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*Kranaosphinctes* Buckman, 1921 (Perisphinctidae, Ammonoidea)  
from the Oxfordian of Częstochowa

by

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Presented by W. POŻARYSKI on November 20, 1978

**Summary.** The genus *Kranaosphinctes* Buckman, 1921, is represented in Lower and Middle Oxfordian of Częstochowa by the classic English species, those of the Mediterranean *cyrilli-methodii* group [8], and some "Indian" ones. *Kranaosphinctes collignoni* sp. n. is described. The ancestors of this genus should be looked for among Callovian and older Mediterranean and "Indian" perisphinctids.

The genus *Kranaosphinctes* Buckman, 1921 (Perisphinctidae, Ammonoidea) is represented in the Oxfordian of the Częstochowa area, Polish Jura Chain, both by the English classic species and those of the Mediterranean *Kranaosphinctes cyrilli-methodii* group of Enay [9], previously placed in "Simoceroides-Gruppe" by Neumann [17] and also matching the diagnosis of this genus [1, 9]. The former include *K. trifidus* (Sowerby), *K. decurrens* Buckman and *K. cf. decurrens* Buckman (see [14] and below) and the latter — *K. cyrilli* (Neumann), *K. cf. cyrilli* (Neumann), *K. methodii* (Neuman), *K. promiscuus* (Bukowski) and related forms ([13-15] and below). Some "Indian" species such as *Perisphinctes indogermanus* Waagen [19] and *P. cf. indogermanus* Waagen [13] were also recorded. Representatives of this genus are fairly common in the Częstochowa area and other parts of the Polish Jura Chain and the Holy Cross Mts [16] but not north of these areas.

The representatives of the Mediterranean *Kranaosphinctes* group are highly evolute, with whorls elliptical and usually higher than thick. They attain sizes from about 120 to 300 mm. Ribs are coarse, round-crested, radial, bi- and triplicate, occasionally with intercalaries on the ultimate (sometimes the penultimate) whorl. Secondary ribs are usually discernible on the venter of the final body chamber but they generally tend to get obliterated. Constrictions two to four per whorl, emphasized by a swollen single rib. Aperture with ventral rostrum or lappets when shell attains about 200-220 mm in size. Final body chamber a whorl long or longer.

The representatives of the Mediterranean group differ from those of the classic English species merely in somewhat smaller size, generally more subcircular and less depressed whorls, and relatively finer and denser ribbing. Their stratigraphic

ranges are also similar, being limited to upper Lower and lower Middle Oxfordian (Cordatum–Antecedens zones). Both groups occupy an intermediate position between coeval perisphinctids proper (genus *Perisphinctes* Waagen, 1869, and its allies) and Mediterranean idoceratids [5]. The Mediterranean *Kranaosphinctes* group was previously considered as ancestral of Mediterranean idoceratids of the genus *Passendorferia* Brochwicz-Lewiński, 1973 [3], and English *Kranaosphinctes* species—as ancestors of the subgenera *Perisphinctes* Waagen, 1869, and *Arisphinctes* Buckman, 1924, i.e. perisphinctids proper [9, 10]. The records of *Passendorferia* in the Lower Oxfordian [5] and increasing evidence for the presence of perisphinctids, proper in rocks of that age here and elsewhere (Callomon kindly informed me about the presence of true *Arisphinctes* in a large but undescribed ammonite assemblage from Herznach), suggest that ancestors of *Kranaosphinctes*, Mediterranean idoceratids and perisphinctids proper should be looked for in still older rocks.

It should be noted here that Siemiradzki ([19], p. 304) placed some species here assigned to *Kranaosphinctes* in his *Mutationsreihe des Perisphinctes evolutus* comprising: *P. evolutoides* Siemiradzki (Oppelia fusca Zone of Calvados)—*P. evolutus* Neumayr (Bathonian of St. Maixent and Poland)—*P. aberrans* Waagen (Athleta Zone of Kutch)—*P. Jooraensis* Waagen (Lamberti Zone of Kutch)—*P. indogermanus* Waagen (Cordatum Zone of East India, France, Swabia, Poland and Russia)—*P. bolobanovens* Nikitin (Lower Oxfordian of Poland and Swabia)—*P. promiscuus* Bukowski (Transversarium Zone of Poland, France and Portugal)—*P. deriazi* Siemiradzki (Transversarium Zone of France)—*P. sayni* de Riaz (Transversarium Zone of France and Poland). Some corrections are inevitable as e.g. *P. deriazi* appears to be *Perisphinctes* (*Perisphinctes*) *parandieri* de Loriol [9] but the viewpoint of Siemiradzki [19] seems generally valid as the ancestors of *Kranaosphinctes* should be looked for among Callovian and older Mediterranean and “Indian” perisphinctids.

The fate of *Kranaosphinctes* is still unclear but it seems that it disappeared before the end of the Antecedens Zone. This makes it typical of the Cordatum–Antecedens interval. Some of its species are of remarkable stratigraphic value. This especially the case of *Kranaosphinctes trifidus* (Sowerby), *K. decurrens* (Buckman) and other English species, typical of the Antecedens Zone, *Kranaosphinctes promiscuus* (Bukowski)—of the Lower-Middle Oxfordian junction beds, and *K. collignoni* sp. n. (Bukowski)—of the lowermost Middle Oxfordian (Rotoides Subzone of the Antecedens Zone).

The paper presents descriptions of a collection of specimens of *Kranaosphinctes* from the Częstochowa area. It is based on the D.Sc. thesis of the present author (Warsaw University, 1974), written under the guidance of J. Kutek and reviewed by H. Makowski and L. Malinowska. The specimens are housed in the Warsaw University. Warm thanks are due to J.H. Callomon, R. Enay, L. Malinowska, A. Matyja, R. Różak, I. Sapunov, A. Zeiss and other colleagues for helpful discussions and comments.

#### Systematic part

### Family Perisphinctidae Steinmann, 1890

Subfamily Perisphinctidae Steinmann, 1890

Genus *Krasnaosphinctes* Buckman, 1921

Type species: *Krasnaosphinctes kranauis* Buckman, 1921.

Diagnosis as given by Arkell [1] and Enay [9].

*Krasnaosphinctes promiscuus* (Bukowski, 1887)

(Text-figs 1, 2)

1887. *Perisphinctes promiscuus* n. f.; Bukowski, p. 137 (pro parte), pl. 29, fig. 1 (non pl. 29, fig. 2, pl. 28, fig. 1).

non 1891. *Perisphinctes promiscuus* Buk.; Siemiradzki, p. 67.

? 1896. *Perisphinctes promiscuus* Buk.; Loriol, p. 28, pl. 6, fig. 2, pl. 7, fig. 1.

non 1899. *Perisphinctes promiscuus* Buk.; Siemiradzki, p. 308.

? 1907. *Perisphinctes promiscuus* Buk.; Neumann, p. 36, pl. 3, fig. 9.

? 1930. *Perisphinctes promiscuus* Buk.; Dorn, p. 151, pl. 12, fig. 6.

non 1963. *Perisphinctes (Krasnaosphinctes) promiscuus* Buk.; Malinowska, p. 70, pl. 36, fig. 173, pl. 37, fig. 175 (? pl. 33, fig. 159).

? 1966. *Perisphinctes (Krasnaosphinctes) cf. promiscuus* Buk.; Enay, p. 428.

? 1977. *Perisphinctes (Krasnaosphinctes) sp. gr. promiscuus* Buk.; Bourseau, p. 70, pl. 5, fig. 3, pl. 6, fig. 2, text-fig. 30.

? 1977. *Perisphinctes (Krasnaosphinctes) cf. promiscuus* Buk.; Matyja, p. 52.

**Material.** One almost complete specimen, K1 25/51 (see the Table for dimensions) and some fragments.

**Description.** Medium-sized (about 130 mm in size), highly evolute specimen with subcircular whorls. Primaries coarse, widely spaced, triplicate from a diameter of about 100 mm. Rib-curve (Fig. 1) descending in measurable interval, from 100 to 130 mm. Constricted. Body chamber (presumably final) begins at 100 mm diameter.

**Remarks.** The specimen K1 25/51 appears very close to the lectotype of *K. promiscuus* (Buk.) in dimensions and ribbing.

Bukowski [6] figured as *Perisphinctes promiscuus* n. f. two forms and a fragment of the third. Neumann ([17] p. 37) selected smaller form ([6], pl. 29 fig. 1) as the lectotype and interpreted the larger one ([6], pl. 28, fig. 1) as representative of other species closely affined but not identical with his *Perisphinctes gyrus*. Subsequently, Klebelsberg ([12] pp. 183–185) stated that all the forms, i.e. lectotype of *P. promiscuus*, larger form of *P. promiscuus* sensu Bukowski, and *P. gyrus* Neumann are varieties of the same species. Arkell ([1] p. 171) was rather inclined to consider them as representatives of three distinct species closely affined to the English species *P. cymatophorus* Buck. Other authors (e.g. [9], p. 428) accepted rather wide interpretation of *Perisphinctes promiscuus* and placed *P. cymatophorus* in its synonymy.

The Jasna Góra quarries, the type locality of this species, have been abandoned for a long time. Other localities gave only one almost complete specimen and some fragments which are most probably conspecific with the lectotype. They also gave over a dozen forms, including some almost identical with the larger specimen of Bukowski. The latter and the larger specimen of Bukowski differs from the lectotype

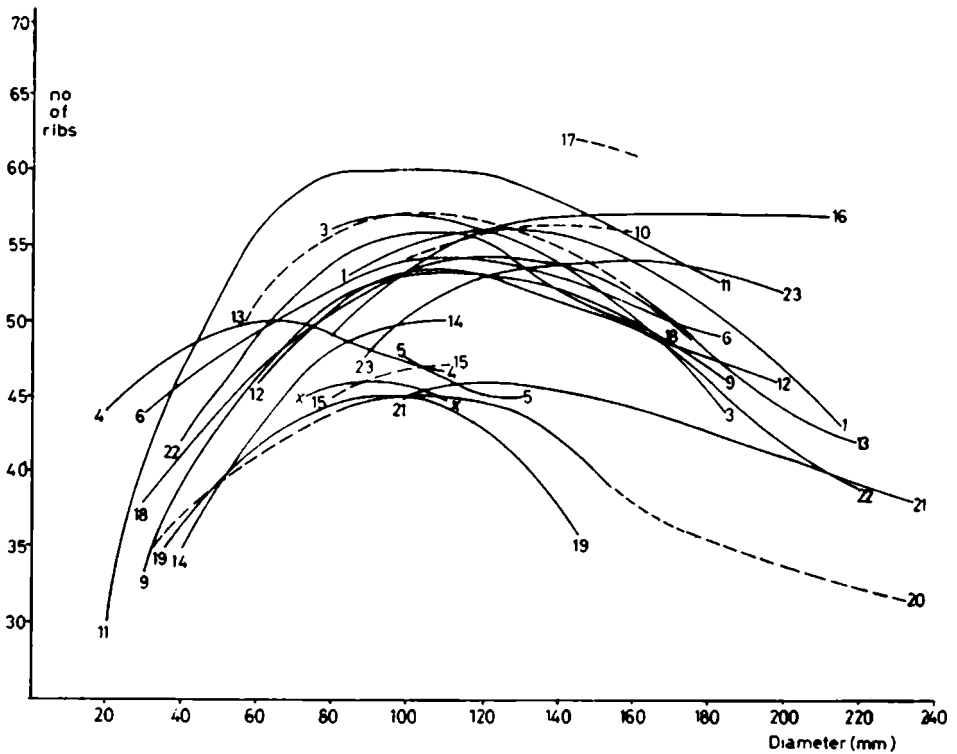


Fig. 1. Comparative rib curves of the genus *Kranaosphinctes*

*Kranaosphinctes trifidus* (Sowerby): 1—holotype (after [1]); 2—Steeple Ashton, Wilts, Bristol Museum No. 5300, 3—Kl 16/15, Żarki; *Kranaosphinctes promiscuus* (Bukowski): 4—lectotype, 5—Kl 25/51, Żarki; *Kranaosphinctes collignoni* sp. n.: 6—larger specimen of Bukowski [6]; 7—Kl 16/33/4, Żarki, 8—Kl 16/33c Żarki, 9—Kl 16/33b, Żarki, 10—Kl 8/x/51, Przybypów, 11—Kl 16/23/33c, Żarki, 12—Ha 28/54/3, Bisupkie, 13—holotype, Kl 16/2/51, Żarki, 14—Br 11/53, Prędziszów, 15—Br 11/31, Prędziszów, 16—Kl 16/33a, Żarki, 17—IG 411.II.104, Pierzchno (after [13]). 18—St 22/7, Żarki; *Kranaosphinctes decurrens* Buckman: 19—holotype (after [1]) *Kranaosphinctes* cf. *decurrens* Buckman: x—St 9, Żarki, 20—Kl 16/2/60, Żarki; *Kranaosphinctes cymatophorus* Buckman: 21—holotype (after [1]); *Perisphinctes* (*Kranaosphinctes*) *methodii* Neumann: 22—IG 1246.II.35, Zawodzie (after [14]); *Perisphinctes* (*Kranaosphinctes*) *cyrilli* Neumann: 23—IG 1246.II.26, Zawodzie after [14])

in less depressed whorls, ribbing finer at comparable diameter, trifurcate ribs appearing much later, at 150–160 mm, and in peak of rib-curve coinciding with larger diameters (i.e. 120–150 mm and 60–70 mm, respectively, see Fig. 1). The differences may be partly related to differences in size as the lectotype and the other Polish forms seem almost fully grown (their peristomal parts are, unfortunately, not preserved). Hence, it seems safer to follow Neumann ([17], p. 37) and separate the larger specimen of Bukowski and others in a separate species, *Kranaosphinctes collignoni* sp.n.

The point of view of Arkell ([1], p. 171) and Enay ([9], p. 428) concerning affinity of *P. promiscuus* Bukowski (and, of course, its segregate, *K. collignoni* sp.n.) with *P. cymatophorus* Buckman is difficult to accept as the latter species comprises giants with phragmocone measuring over 200 mm in diameter and differing from the former in ribbing at comparable diameters and thus in the rib-curve trend.

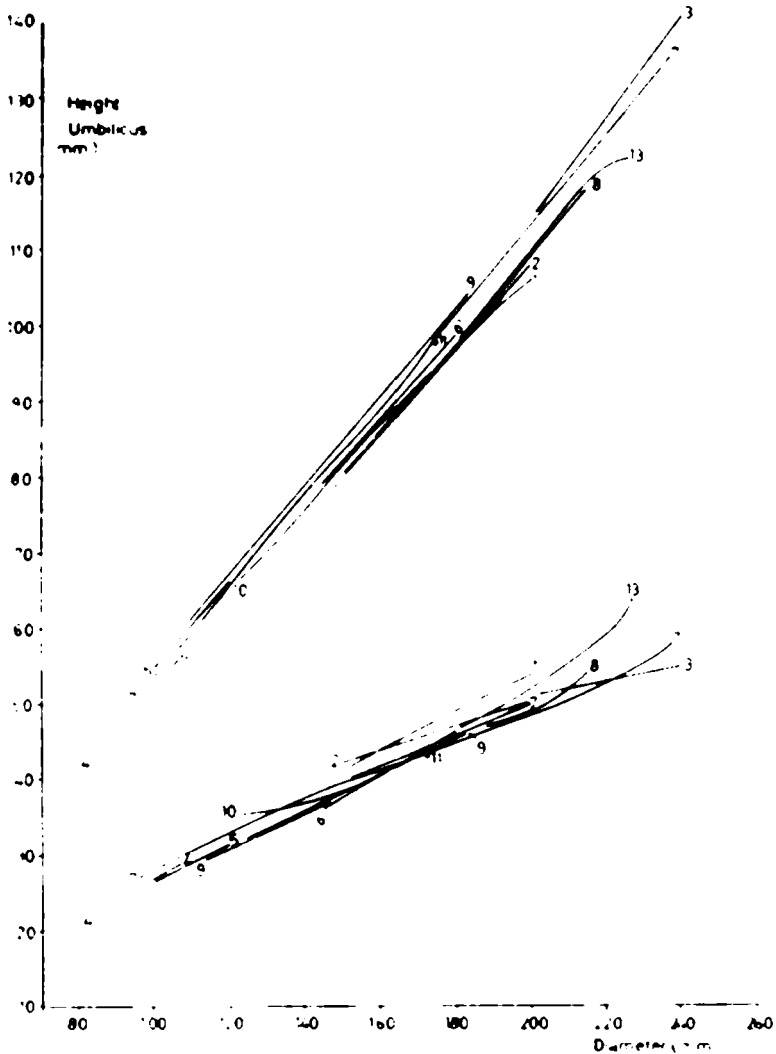


Fig. 2. The whorl height ( $H$ ) and umbilical diameter ( $U$ ) of *Krasnaosphinctes*  
 Explanations as given in Fig. 1

*Krasnaosphinctes promiscuus* (Buk.) differs from *K. gyrus* (Neumann) in the style of ribbing and the trend of rib curve (peak of rib-curve marked much earlier).

The specimens assigned to this species by Siemiradzki [18] and Malinowska [13] are very close to the larger specimen of Bukowski and should be placed in *K. collignoni* sp.n. The position of those figured by Loriol [11] and Dorn [8] is debatable whereas those figured as *Perisphinctes* (*Krasnaosphinctes*) cf. *promiscuus* Buk. by Enay [9] and Matyja [16] and *P. (K)* sp. gr. *promiscuus* Buk. by Bourseau [2] may be close to the new species.

Occurrence. Żarki near Częstochowa, the contact of the Tenuicostatum and Antecedens Zones.

*Kranaosphinctes collignoni* sp.n.

(Pls. I, II; text-figs. 1-2)

1887. *Perisphinctes promiscuus* n.f.; Bukowski, p. 137 (pro parte), pl. 28, fig. 1, pl. 29, fig. 2 (non pl. 29, fig. 1).1891. *Perisphinctes promiscuus* Buk.; Siemiradzki, p. 671899. *Perisphinctes promiscuus* Buk.; Siemiradzki, p. 308,1963. *Perisphinctes (Kranaosphinctes) promiscuus* Buk.; Malinowska, p. 70, pl. 36, fig. 173, (non pl. 37, fig. 175, ? pl. 33, fig. 159).? 1966. *Perisphinctes (Kranaosphinctes)* cf. *promiscuus* Buk.; Enay, p. 428.? 1977. *Perisphinctes (Kranaosphinctes)* sp. gr. *promiscuus* Buk.; Bourseau, p. 70, pl. 5, fig. 3, pl. 6, fig. 2, text-fig. 30.? 1977. *Perisphinctes (Kranaosphinctes)* cf. *promiscuus*, Buk.; Matyja, p.

Holotype: Specimen no. Kl. 16/2/51, figured in [4], pl. 4, fig. 2.

Paratype: Specimen no. Kl 16/33, figured in [5], pl. 32, refigured here in Pl. I.

Type locality: Peasant quarry at Żarki near Częstochowa, to NE of the road to Zawiercie, at southern slopes of hill N of Poręby village.

Type horizon: Rotoides Subzone, Antecedens, Zone, Middle Oxfordian.

Deviation of the name: In honour of the late Professor M. Collignon, an outstanding student of Mesozoic ammonite fauna of Tethyan Realm.

Diagnosis: Medium-sized evolute shell with subovate outer whorls. Ribs up to 50-60 in number per whorl, triplicate on the ultimate whorl, with a tendency to obliteration of secondaries. Final body chamber a whorl long or longer. Peristome with ventral rostrum or lappet.

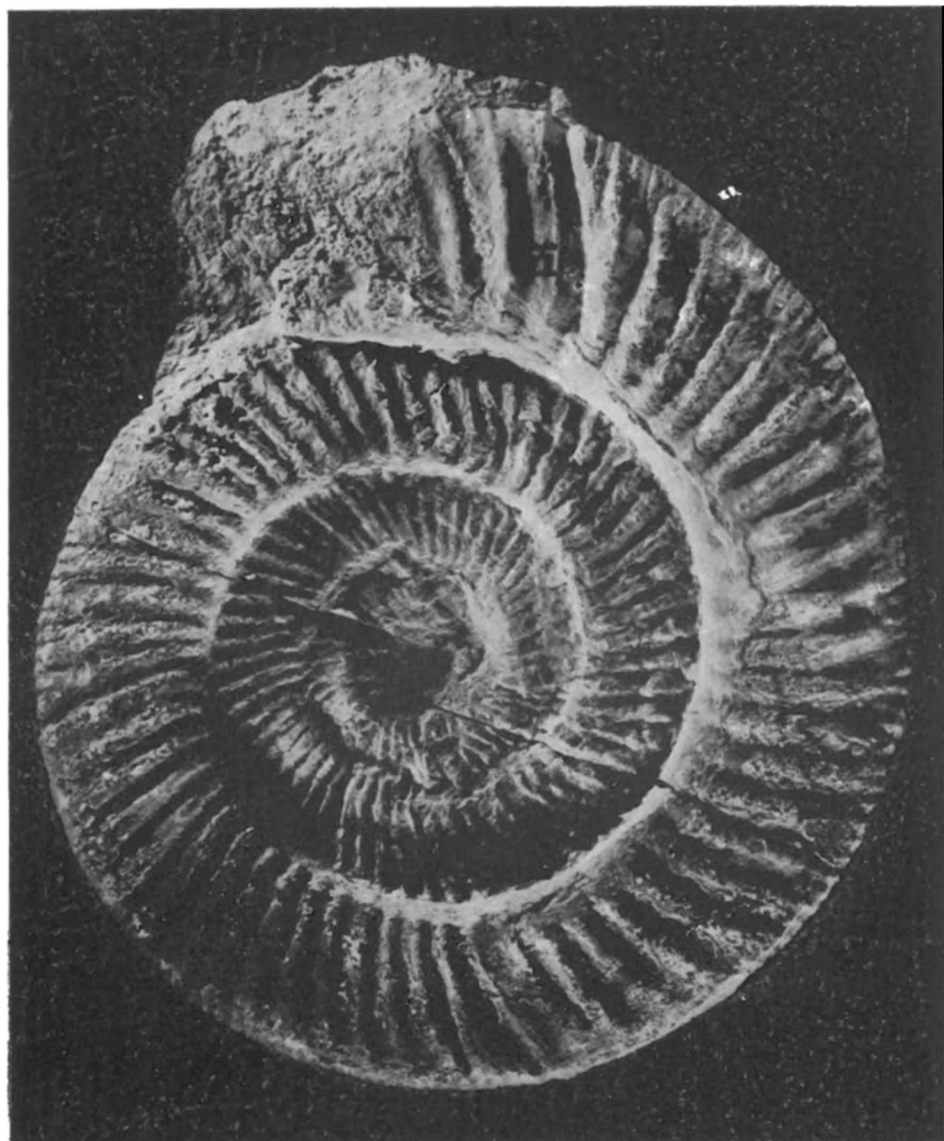
Material. Over a dozen specimens, two complete (see the Table for dimensions).

Description. Medium-sized macroconchs, evolute, attaining 180-220 mm or more in diameter, septate to about 130-140 mm diameter. Whorl section initially depressed, becoming somewhat compressed, subovate from a diameter of about 100-120 mm. Ribs, 50-60 in number per whorl at the most, coarse, somewhat round-crested, radial, biplicate and triplicate on the ultimate whorl. On the final body chamber there is a trend to the obliteration of secondaries. Final body chamber a whorl long or longer. Constrictions deep. Peristome with ventral rostrum or lappets.

Remarks. Increased density of sutures marked at about 130 mm diameter in the case of a few specimens, final body chamber about a whorl long or longer, and peristomes (see Plate I and [4] pl. 4, fig. 2) indicate that these specimens were fully grown at 220-230 mm diameter. The exception is here the species No. st 2.001 shown in [4, pl. 5], as it seems to be fully grown at 185 mm diameter.

Affinities. The forms resemble the larger specimen of Bukowski ([2], p. 28, fig. 1) in dimensions, whorl shape, style of ribbing and density of ribbing and hence in rib-curve, and may be considered as conspecific. The differences in respect to *K. promiscuus* (Bukowski) as given above.

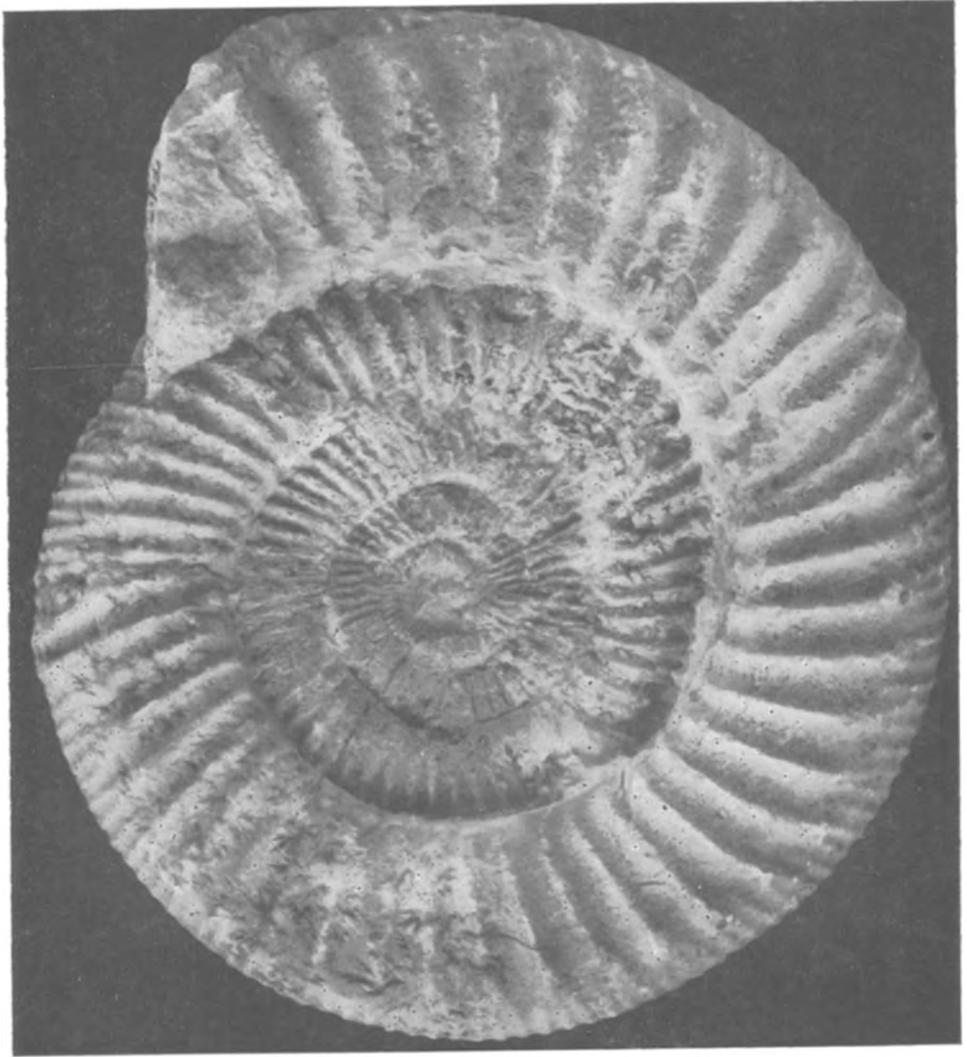
They are similar to the representative of *Kranaosphinctes trifidus* (Sowerby) described here in dimensions and trend of rib curve (see text-figs 1-2), differing



*Kranaosphinctes collignoni* sp.n., paratype, lappeted, KJ 16/33, Rotoides horizon, Antecedens Zone, Żarki near Częstochowa



**PLATE II**



*Kraaosphinctes collignoni* sp. n., Ha 28/54/3, Rotoides horizon, Antecedens Zone, Biskupice near Częstochowa

in about twice smaller ultimate size and ornamentation markedly stronger at comparable diameters.

*Krasnaosphinctes collignoni* sp. n. differs from *K. cymatophorus* (Buck.) in markedly smaller size, dimensions, style of ribbing and rib curve (text-fig. 1).

It differs from *K. gyrus* Neumann in more closely spaced and more slender ribs and in somewhat deeper constrictions.

TABLE  
Dimensions of *Krasnaosphinctes*

	<i>D</i>	<i>Ph</i>	<i>H</i>	<i>H/D</i>	<i>T</i>	<i>T/D</i>	<i>U</i>	<i>U/D</i>
<i>Krasnaosphinctes promiscuus</i> (Buk.); Kl 25/51, Żarki	(130) 120 100	100	31 27	0.26 0.27	— 24	— 0.24	66 55	0.55 0.55
<i>K. collignoni</i> sp. n. Kl 16/33b, Żarki	185 117 (220)	125 140	46 28	0.25 0.24	— 28	— 0.24	104 67	0.56 0.57
Kl 16/33c, Żarki, paratype	173		43	0.25	—	—	97	0.56
Kl 16/33/4, Żarki	212 181 126	145	53 43 34	0.25 0.24 0.27	— 31 —	— 0.17 —	117 101 66	0.55 0.56 0.52
Kl 8/×/51, Przybynów	159 140	130	40 34	0.25 0.24	— 31	— 0.22	86 77	0.54 0.55
Ha 28/54/3, Biskupice	196 166	150	51 45	0.26 0.27	44 43	0.22 0.26	103 83	0.52 0.50
Kl 16/2/51, Żarki, holotype	220 182	135	57 45	0.26 0.25	45 44	0.20 0.24	123 103	0.56 0.56
St 2/001, Żarki	185 150		40	0.27	—	82	0.55	—
<i>K. trifidus</i> (Sowerby) Kl 16/15, Żarki	(331) 240 202 112	245	76 55 46 30	0.23 0.23 0.21 0.27	— 57 — —	— 0.24 — —	197 141 115 61	0.59 0.59 0.57 0.54
<i>K. cf. decurrens</i> Buch. St 3/001, Żarki	(235) 200 153		47 38	0.23 0.25	— 27	— 0.18	115 88	0.58 0.58
Kl 16/2/60, Żarki	138 96		35 27	0.25 0.28	— 27	— 0.28	75 52	0.54 0.54

*t/D* given in Text-fig. 3.

Some forms formerly assigned to *K. promiscuus* (Bukowski) should be placed here; e.g. those described by Siemiradzki [18–19] and Malinowska [13]. The above-mentioned specimens of Enay [9], Matyja [16] and Bourceau [2] may also belong here.

The specimen figured as *P. (Krasnaosphinctes) promiscuus* Buk. by Malinowska ([13], pl. 37, fig. 195) rather belongs to *Passendorferia* (see [5], p. 375) on account

of ribbing typical of the latter genus, especially very high and accentuated point of furcation.

It should be noted that some English specimens are strikingly similar to the Polish ones. This is especially the case of *Perisphinctes* (*Kranaosphinctes*) sp. from the Plicatilis Zone of Beckley near Oxford (BM C79 263) which may be conspecific with *K. collignoni* sp.n.

Occurrence. Jasna Góra, Pierzchno, Prędziszów, Biskupice, Przybynów and Żarki near Częstochowa, Antecedens Zone, Rotoides Subzone.

*Kranaosphinctes* cf. *decurrens* (Buckman, 1923)

(text-figs 1, 2)

Material. Two specimens, one with peristome (see the Table for dimensions).

Description. Larger specimen, complete, attaining 235 mm in diameter, evolute, somewhat compressed, with subovate whorls. Ribs coarse, loosely spaced, round-crested, triplicate on the first half of the ultimate whorl; later secondaries disappear and the venter becomes smooth for a while as subperistomal gerontic ribs and biplicate and pass through the venter. Peristome (see [4], pl. 4, fig. 1) oblique, preceded by markedly emphasized single rib. The smaller specimen represents a juvenile form, 138 mm in size, with subcircular whorls and triplicate ribbing from about 100 mm diameter.

Remarks. The complete Polish specimen generally fits the diagnosis of this species as given by Arkell ([1], p. 175). However, Callomon ([7], p. 194) reported representative of this species septate to about 290 mm, stating that "the species septate to about 290 mm, stating that "the species is not so small one as Arkell suggested". The complete Polish specimen attains merely 235 mm in size, so it cannot be accommodated in a species grouping giant perisphinctids without reservation. Moreover, it differs from the ?complete small representatives of this species figured by Arkell ([1], p. 179, text-fig. 62, pl. 39, fig. 3a) in markedly less depressed whorls, finer secondaries and a stronger tendency to obliterate the venter. The Polish forms cannot be assigned to *Kranaosphinctes* aff. *decurrens* Buckman sensu Arkell (figured from Poland by Makowska [13], p. 24, pl. 2, fig. 3), a species comprising giants closely affined to *K. decurrens* Buckman. Therefore, the two specimens at the author's disposal are tentatively assigned to *K. cf. decurrens* Buckman.

It should be noted here that the two specimens resemble representatives of the Mediterranean *Kranaosphinctes* group in dimensions and in the trend to compression of the final body chamber, differing in more loosely spaced and coarser ribs and their gerontic modifications.

Occurrence. Żarki near Częstochowa, Antecedens Zone, Rotoides Subzone; *K. decurrens* Buckman was described from the Neuvisian of Błeszno, Częstochowa.

*Kranaosphinctes trifidus* (Sowerby)

(text-figs. 1, 2)

1939. *Perisphinctes* (*Kranaosphinctes*) *trifidus* (Sowerby); Arkell, p. 165, pl. 36, figs. 1-4, text-fig. 52.

1966. *Perisphinctes* (*Krasnaosphinctes*) aff. *trifidus* (Sowerby); Enay, p. 429, text-fig. 122-1.
1972. *Perisphinctes* (*Krasnaosphinctes*) *trifidus* (Sowerby); Malinowska, p. 25, pl. 2, fig. 2, text-fig. 6.
1976. *Krasnaosphinctes trifidus* (Sowerby); Brochwicz-Lewiński and Różak, pl. 33. Material. Single specimen (see the Table for dimensions).

Description. Giant specimen, about 330 mm in diameter (originally about 390 mm in diameter), septate to about 240 mm. Inner whorls, observable in the umbilicus, seem somewhat flat-sided. Outer whorls initially slightly and later strongly depressed. Ribs somewhat prorsiradiate, coarse, round-crested, bi- and triplicate, becoming quadriplicate from a diameter of about 200 mm. Secondaries markedly thinner than primaries. Obliteration of the former starts from about 240 mm diameter. Primaries progressively becoming ridge-like on outer whorls. Constrictions numerous.

Remarks. The specimen fits the diagnosis as given by Arkell ([1], p. 166). However, it should be noted that it appears somewhat close to *K. collignoni* sp. n. differing in ribs finer at comparable diameters and ridge-like thereafter, and markedly more depressed outer whorls. It is not excluded that some of the differences may be attributed to differences in size as the representatives of the latter species are almost twice smaller.

Occurrence. Żarki near Częstochowa, Antecedens Zone, presumably Rotoides Subzone.

#### *Krasnaosphinctes* spp.

Specifically unidentifiable fragments of outer whorls or nuclei, bearing sculpture typical of this genus, were found at Mirów and Żarki in rocks of the Antecedens and Tenuicostatum Zones, as well as at Wrzosowa in rocks of the Cordatum Zone. Several incomplete specimens referable to *K. decurrens* Buckman, *K. cf. indogermanus* (Waagen) and *K. promiscuus* (Bukowski) (or *K. collignoni* sp. n.) and their relation to those of troublesome species *Perisphinctes bernensis* de Loriol were discussed by Malinowska ([13, p. 68]). A complete small (103 mm in size) specimen presumably representing a separate species of this genus was previously reported from Błeszno in Częstochowa by Brochwicz-Lewiński and Różak ([4], pl. 6, fig. 1).

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Содержание. Фауна *Kranaosphinctes* Buckman, 1921, в нижнем и среднем оксфорде Чешстоховы представлена классическими английскими видами, средиземноморской группой *cyrillimethodii* и „индийскими” видами. Приводится описание фауны *Kranaosphinctes collignoni* sp.n. Предков этих видов фауны следует искать среди келловейской и старшей по возрасту средиземноморской и „индийской” фауны.