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# ROUTING AND CONTROL RECORD

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9 August 1955
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BUILDING | ROOM NO.

**TITLE** [redacted] Guide 62

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**REMARKS**

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| BUILDING: Quarters Rye | ROOM NO.: 1926 | EXTENSION: 2491 |

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FORM NO. 57-29
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(20-40)

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PART I

Putria, F. S. - 1948 - Protriticites, a new fusulinid genus. Trudy Lvovskago Geologicheskago Obstchestva pri Gosudarstvennom Universitete imeni Ivana Franko. Paleontologicheskaia seriia, vypusk 1.-/

-/ The paper was prepared for publication already in 1940; it is now published without change of the text.

CPYRGHT

(p. 89) Wall structure is one of the most important generic characters in evolution of fusulines. White (1932) already noted the importance of this character, as he pointed out that the process of gradual differentiation of wall, accompanied by enlargement of its structural elements, is the most evident and principal trend disclosed in the study of the fusulines; and it permits to trace their pace-by-pace development [evolution] in the course of time. D. M. Rauser-Chernousova has studied the phylogeny of fusulines in fair detail.

Definite stages in the evolution of the wall in fusulines are obviously correlated with their over-all phyletic increase in size of conch, and on them is based the differentiation of the fundamental classificatory units: subfamilies and genera.

When studying the foraminifera of the Upper Carboniferous deposits of the eastern part of the Donetz basin I have encountered a fairly peculiar group of fusulines, which does not possess a very clearly expressed generic characters, but nevertheless deserves differentiation into a new genus: Protriticites.

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The generic characteristics of Protriticites combines, on one side, the characters of genus Fusulinella Moeller (theca with well expressed diaphanotheca, and weak fluting of septa), and on the other side, the

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characters of genus Triticites Girty (theca with obvious karyotheca in all volutions of shell). Thus, the newly described genus Protriticites has a wall that seems, at a first glance, to possess a structure typical of Fusulinella. It is made of fairly thin dark layer: tectum; comparatively light and thick layer: diaphanotheca; and two tectoria: thin outer, and considerably thicker inner. However, it is also clear that its wall structure is unlike that of Fusulinella in other respects: its diaphanotheca, tectoria, and chomata have a finely alveolar texture, distinctly non-unitypical for the different layers in the theca and the chomata; and the inner tectorium has the coarsest alveolar texture, its trabeculae being much more sharper, the pore-canalicules being substantially wider than in the overlying diaphanotheca (pl. I, figs. 1, 4 and 6). The difference in the type of the alveolar texture between the inner tectorium and the diaphanotheca is fairly noticeable in medial volutions, but is particularly clear in outer volutions, where the contact of the two kinds of the alveolar texture is occasionally marked by a thin irregular line (fig. 1). In the course of the further development of the inner tectorium, as seen in the ultimate volution, the contact line disappears, so that the structural elements in the wall of Protriticites become but little different from the same in Triticites Girty.

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The new genus thus confirms most obviously the gradualness of the evolution of the wall structure, and which is expressed in complication of its structural elements not only in the phylogeny of the fusulines, but also in the individual development or ontogeny.

It seems possible that the complex, non-unitypical wall structure of Protriticites has somewhat hindered gaseous exchange between the protozan in the shell, and the surrounding water medium; and, if so, could

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have resulted in shortening of the geologic duration of Protriticites in time and space.

Thus, Protriticites is characteristic only for the deposits of formation (svita) $C_3^N$, where it is associated with other fusulines, which preserve their transitional, that is Middle Carboniferous aspect. But in the lower part of the next formation, $C_3^O$, Protriticites is replaced by a typical Upper Carboniferous triticitic complex of fusulines.

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The mentioned characteristic features of Protriticites determine its place in the scheme of fusulinid classification between genera Fusulinella and Triticites, and indicate its assignment to the sub-family Schwagerininae Dunbar and Henbest.

Genus Protriticites, n. gen.

Shell short-ventricose to sub-cylindrical, moderately sized. Wall moderately thick, less frequently quite thin, or quite thick.

(p. 91) Wall structure quite complex, consisting of tectum, diaphanotheca, and two tectoria. Diaphanotheca, tectoria, and chomata have a finely alveolar texture; the inner tectorium having the coarsest alveolar texture among them. The vigorous development of the inner tectorium is crowding out the diaphanotheca in outer volutions. Septa weakly fluted. Chomata prominent in all volutions. Aperture single. Septal pores occasionally developed. Geno-type: Protriticites globulus, sp. nov.

Protriticites globulus, sp. nov.

Pl. I, figs. 1-2

1929 Fusulinella pseudobocki [as identified by] Braznikova Institut geologii Ak. Nauk U.R.S.R., vol. VI, fasc. 1-2, pp. 259-260, pl. III, figs. 1-2.

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Shell ventricose, much inflated in the middle, with slightly convex sides, which rapidly narrow toward bluntly acuminate to rounded ends.

Size moderate: L=3.0-5.5 mm.; D=1.2-2.3 mm.; L:D averages 2.4:1. Dimensions of holotype: L=5.04; D=2.10; L:D=2.4:1; at 4th volution: L:D=1.56:1.

Spiral not wide in inner 3-4 volution, but expands fairly rapidly in the succeeding volutions. Diameter of 4th volution from .70 to .90 mm., occasionally reaching up to 1.5 mm. Diameter in holotype: 1st vol.=.20; 2nd vol.=.32; 3rd vol.=.56; 4th vol.=.90; 5th vol.=1.29; 6th vol.=1.83; $6\frac{1}{2}$ vol.=2.10 mm.

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Number of volutions 5 to 7, occasionally to $7\frac{1}{2}$.

Proloculum spherical, with average outer diameter .10 mm.

Theca comparatively thick, gradually increasing in thickness toward ultimate volution. Thickness of theca in holotype: 1st vol.=.016 mm.; 2nd vol.=.030; 3rd vol.=.042; 4th vol.=.052, 5th vol.=.068; 6th vol.=.072; $6\frac{1}{2}$ vol.=.076.

Septa thinner than theca; weakly fluted in equatorial region; moderately fluted in polar regions. Septal pores observed in polar regions of some specimens.

Aperture narrow; not high in inner and median volutions; noticeably widening in outer volutions. Width of aperture in last two volutions .48 and .62 mm. respectively, with its height 1/3 of chamber lumen.

(p. 92) Chomata massive, occupying about 2/3 of height of chamber lumen; chomata developed in all volutions; chomata wide in inner volutions, narrower and subquadrate in outer volutions.

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Comparison. Genotype of Protriticites stands fairly close to Triticites umbonoplicatus Rauser and Beljaev by the shape and size of its conch, height of spiral, fluting of septa, thickness of theca, and shape and size of chomata; but has a substantially different wall structure. The described difference in wall structure emphasizes close phylogenetic relationship of the compared forms.

Occurence. Severo-Kamenskii and Belo-Kalitvenskii districts, in limestones of $O_3$; and also in many districts of the central part of the Donetz basin, where Braznikova established the presence of Protriticites globulus in limestones of $C_3^N$ formation and limestones $O_1$ of $C_3^O$ formation. It is rarely encountered in limesontes $N_1$ and $N_2$.

PART II

Putria, F.S., 1940. Foraminifery i stratigrafia verhne-kamennougolnyh otlojenii vostochnoii chasti Donetzkago basseina. Azovsko-Chernomorskoe Geologicheskoe Upravlenie. Materialy po geologii i poleznym iskopaemym. Sbornik XI.

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Subfamily Schwagerininae Dunbar and Henbest 1930

Genus Pseudotriticites, gen. nov.

(p. 61) Shell elongate-fusiform to subcylindrical, of moderate to large size. Theca thin, made of tectum, finely-alveolar keriotheca, and outer tectorium. Theca may be four-layered, with finely-alveolar diaphanotheca, in initial 2-3 volutions. Septa regular, moderately to intensely fluted along the whole length of volutions. Chomata in all volutions, less frequently in inner volutions only. No axial filling. Aperture single.

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Genoholotype: (?) Fusulina donbassica, Putria, Mat. po geol. i pol. iskop., Azchergeolupravlenie, Sb. X, 1939, pp. 139-140, pl. III, figs. 14-17.

Age: Upper part of Middle and lower part of Upper Carboniferous of Donetz basin.

Pseudotriticites donbassicus Putria

Typical specimens of the species, with the characteristic finely-alveolar keriotheca in the outer volutions, and a similar, finely-alveolar texture of diaphanotheca in the inner volutions, are not infrequent in the lower part of formation $C_3^N$ in the eastern part of the Donetz basin. They do not differ from a form from Tzymliansk bore-hole.

Occurence and age. Fairly common in the limestone II above $N_3$ as exposed along Nijne-Jernovaia balka [ravine] in VI-31 quadrangle of Donbas geological map.

PART III

Putria, F.S., 1939. Materialy k stratigrafii verhniago karbona vostochnoi okrainy Donetzkago basseina. Azovsko-Chernomorskoe Geologicheskoe Upravlenie. Materialy po geologii i poleznym iskopaemym. Sbornik X.

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(?) Fusulina donbassica, sp. nov.

Pl. III, figs. 14-17

p. 139) Shell ventricose, much elongated along axis of winding, gradually narrowing toward poles, which are rounded, or occasionally sharp. Surface with noticeable but not deep septal furrows.

Size large: L=5.75-6.50 mm.; D=1.44-1.68 mm.; L:D about 4:1.

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Changes in length of shell L (in mm.) and of L:D ratio in volutions:

Table 51

| Volutions | Specimens | | | | | |
|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | |
| | L | L:D | L | L:D | L | L:D |
| 1 | .45 | 1.80:1 | .34 | 1.36:1 | .48 | 1.76:1 |
| 2 | .73 | 2.03:1 | .70 | 1.94:1 | .78 | 1.86:1 |
| 3 | 1.37 | 2.54:1 | 1.29 | 2.30:1 | 1.40 | 2.37:1 |
| 4 | 2.18 | 2.83:1 | 2.38 | 3.05:1 | 2.41 | 2.87:1 |
| 5 | 3.78 | 3.38:1 | 4.09 | 3.65:1 | 4.20 | 3.56:1 |
| 6 | 5.75 | 4.00:1 | 6.50 | 4.14:1 | 6.44 | 3.82:1 |

Spiral increases in height gradually: from compactly wound in inner volutions to looser coiling in the outer.

Change of shell diameter (D) in volutions:

Table 52

| Volutions | Specimens | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| proloc. | .170 | .150 | .180 | .170 |
| 1 | .250 | .250 | .280 | .270 |
| 2 | .360 | .360 | .460 | .420 |
| 3 | .540 | .560 | .700 | .590 |
| 4 | .770 | .780 | .980 | .840 |
| 5 | 1.120 | 1.120 | 1.340 | 1.180 |
| 6 | 1.440 | 1.570 | --- | 1.680 |

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p. 140) Volution number: 6; less frequently smaller. Proloculum spherical, of moderate size, .150 to .180 mm. dia.

Theca thin, made of very thin tectum, broad and light diaphanotheca, and two tectoria. However, only inner tectorium is more or less well developed. Diaphanotheca thinly alveolar in all volutions; alveoli thread-like (pores?), traverse not only diaphanotheca, but also remaining layers of wall, and occasionally even chomata.

Changes in thickness of theca in volutions:

Table 53

| Volutions | Specimen Numbers | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 | .016 | .018 | .018 | .018 |
| 2 | .020 | .025 | .023 | .023 |
| 3 | .030 | .031 | .030 | .030 |
| 4 | .032 | .034 | .036 | .031 |
| 5 | .032 | .035 | .030 | .034 |
| 6 | .032 | .030 | --- | .036 |

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Septa fluted uniformly and intensely along the whole length of volutions. Archlets have an appearance of loops with expanded base and rounded upper part, their height up to 2/3 of lumen of chamber. Thickness of septa much smaller than thickness of theca.

Number of septa not observed. Aperture elongate-ovate, regularly disposed in all volutions (when displacement is observed, it is always insignificant.)

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Changes in size, width and height of aperture in volutions:

Table 54

| Volutions | Specimen Numbers | | | |
|---|---|---|---|---|
| | 2 | | 3 | |
| | width | height | width | height |
| 1 | .045 | .020 | .044 | .020 |
| 2 | .050 | .024 | .065 | .025 |
| 3 | .073 | .033 | .110 | .043 |
| 4 | .150 | .040 | .160 | .043 |
| 5 | .252 | .073 | .336 | .073 |
| 6 | .450 | .090 | | |

Chomata present in all volutions, and are fairly distinct; they are subquadrate or tubercle-like, about $\frac{1}{2}$ the height of chamber lumen.

Comparison. Because of the shape, fluting of septa, development of chomata, and thickness of theca, the described specimens are referred to genus Fusulina Fisher von Waldheim. However, the well developed alveolar structure in all layers of theca, and occasionally also in chomata, distinguishes the described form from the already known representatives of genus Fusulina, this difference being apparently of generic significance.

Occurence. Eastern part of Donetz basin, bore-hole No. 14 (Stanitza Tzymlianskaia), in limestones from 692.65 to 693.00 meters depth. Upper Carboniferous, lower part of formation N.

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PART IV

Remarks by the translator regarding the pertinent stratigraphic terms used in the U.S.S.R. (Russia)

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The Carboniferous is divided into three parts: lower, Middle, and Upper, which correspond approximately to the Mississippian, Lower Pennsylvanian (Springer - Des Moines) and Upper Pennsylvanian (Missouri - Virgil) of North America. The stratigraphic column of the Donetz coal basin is not differentiated into named units, but is divided into groups or formations of limestones, characterized chiefly by brachipods (by Theo. Tschernyshev), and designated by capital letters in the order of the Latin alphabet in ascending order. Individual limestones in a group or formation are given arabic numbers.

The boundary between the Middle and the Upper Carboniferous is placed on paleontological evidence between the limestone groups N and O, and in these limestones Putria discovered his transitional genera of fusulines.

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