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REVISION ON THE SPECIES OF PSEUDOLACAZINA CAUS 1979 (FORAMINIFERIDA) FROM THE DIFFERENT LOCALITIES OF TURKEY

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ABSTRACT.- The megalospheric and microspheric specimens of the one fabularid species were first described and figured as *Fabularia alpani* Sirel and *Lacazina blumenthali* Reichel and Sigal respectively by Sirel from the llerdiain exotic limestone blocks within the ophiolitic melange near the village of Pemavut, S of Kars, Eastern Turkey. This large fabularid species is reexamined on the new material from the foregoing locality. In the result of this study, megalospheric specimens F.alpani and microspheric specimens L. *blumenthali* were renamed as a species of *Pseudolacazina Caus "Pseudolacazina alpani* (Sirel)"by the following generic features: all the chambers of the megalospheric specimens are arranged in biloculine mode; microspheric specimens start growth with quinqueloculine chambers cycles reduced biloculine and monoloculine; chambers subdivided by continuous, longitudinal partitions (as septula) in both generations. On the other hand, the Anatolian Thanetian species *Pseudolacazina oeztemueri* (Sirel) and the Yugoslavian species *Pseudolacazina donatae* (Drobne) are described and figured. The specific differences of *P. alpani, P.oeztemueri* and *P. donatae* are discussed with the other species of Pseudolacazina.

INTRODUCTION

Three species *P.alpani, P. oeztemueri* and *P. donatae* which have been occured at the different localities of Turkey (Fig.1) are described with the new illustrations and their specific features are discussed with the other species of *Pseudolacazina.* In 1972, the megalospheric and microspheric forms of large, ovoid trematophorid foraminifera wete described and figured as F.alpani and *L.blumenthali* respectively by (Sirel, 1972, p. 280-283, Plate II, fig. 1-6; Plate VI, fig. 1-4;- Plate I, fig. 1-3) from the Upper Paleocene (llerdian) limestone blocks within the ophiolitic melange near the village of Pernavut, S of Kars (Fig.1). This dimorphic fabularid species is reexamined on the new limestone samples from this locality; as a result of this investigation, the megalospheric *F.alpani* and microspheric *L.blumenthali* were renamed as the one species of *Pseudolacazina* as *P.alpani* (Sirel) by the following generic features: the megalospheric specimens have biloculine chambers throughout ontogeny; microspheric forms start growth with pleuroloculine (probably quinqueloculine) chambers cycles reduce biloculine and morroloculine cycles in the adult; chambers subdivided by continuous longitudutinal partitions (as septula) in the both generations. *P.alpani* is associated in the llerdian limestone blocks of the Kars region with *Miscellanea miscella,* (D'Archiac and Haime), *Alveolina minervensis* Hottinger, *Alveolina avellana* Hottinger, *Alveoina (Glomalveolina) lepidula* Schwager, *Alveolina (Glomalveolina) minutula* Reichel and Renz, Alveolina (Glomalveolina) karsica Sirel, *Alveolina (Glomalveolina)* sp. 1, 2, (new species), *Dictyoconus(Dictyoconus)* cf. indicus Davies, *Sakesaria* cf. *dukhani* Smout, *Kathina (Smoutina ?) subsphaehca* Sirel, *Ranikothaliasp., Kathina* sp. and *Thomasella labyrinthica* (Grimsdale). The trematophorid species and its subspecies from the Thanetian of Yugoslavia were described and figured as *Fabularia donatae* and *Fabularia donatae libumica* by Drobne (1974). As reported by Caus (1979) *F.donatae* is a species of *Pseudulacazina.* This smallest species of *Pseudolacazina* is found together with *P.oeztemueri* at the various localities, particularly at the Central Turkey (Fig. 1). These two species were found below the algal limestone bed with *Alveolina (Glomalveolina) primaeva* (Reichel) only at the Haymana area, Central Turkey. Unfortunately, so far, we did not find *P.oeztemueri* and *P.donatae* together with *A. (Glomalv.) primaeva* in Turkey, although *P. donatae* had been occured with *A. (Glomalv.) primaeva* in Yugoslavia (Drobne, 1974, p. 45, Plate XIV, fig. 2).

All the thin sectoins of the *Pseudolacazina's* species described and figured in this paper are deposited in

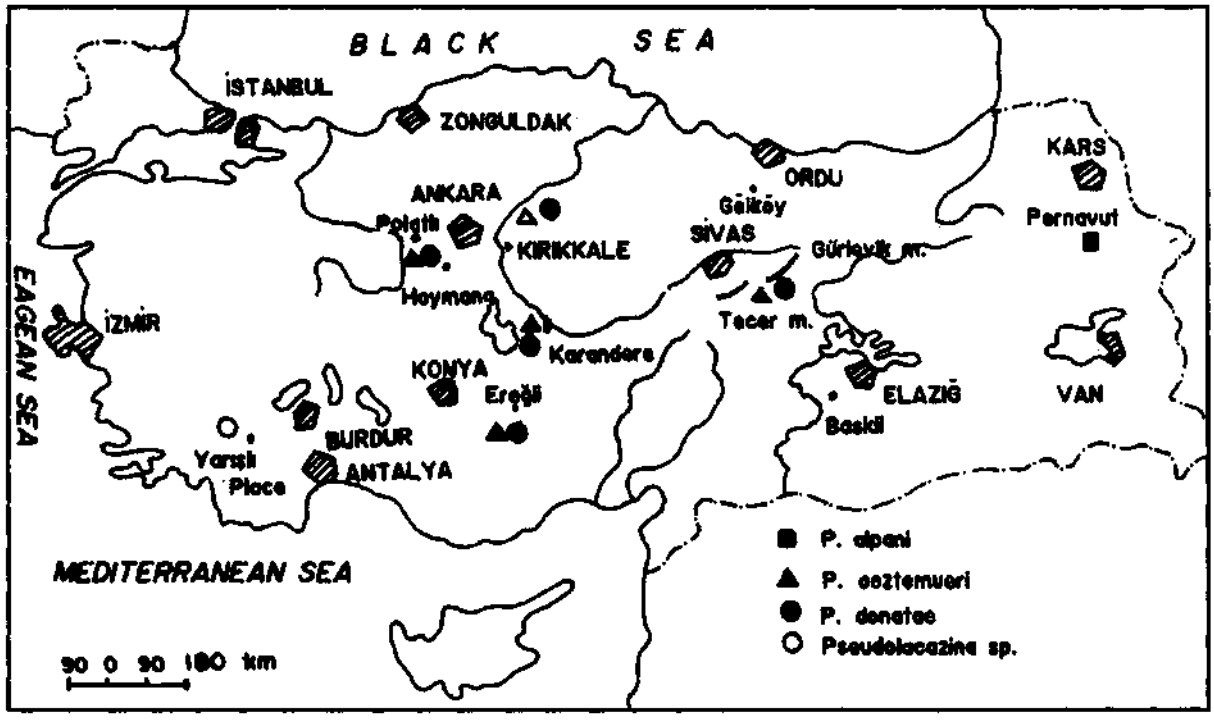

Fig. 1- Geographic distribution of the species of Pseudolacazina Caus in Turkey.

the collection of Ankara University, faculty of Science, Geological Engineering, Ankara, Turkey, under the numbers shown in plates 1 -5.

SYSTEMATIC DESCRIPTION

Family : Fabulariidae Ehrenberg , 1839
Genus : Pseudolacazina Caus, 1979
Type species : *Pseudolacazina hottingeri* Caus, 1979

Diagnosis of the genus

Subspheric to ovate, dimorphic, trematophorid fabularids of large size; megalospheric specimens biloculine throughout ontogeny (Plate I, fig. 4-8; Plate II, fig. 3, 5, 6, 9,10; Plate III, fig. 3, 8,10,11; Plate IV, fig. 3, 4, 6-8; Plate V, fig. 4, 8, 13, 14), in microspheric specimens with numerous whorls: early chambers in quinqueloculine arrangement (Plate IV, fig. 9; Plate V, fig. 1, 3, 7, 9, 11,15) later biloculine (Plate III, fig. 1, 4, 7; Plate V, fig. I, 3, 9,10,12,16) and finally with wholly embraching chambers monoloculine (Plate I, fig. 1; Plate III, fig. 1, 4, 6, 7; Plate IV, fig. 5, 9; Plate V, fig. 1, 3, 7, 9-12,15,16), adult chambers (biloculine and monoloculine) subdivided by numerous, continuous longitudinal partitions (as septula) that form continuous chamberlets spiralling arround the shell, wall calcareous, porcellaneous, basal layer well developed; annular trematophoric aperture with pillars (Plate I, fig. 2, 8; Plate II, fig. 2, 8, 10; Plate IV, fig. 1,2; Plate V, fig. 2, 17) alternating crowning the upper or lower flattened surface of the shell; Paleocene- Eocene.

Pseudolacazina oeztemueri (Sirel) 1981
(Plate III, fig. 1-7; Plate IV, fig. 1-9; Plate V, fig. 16,17)

1981 *Lacazina dztemuri* Sirel, p. 82, Plate IV, fig.1 - 6; Plate V, fig. 1-6.
1986 *Pseudolacazina oeztemueri* (Sirel), Sirel, p. 125, Plate I, fig. 1-6; Plate II, fig.1-6, Plate III, fig. PA, PB.

1988 *Pseudolacazina oeztemueri* (Sirel), Drobne, fig. 9/10,17.

DESCRIPTION

Microspheric specimens ovoid, large *Pseudolacazina* with a striking dimorphism, equatorial diameter varies between 2.7 mm and 4.9 mm, axial diameter reaches 3.4 mm, elongation (in the direction of the apertural axis) reaching an index 1.4 but the main value is arround 1.3; the microsphere is small, spherical (0.022-0.025 mm in diameter). The first three undivided cycles which follow the microsphere are arranged in quinqueloculine (Sirel, 1986, Plate I, fig. 2, 6). Their diameter vary 0.248 mm to 0.266; they are followed by 4-5 diveded bilocular cycles with a diameter 0.719-0.892 mm, all the later chambers are monoloculine.

Megalospheric specimens ovoid to subspheric, the equatorial diameter 1.2-1.8 mm, axial diameter 1.29-1.35 mm, megalosphere ovate to subspheric with bottle-neck (goulot) and large when compare to the size of the shell, its diameter varies between 0.235 mm and 0.310 mm; chambers arrangement biloculine throughout ontogeny.

Differential diagnosis

P.donatae is distinguished from *P.oeztemueri* by small size by much lower chambers producing very narrow chamber lumina, therefore *P. donatae* has 11 divided biloculine and monoloculine chambers in an axial diameter of the shell of 2 mm (Drobne, 1974, Plate IV, fig. 21; Plate IX, fig. 1) and in this paper (Plate V, fig. 1, 9, 12), whereas, P.oeztemueri has 11 divided chambers in an axial diameter of the shell of 3.6 mm (Plate III, fig. 4). Furthermore, the megalospheric specimens of *P. donatae* has much lower chambers when compare to the megalospheric specimens of *P.oeztemueri.* Type species *P.hottingeri* differs from *P.deztemueriby* smaller size, by much lower chambers and by under developed quinqueloculine and biloculine stages, llerdian species *P. alpani* is easily distinguished from *P.oeztemueri* by its larger size and megalosphere, by higher chambers with bigger chamberlets, particularly in the megalospheric specimens.

Stratigraphic and geographic distribution

P.oeztemueri is associated at the type locality, Tilkitepe and Kocaağıldere, approximately 2 km southwest of Karandere village, NW of Aksaray, Central Turkey, Sirel (1981) with *Bolkarina aksarayi* Sirel, *P.donatae, Idalina sinjarica* Grimsdale, keramospherid specimens, Miliolidae and Algae of Thanetian age.

It occurs in Thanetian limestone of Mahmutlar village, NW of Kırıkkale, Cenral Turkey. It is associated at this locality with *B.aksarayi, Miscellanea* ? *primitiva,* Rahaghi, *Miscellanea* ? *globularis* Rahaghi, keramospherid specimens, Miliolidae and Algae.

It has been found in the Çaldağ section (Sirel, 1995, fig. 2 and Sirel, 1999, fig. 2); W of Haymana, Central Turkey (Fig. 1). It is accompained by *B. aksarayi, Laffitteina mengaudi* (Astre), *P. donatae, M. ? primitiva, M.* ? *globularis, I. sinjarica,* keramospherid specimens, Miliolidae and Algae.

It is found in the Thanetian limestone of Sırakayalar gediği, approximately, 25 km SE of Eregli, SE of Konya, Central Turkey, with *B. aksarayi, P.donatae, M.* ? *primitiva, Idalina* sp., Miliolidae and Algae.

It occurs in the Thanetian limestone with *B. aksarayi, P. donatae, Miscellanea* sp., Miliolidae and Algae at the Tecer and Gürlevik mountains, S of Sivas, Central Turkey.

Pseudolacazina donatae (Drobne), 1974
(Plate V, fig. 1-15)

1974 *Fabularia donatae* Drobne, p. 167, Plate II, fig. 1-6; Plate II, fig. 1-3; Plate IV, fig. 1-9,17-21; Plate IX, fig. 1.
1979 *Pseudolacazina* donatae (Drobne), Caus, p. 36.
1981 *Fabularia donatae* Drobne, Sirel, p. 84, Plate V, fig. 8-10.
1986 *Pseudolacazina donatae* (Drobne), Sirel, p. 125.
1988 *Pseudolacazina donatae* (Drobne), Drobne, p. 658, fig 9/7-9.

DESCRIPTION

Ovoid, small *Pseudolacazina* with distinct dimorphism, elongation reaching an index of 1.29 in microspheric, 1.09 in megalospheric specimens; maximum length 2.2 mm and 1.5 mm, maximum breadth 1.9 mm and 1.1 mm in the microspheric and megalospheric specimens respectively.

Megalospheric specimens have large megalosphere (0.200-0.250 mm in diameter) followed by bottle-neck with thin wall; chambers arrangement bilocular throughout ontogeny, it has 6 biloculine chambers in an axial diameter of the shell of 1.15 mm; low biloculine chambers subdivided by longitudinal partitions that form continuous very small chamberlets; trematophore simple, supported by a single central pillar (Plate V, fig. 4).

Microspheric specimens are more than twice the size of the megalospheric specimens, all the chambers are strikingly low when compare to the microspheric specimens of *P. oeztemueri,* quinqueloculine stage reaches 0.200 mm in diameter, biloculine stage consists usually of four cycles, the following monoloculine stage composed of about nine concentrich ambers of low height; trematophore simple, supported by a single, central pillars (Plate V, fig. 2, 5, 6).

Its stratigraphic level and the geographic distribution are given in the chapter of the distribution of *P. oeztemueri.*

Pseudolacazina alpani (Sirel), 1972
(Plate I, fig. 1-8; Plate II, fig. 1-10; Plate III, fig. 8-11)

1972 *Fabularia alpani* Sirel, p. 280, Plate II, fig. 1 -6.
1974 *Fabularia alpani* Sirel, Drobne, p. 45.
1988 *Fabularia alpani* Sirel, Drobne, p. 656, fig. 8/3.

Emended diagnosis

Ovoid, large *Pseudolacazina* with a striking dimorphism, elongation reaching an index of 1.3 in megalospheric, 1.5 in microspheric specimens; maximum length 3.7 mm and 5.3 mm; maximum breadth 3 mm and 4.2 mm in the-megalospheric and microspheric specimens respectively.

Megalospheric specimens with a large, spherical megalosphere of 0.5 mm in avarage diameter, followed by distinct bottle-neck with thin wall; chamber arrangement bilocular throughout ontogeny (Plate I, fig. 4-6; Plate II, fig. 3, 5, 6, 9); all the chambers are strikingly higher when compare to the megalospheric specimens of *P. oeztemueri* and *P. donafae;* it has 5 bilocular chambers in an axial diameter of the holotype of this species of 2.6 mm, biloculine chambers subdivided by longitudinal partitions that form continuous chamberlets; Chamberlets generally low elliptical in shape and their height is more smaller than their width; ovoid elongated forms with trematophore, supported by at least one, central pillars (Plate I, fig. 5, 8; Plate II, fig. 6,10).

Microspheric specimens are very rare, microsphere can not be observed, early chambers pleuroloculine (quinqueloculine ?), later biloculine and finally monoloculine; chambers are strikingly higher when compare to the microspheric specimens of *P.oeztemueri* and *P. donatae.*

REMARKS

The megalospheric and the microspheric specimens of the one fabularid species were described and figured as *Fabularia alpani* (Sirel, 1972, p. 280, Plate II, fig. 1-6) and *Lacazina blumenthali* respectively (Sirel, 1972, p. 282, Plate VI, fig. 1-4; Plate VII, fig. 1 -3) from the Upper Paleocene (Ilerdian) of the Pernavut village, S of Kars (Fig. 1). This ovoid, large, dimorphic fabularid species is reexamined on the new material collected from the type locality. As a result of this study, megalospheric *F.alpani* and microspheric *L blumentlaliv/ere* renamed as a species of *Pseudolacazina (P. alpani)* by the presence of the following generic features: all the chambers of the megalospheric P.alpani are arranged in biloculine mode (Plate I, fig. 4-6, 8; Plate II, fig. 3, 5, 6, 9-10); microspheric *P. alpani* start growth with pleuroloculine (quinqueloculine ?) chamber cycles (Sirel, 1972, Plate VII, fig. 1-2) reduced biloculine (Plate I, fig. 1; Plate II, fig. 2), (Sirel, 1972, Plate VII, fig. 1, 2) and monoloculine cycles in the adult (Plate I, fig. 1,2); adult chambers (biloculine

and monoloculine) subdivided by continuous, longitudinal partitions (as septula) in both generations (Plate I, fig. 2; Plate II, fig. 1, 2, 7, 8). Ilerdian species *P.alpani* differs from the Eocene species *P.hottingeri,* and the Thanetian species *P.oeztemueri, P. donatae* in possessing large size and large meglosphere.

DISTRIBUTION

Strigraphic, geographic distribution and foraminiferal assemblage of *P. alpani* are given in the introduction chapter.

DISCUSSION AND CONCLUTION

As mentioned by Hottinger et al., (1989, p. 103) there is a general consensus to define the genera of Mesozoic to Recent larger complex foraminifera by the presence or absence of structural elements such as septula, pillars, pre-and post-canals etc. While the species are characterized by proportions and/or absulate sizes of the shell and its companents. Chamber arrangement is neither a structural elements nor a size character of the shell. However, many authors have to apply the chamber arrangement in the defination of the larger complex foraminifera, particularly larger trematophorid genera (Caus, 1979; Drobne, 1984; Loeblich and Tappan, 1964,1987 and Hottinger et al., 1989), in spite of the fact that the chamber arrangement is unsuitable to this general consensus. The Tertiary genus *Pseudolacazina* has its chambers with chamberlets and the numerous opening on a trematophore in common with the calcareous, porcellaneous foraminiferal genera *Fabularia* Defrance, *Lacazina* Munier-Chalmas and *Periloculina* Munier-Chalmas and Schlumberger. In that case whether the presence or absence of the chamber arrangement is being important in the defination of the trematophoric, complex foraminiferal genera, on condition that we use the chamber arrangement combined with the particular characteristic of the chamber subdivision (partitions and /or septula, pillars and their position from one chamber to the next) of the both generations together. The Thanetian species, *P.oeztemueri, P.donatae,* and Ilerdian species *P.alpani* which have been found at the different localities of Turkey (Fig.1) showing the following same diagnostic generic features with the Eocene species *P. hottingeri* (type species): the chambers arrangement (biloculine in megalospheric forms, quinqueloculine, later biloculine and finally monoloculine chambers cycles in microspheric forms) and by continuous, longitudinal partitions in both generations.

Pillared species *Pseudolacazina loeblichi* Hottinger and Drobne and Caus and *Pseudolacazina contabrica* Hottinger and Drobne and Caus were described and figured from the Santonian of Spain by Hottinger et al., (1989). *P.loeblichi* and *P.contabrica* have their chamber arrangement (biloculine throughout ontogeny in megalospheric forms, pleuroloculine, biloculine and monoloculine in microspheric forms) in both generations in common with all Tertiary represantatives of *Pseudolacazina,* but the former two Upper Cretaceous species differ from the Tertiary species by having longitudinal, discontinuous pillars (Hottinger et al., 1989, Plate 24, fig. 2, 3; Plate 26, fig. 3) instead of the continous longitudinal partitions. These two species have a tendency to the new genus of Fabulariidae by possessing chambers arrangement combined with the diagnostic structure discontinuous, longitudinal pillars.

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PLATES

PLATE-I

Pseudolacazina alpani (Sirel)
(Early llerdian, Pernavut village, S of Kars, Eastern Turkey)
All figs, x 20

Figs. 1-2 Microspheric forms.
Figs. 3-8 Megalospheric forms.

Fig. 1- Almost centered section perpendicular to apertural axis, 5/30.

Fig. 2- Oblique longitudinal section, 5/30.

Fig. 3- Oblique longitudinal section, 5/41/3.

Fig. 4- Centered section perpendicular to apertural axis, note large megalosphere and biloculine chambers throughout ontogeny, 5/26/4.

Fig. 5- Slightly oblique longitudinal section in apertural axis, note weakly developed central trematophorean pillars in the apertural foramina, 5/24/1.

Fig. 6- Centered section perpendicular to apertural axis, holotype of *Fabularia alpani* (Sirel, 1972, Plate-2, fig. 1), 5/31/1.

Fig. 7- Almost longitudinal section in apertural axis, 5/30.

Fig. 8- Almost longitudinal section in apertural axis showing trematophorean pillars in the apertural foramina, 5/30.

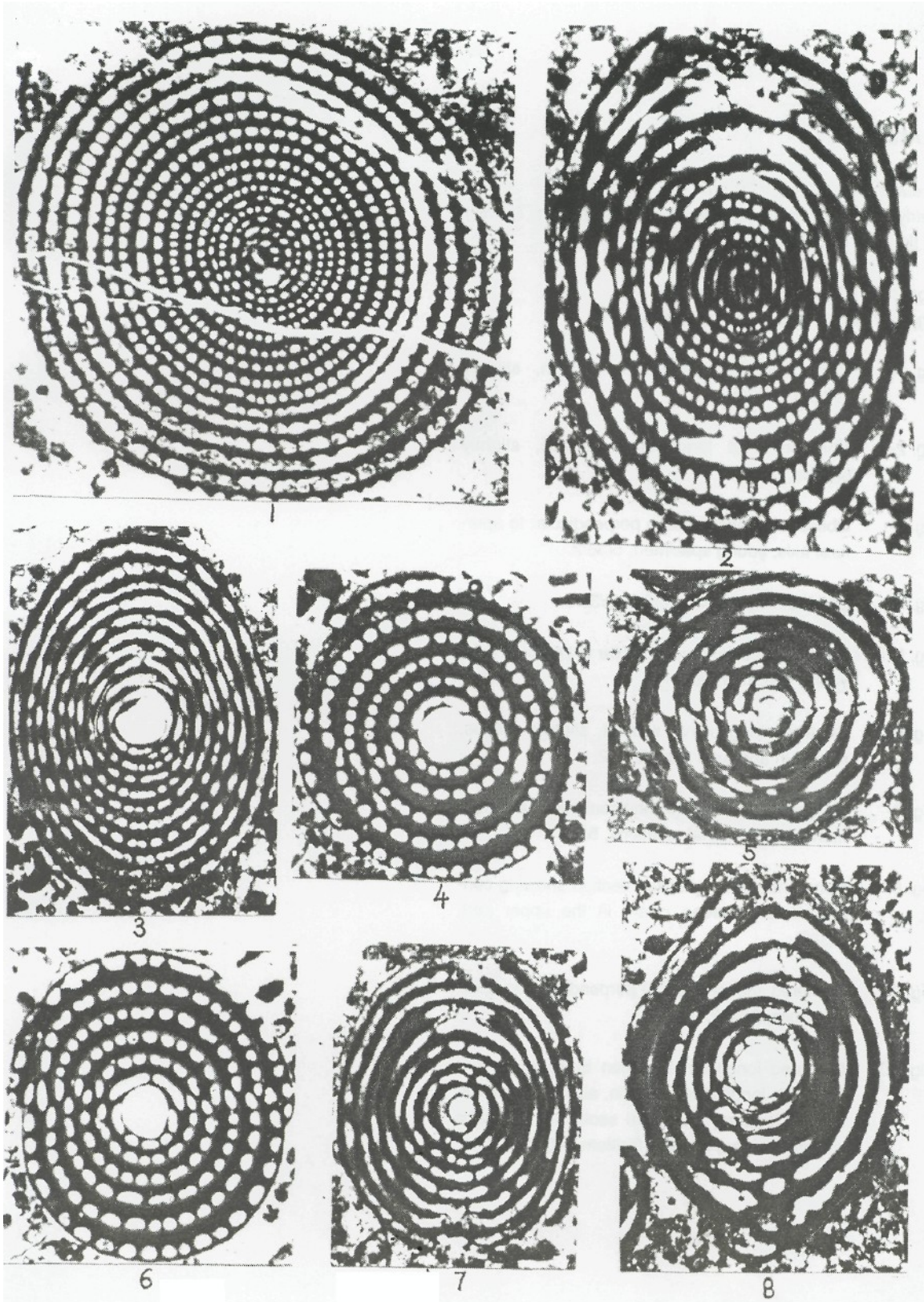
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PLATE-II

Pseudolacazina alpani (Sirel)
(Early llerdian, Pernavut village, S of Kars, Eastern Turkey)
All fig. x 20 except fig. 2x10.

Figs. 1, 2, 8 Microspheric forms.
Figs. 3-7, 9, 10 Megalospheric forms.

Fig. 1- Non centered longitudinal section, slightly oblique, 5/36/5.

Fig. 2- Non centered longitudinal section, slightly oblique, 5/30.

Fig. 3- Oblique centered section perpendicular to apertural axis, young specimen, 5/36/2.

Fig. 4- Oblique longitudinal section, 5/38/3.

Fig. 5- Centered section perpendicular to apertural axis, young specimen, 5/41/4.

Fig. 6- Centered longitudinal section, slightly oblique, almost in apertural axis, 5/37/2.

Fig. 7- Tangential section, showing continuous arrangement of longitudinal partitions, 5/30.

Fig. 8- Non centered longitudinal section showing central trematophorean pillars in the upper part, 5/37/2.

Fig. 9- Centered section, almost perpendicular to apertural axis, 5/38/2.

Fig. 10- Centered longitudinal section in apertural axis (top left), longitudinal section, almost in apertural axis (bottom) and axial section of *Alveolina (Glomalveolina)* \e*pidula* (bottom left), 5/41/1.

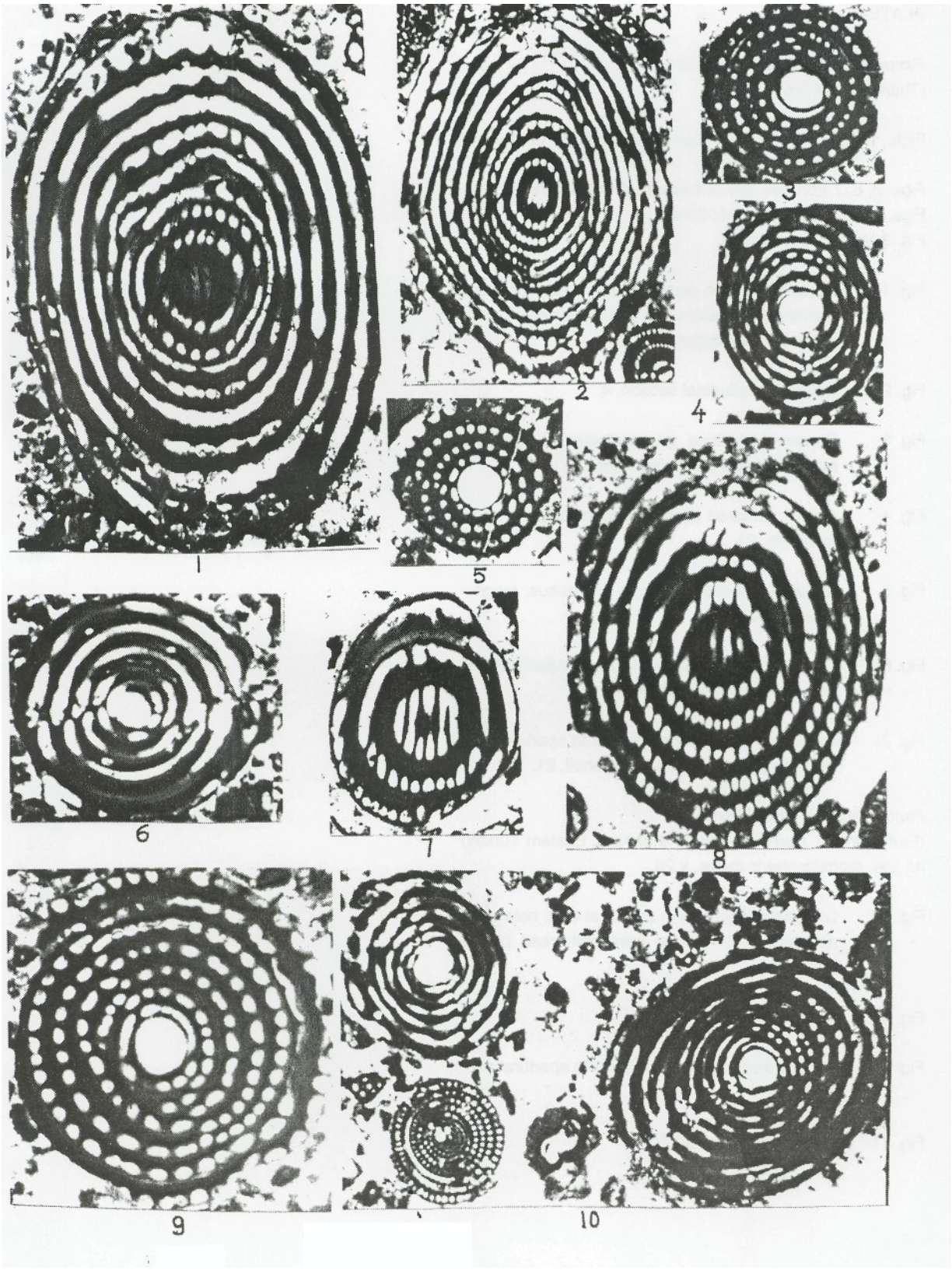
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PLATE-III

Pseudolacazina oeztemueri (Sirel)
(Thanetian, all figs, x 20)

Figs. 1, 2, 4, 5 from the NW of Kırıkkkale, E of Ankara, Central Turkey
Figs. 3, 6, 7 from the NW of Aksaray, Central Turkey.
Figs. 1, 2, 4-7 Microspheric forms.
Fig. 3 Megalospheric form.

Fig. 1 - Centered section perpendicular to apertural axis showing quinqueloculine, biloculine and monolo-ouline growth stages, 21.

Fig. 2- Oblique longitudinal section, 4.

Fig. 3- Centered sections perpendicular to apertural axis and tangential section (top). (Y).

Fig. 4- Almost centered section perpendicular to apertural axis, 21.

Fig. 5- Tangential section showing continuous, longitudinal partitions, 46.

Fig. 6- Centered section perpendicular to apertural axis showing growth stages, Ak-18.

Fig. 7- Centered section perpendicular to apertural axis showing growth stages of the shell, 21.

Pseudolacazina alpani (Sirel)
(Early Ilerdian, Pernavut village, S of Kars, Eastern Turkey)
All figs, megalospheric forms, x 20.

Fig. 8- Longitudinal section in apertural axis, note early appearance of central trematophorean pillars, 5/58/1.

Fig. 9- Oblique section, 5/41/2.

Fig. 10- Centered section perpendicular to apertural axis, 5/38/8.

Fig. 11- Oblique sections, 5/37/1.

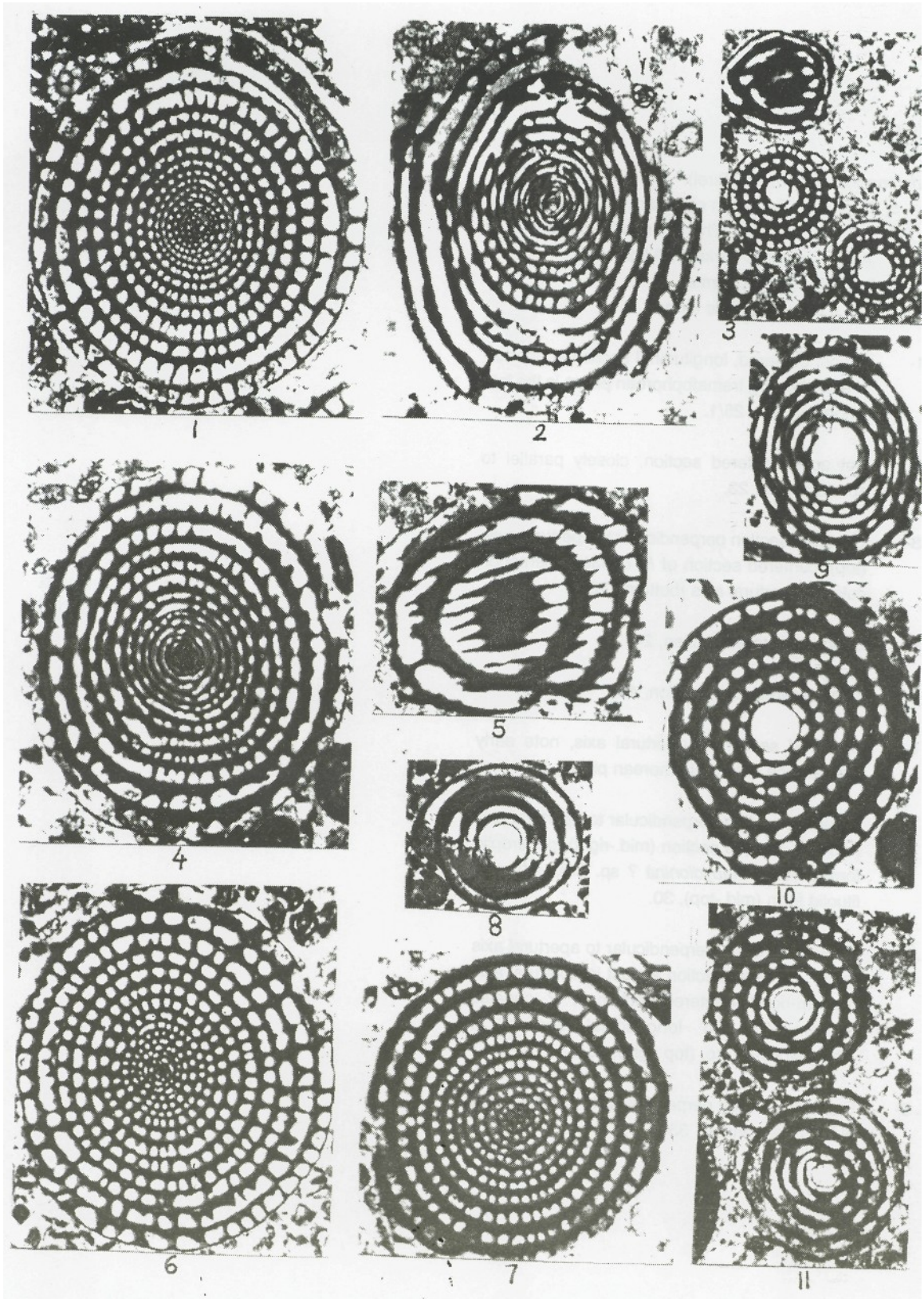
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PLATE-IV

Pseudolacazina oeztemueri (Sirel)

Figs. 1, 5, 8 from the Thanetian of Aksaray, Central Turkey.

Figs. 2-4, 6, 7, 9 from the Thanetian of Kırıkkale, E of Ankara, Central Turkey. All figs, x 20.

Figs. 1, 2, 5, 9 Microspheric forms.

Figs. 3, 4, 6-8, 9 Megalospheric forms.

Fig. 1- Almost centered, longitudinal section in apertural axis showing trematophorean pillars in the late ontogeny, Aks. 25/1.

Fig. 2- Not quite centered section, closely parallel to apertural axis, 23.

Fig. 3- Centered section perpendicular to apertural axis, (top), centered section of *P. donatae,* perpendicular to apertural axis (bottom), 28.

Fig. 4- Oblique centered section, 24.

Fig. 5- Non centered axial section, 40.

Fig. 6- Centered section in apertural axis, note early appearance of trematophorean pillars, 34.

Fig. 7- Centered section perpendicular to apertural axis (top left), oblique section (mid.-right), peneroplid form (mid.), *Rhapydionina* ? sp. (mid.-left) and lituolid form (mid.-top), 30.

Fig. 8- Centered section perpendicular to apertural axis (mid.), centered section almost in apertural axis (bottom-right), centered section of P. *donatae* (bottom-left) and. longitudinal section of *Rhapydionina* ? sp. (top right), 23/3.

Fig. 9- Centered section perpendicular to apertural axis of both generations, 33.

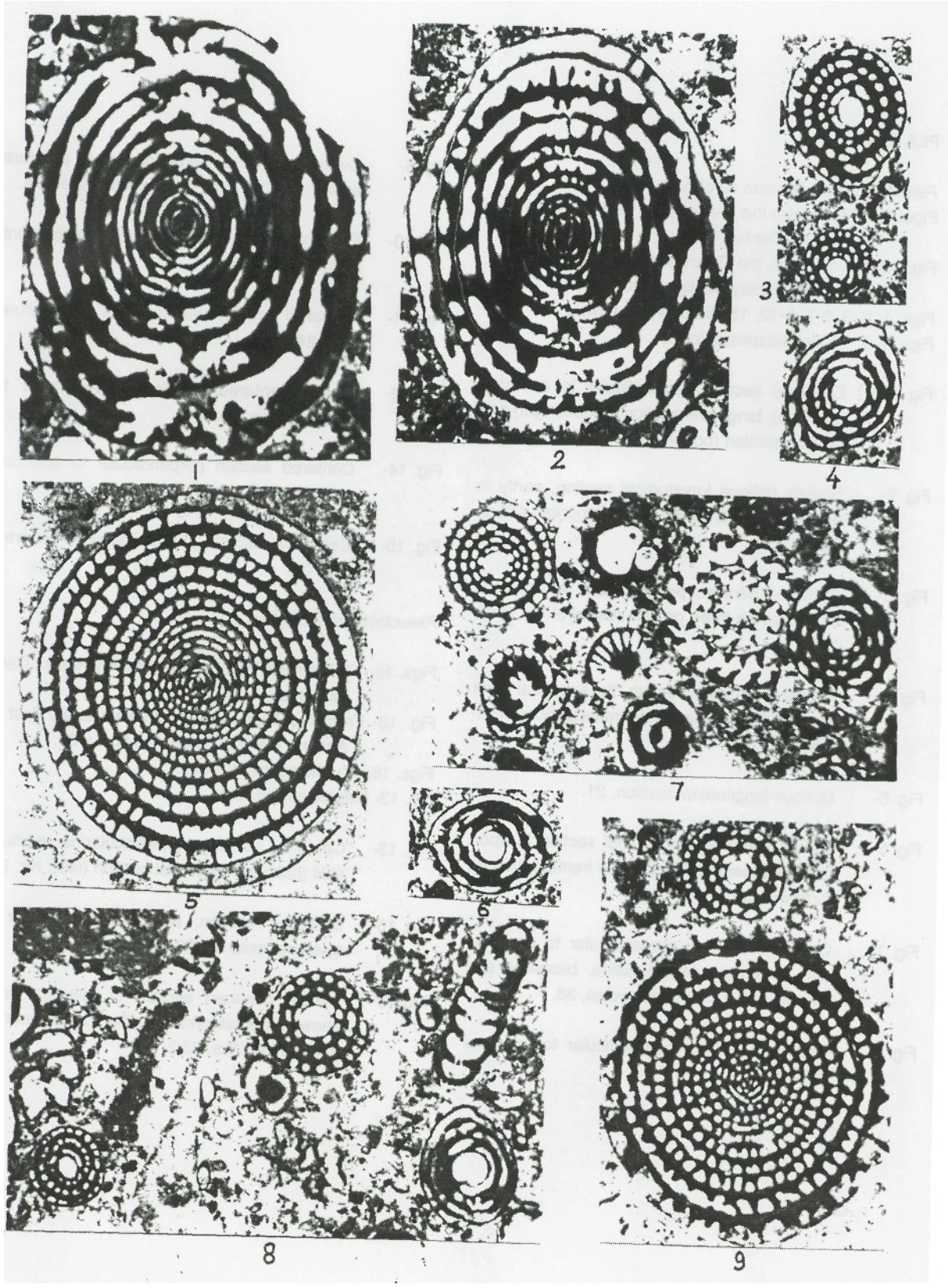
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PLATE-V

Pseudolacazina donatae (Drobne)

Figs. 1-7,13,15 from the Thanetian of Kırıkkale area, E of Ankara, Central Turkey.

Figs. 8-12, 14 from the Thanetian of Aksaray region, Central Turkey. All figs, x 20.

Figs. 1, 2, 3, 5-7, 9-12, 15 Microspheric forms.

Figs. 4, 8, 14 Megalospheric forms.

Fig. 1- Centered section perpendicular to apertural axis (top), tangential section (bottom right) and oblique section (bottom left), 6.

Fig. 2- Slightly oblique longitudinal section, partly in apertural axis, showing trematophorean pillars, 36.

Fig. 3- Centered section, perpendicular to apertural axis showing three growth stages of the shell, 17.

Fig. 4- Almost centered section in apertural axis showing early appearance trematophorean pillars, x.

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Fig. 9- Centered section, perpendicular to apertural axis showing growth stages of the shell, 14.

Fig. 10- Centered section, perpendicular to apertural axis, 15.

Fig. 11- Centered section perpendicular to apertural axis, 24.

Fig. 12- Almost centered, section perpendicular to apertural axis, 36.

Fig. 14- Centered section perpendicular to apertural axis, Ak. 27/1.

Fig. 15- Centered section perpendicular to apertral axis, 36.

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Figs. 16,17- From the Thanetian of Aksaray region, Central Turkey.

Fig. 13- From the Thanetian of Kırıkkale area, East of Ankara, Central Turkey. All figs, x 20.

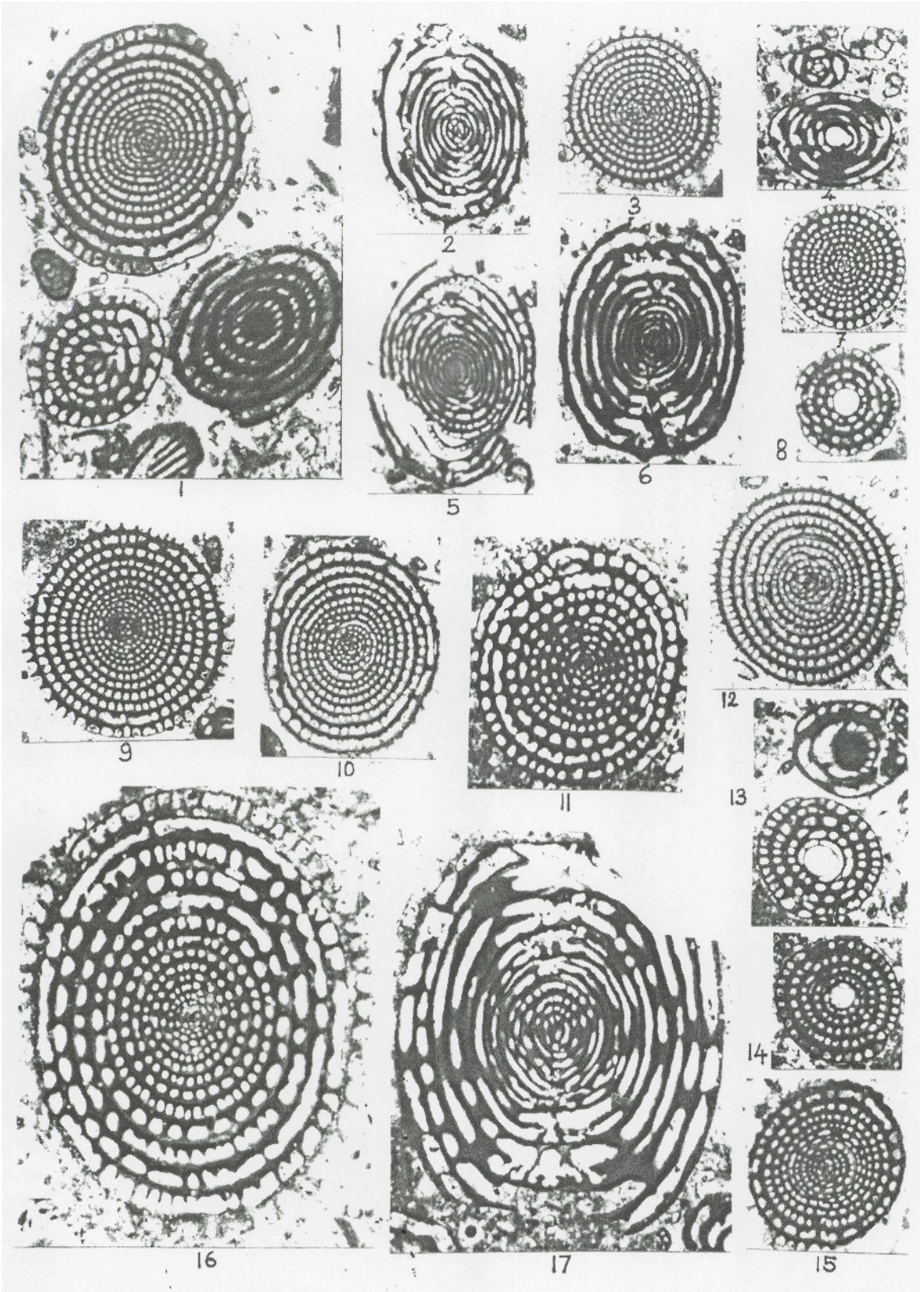
Figs. 16, 17- Microspheric forms.

Fig. 13- Megalospheric form.

Fig. 13- Centered section, perpendicular to apertural axis (bottom), tangential section (top), Kır. 3.

Fig. 16- Centered section, almost perpendicular to apertural axis, Ak. 23.

Fig. 17- Almost centered section in apertural axis, showing trematophorean pillars in the apertural foramina, Aks. 23/3.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