Silverii.
Biological sample: Ostracoda; Oligochaeta; Gastropoda; Insecta, larvae.
- Loc. G/146 — Northern Peloponnesus, main road Patras-Pirgos, 8Km from Patras

fresh-water well (water level on 8m; water depth: 2m; temperature: 16.5°C; pH:7); April 4,1978; coll. Pesce, Maggi and Silverii.

Biological sample: Copepoda Cyclopidae (*Thermocyclops sthephanidesi*); Ostracoda; Turbellaria (Tricladida); Mosquito, larvae; Syncarida (Bathynellacea); Water mites; Copepoda Harpacticoida; Oligochaeta.

Loc. G/147 — Northern Peloponnesus, main road Patras-Pirgos, Strenaitikà freshwater well (water level on 9m; water depth: 3.5m; temperature: 16.5°C; pH: 7); April 4,1978; coll. Pesce, Maggi and Silverii.

Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops languidoides s.l.*); Gastropoda; Turbellaria (Tricladida); Insecta, larvae.

Loc. G/148 — Northern Peloponnesus, main road Patras-Pirgos, Industrial area of Patras fresh-water well (water level on 12m; water depth 1.5m; temperature: 17.3°C; pH: 7.1); April 4,1978; coll. Pesce, Maggi and Silverii.

Biological sample: Copepoda Cyclopidae (*Eucyclops serrulatus*, *Diacyclops languidoides s. I.*); Ostracoda; Mosquito, larvae.

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Discussion

MATSAKIS. Est-ce que sur la base des données disponibles concernant l'Italie d'une part et de celles rassemblées par vous sur le secteur d'en face disons, à travers l'Adriatique, pourrait-on envisager une première comparaison valable?

BRIGNOLI. En fait, nous avons effectué des recherches sur toute la côte italienne, jusqu'à la région d'Ancona. Comme cela est connu dans beaucoup d'autres cas, on trouve aussi dans le domaine souterrain, un grand nombre de formes semblables, au niveau des genres, des espèces et même, dans quelques cas, de sous-espèces, entre cette région et la Grèce continentale occidentale, voire dans le cas de Cyclopides, des similitudes jusqu'en Crète et le Peloponnèse. Il existe par ailleurs, le cas déjà mentionné de *Salentinella* qui est présente de part et d'autre, tout le long des côtes, mais arrive jusqu'aux Baléares.

MATSAKIS. Est-ce que le groupe *Proasellus coxalis* s'est-il confirmé finalement comme étant "oriental", comme indiquait Racovitza dans ses premiers travaux? Quelles sont les limites actuelles de son expansion et où se situerait son foyer central de différenciation?

PESCE (traduit de l'italien). *Proasellus coxalis* semble être plutôt une espèce circum-méditerranéenne; on l'a trouvé même en Algérie, dans des eaux souterraines assez superficielles, près du désert. Le problème principal que pose actuellement ce type, se situe au niveau des sous-espèces, dont on a fait un grand nombre dans le passé mais qui doivent être contrôlées d'après les données accumulées depuis. Il existe deux lignées de *Proasellus*, la lignée des formes de surface et la lignée des formes souterraines, cavernicoles, interstitielles. Parmi les formes interstitielles on en a trouvé une nouvelle en Grèce qui se rattache à des formes de Yougoslavie; il y aussi en Grèce des formes de surface.