ROYAUME DE BELGIQUE

MINISTERE DES AFFAIRES ECONOMIQUES

ADMINISTRATION DES MINES – SERVICE GEOLOGIQUE DE BELGIQUE

13, rue Jenner – 1040 Bruxelles

BIOSTRATIGRAPHY

of the Yves-Gomezée Road Section

(Uppermost Famennian)

by

R. DREESEN - M. DUSAR - E. GROESSENS

Pl. WALCOURT 137 E nº 569

PROFESSIONAL PAPER 1976 N° 6

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OF THE YVES-GOMEZEE ROAD SECTION (Pl. 173E n°569)

(Uppermost Famennian)

by

R.Dreesen, M.Dusar & E.Groessens

R.Dreesen & M.Dusar
I.A.W. Redingenstraat, 16 bis
Afdeling Historische Geologie
Laboratorium Mikropaleontologie
3000 Leuven

°°°°°°°°°°°°°°°°°°°°

E.Groessens
Service Géologique de Belgique
Rue Jenner, 13
1040 Bruxelles

SOMMAIRE

L'étude d'un nouvel affleurement à Yves-Gomezée (Pl.173E n°569),situé le long du nouveau tronçon de la route Charleroi-Philippeville,et la révision de la coupe de la tranchée de Walcourt (Conil,1964) (Pl.173E n°18), nous a fourni des données biostratigraphiques plus précises sur l'âge de ces couches de transition dévono-carbonifères.
Une faune à conodontes assez riche pour ce niveau stratigraphique,a été découverte dans les couches basales de la coupe d'Yves-Gomezée.L'association des conodontes indiquerait la base de la zone à *costatus* moyenne (do V/do VI)(Ziegler 1962;Ziegler,Sandberg&Austin 1974).Une nouvelle espèce,*Polygnathus streeli* est décrite.
De point de vue lithologique,toutes les formations de la coupe d'Yves-Gomezée se situent en-dessous du terme "1" de Conil,1964 dans la tranchée de Walcourt (apparition des premiers stromatopores).
L'étude des spores (par M.Streel) permet de préciser la corrélation avec la section classique d'Avesnelles.

ABSTRACT

More detailed biostratigraphical information about the transition beds between Fa/Tn,has been provided by studying a new outcrop along the road Charleroi-Philippeville at Yves-Gomezée (Pl.173E n°569),and its equivalent in the railroad section at Walcourt (Conil,1964) (Pl.173E n°18).Some calcareous layers at the base of the exposed formations at Yves-Gomezée,contain a fairly rich conodont fauna,which probably indicates the base of the Middle *costatus*-Zone,according to Ziegler,1962 and to Ziegler,Sandberg&Austin,1974 (do V/do VI).A new conodont form species,*Polygnathus streeli*,is described.
The complete section at Yves-Gomezée can be correlated with the lower part of the Walcourt section,below the sequence"1"of Conil,1964,which contains the first strunian stromatoporoids.
A refinement of the correlation with the classical Avesnelles section,resulted from spore examination by M.Streel.

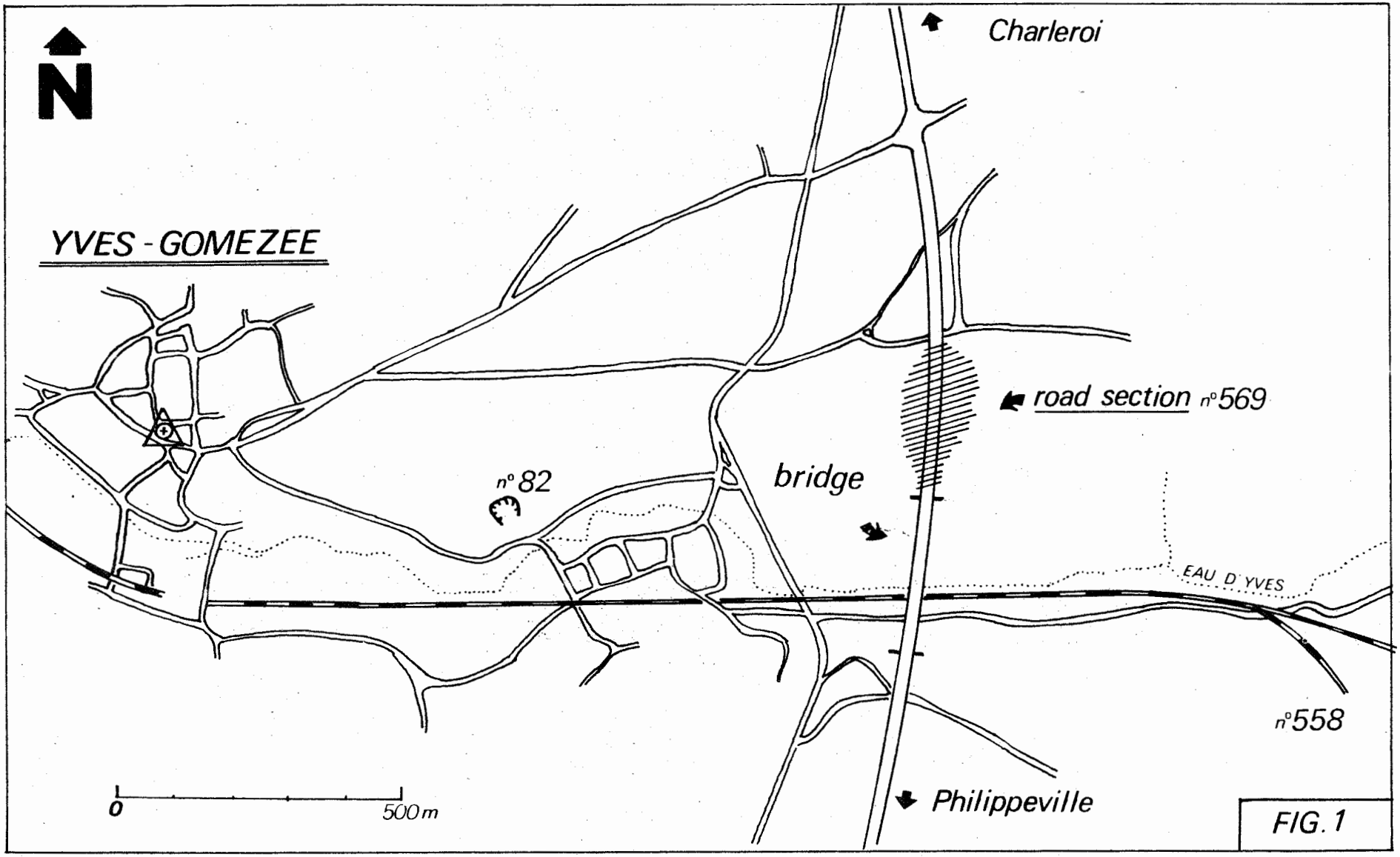

FIG. 1

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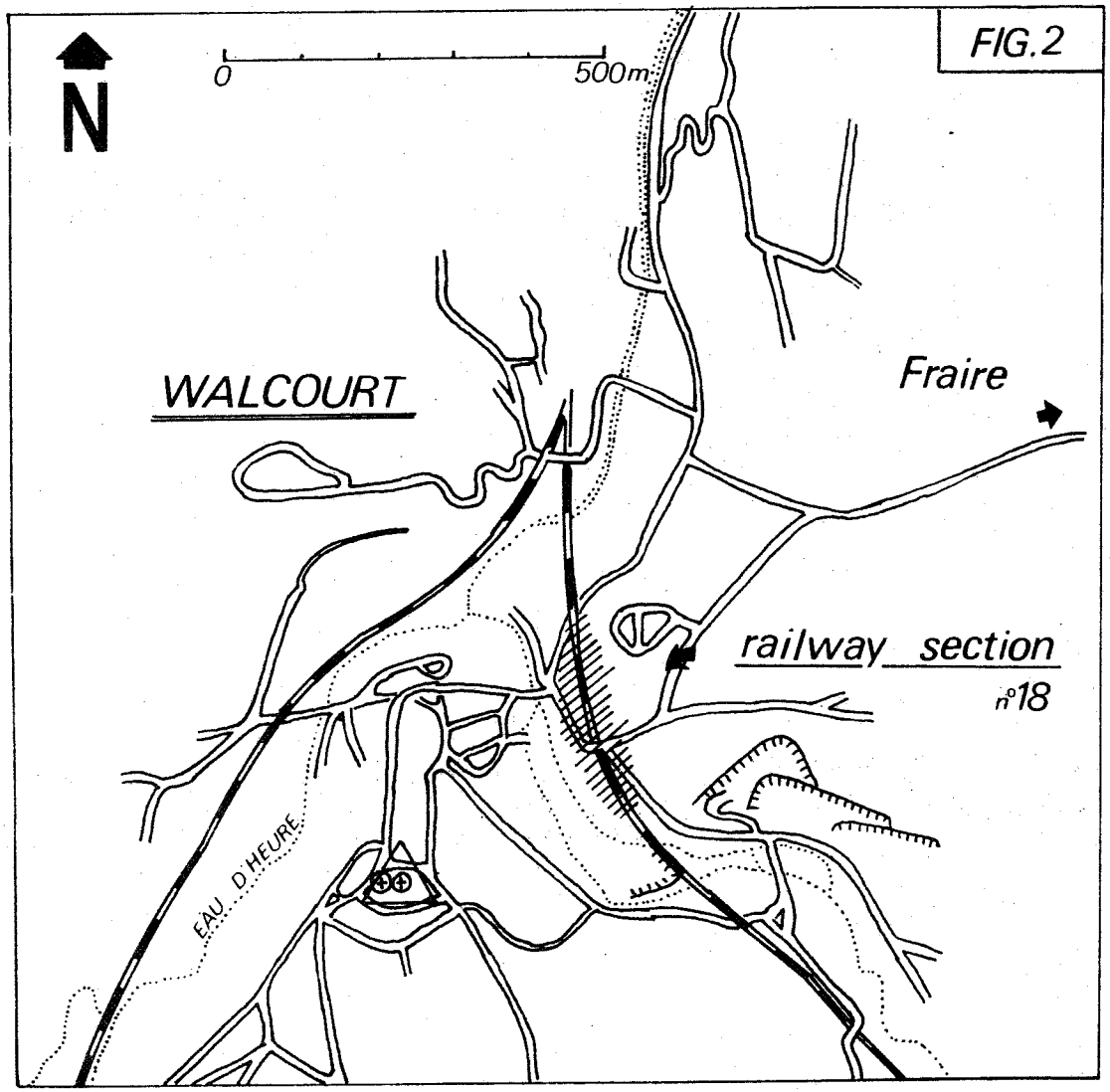

LITHOLOGY

- SHALE
- SANDY SHALE — SHALY SANDSTONE
- SANDSTONE
- CALCAREOUS SHALE
- LIMESTONE BED
- LENTILS
- NODULES
- SHALY LIMESTONE
- SANDY LIMESTONE
- PSEUDONODULES LOAD CAST

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I- INTRODUCTION

The purpose of this paper is to give some more biostratigraphic information on the Devono-Carboniferous transition beds,at the western border of the Dinant Basin. Therefore,a correlation is made between the classic railroad section at Walcourt (Conil,1964)(Pl.173E-18), and a recent outcrop at Yves-Gomezée,along the new road N5 Charleroi-Philippeville (Pl.173E-569)(Fig.1,2).
An important section in the Lower Carboniferous along railroad 132,southeast of Yves-Gomezée (Pl.173E-558), has recently been studied by Conil,Groessens&Lys,in press.
At Walcourt,a detailed lithostratigraphical scale,subdivided into several sequences,compared with the reef-facies of the Avesnois-area,has been established by Conil,1964.The reef-building stromatoporoids were only recorded from the upper part of the Walcourt section (sequence"l"and top of sequence"p").
The biostratigraphy was based upon the foraminiferal content,which indicates the"Fa2d"(Bouckaert,Streel & Thorez,1968),or the"Schistes de l'Epinette"(Conil & Lys,1967).
The Yves-Gomezée section otherwise,can easily be correlated with the Walcourt section and is biostratigraphically more yielding.A rich conodont fauna from this stratigraphical level,containing many *Bispathodus* forms,indicating the *costatus*-Zone (Ziegler 1962;Ziegler, Sandberg&Austin 1974),is found in some basal crinoidal limestone beds at the Yves-Gomezée road section.
A new *Polygnathus* species,*P.streeli*,is described.
The more shaly-calcareous sequences of the upper part of both sections,usually yield only a few conodonts, which probably indicate a Middle *costatus*conodont-Zone.
Conodont-distribution charts are shown on Tables 1,2 and Fig.5.
Spore samples,studied by M.Streel,indicate the PL-Zone at Yves-Gomezée,and the VU/PL-Zone limit in the basal beds at Walcourt,which somewhat reverses the lithostratigraphic correlations with the Avesnelles area,established by Conil,1964.
Additionally,a rich macrofauna within the upper part of the sections (in the calcareous shales),contains specimens of a typical"strunian"trilobite,*Phacops accipitrinus*, (communication by G.Hahn).
Foraminifers were only found in some limestones at the top of the Yves-Gomezée section,which indicate a Fa2d age, as in Walcourt.

II- DESCRIPTION OF THE YVES-GOMEZEE SECTION (Pl.173E-569)(Fig.3)

Eastern slope

from North to South;the measurement starts at the crossing of a small secondary road.

0-24 m.:weathered material,with two nodular limestone beds (thickness 1 m.),containing solitary corals forming an anticline and a syncline
14 m.:sample 1 (thin section)
Quasiendothyra communis communis
Q.regularis regularis
Endothyra parakosvensis subsp.*imminuta*
E.parakosvensis subsp.*nigra*
Paracaligella
24 m.:ss N70W 40NE°°°
sf EW vertical

24-49 m.:alternating shaly micaceous sandstones and green sandy shales
30 m.:ss N75W 40NE
35 m.:ss N75W 65NE
49 m.:thin bed of calcareous sandstone with *Athyris*

50-50,50 m.:black marls with fossiliferous limestone nodules and lentils
sample 3:*Polygnathus delicatulus*
ss N55W 60NE
sf N60W vertical

50,50-57 m.:fissile shales with rare limestone nodules

57-75 m.:marl with many limestone nodules and lentils; abundant macrofauna:brachiopods,crinoids, fenestellids,trilobites,solitary corals,gastropods.On the top 2 limestone beds (10 cm.)
57-61 m.:sample 4:
thin section:*Endothyridae*
Apatognathus varians
Bispathodus aculeatus aculeatus
B.aculeatus --→ *B.costatus* morphotype 2
B.stabilis morphotype 1
Icriodus costatus
Polygnathus communis communis
Pseudopolygnathus vogesi
Spathognathodus strigosus
*S.*sp.aff.*inornatus*
67 m.:sample 5:
thin section:*Bisphaera irregularis*
Bispathodus aculeatus aculeatus
B.aculeatus plumulus
Polygnathus delicatulus
Polygnathus sp.
Pseudopolygnathus cf.*P.brevipennatus*

°°°ss = surface of stratification
sf = surface of foliation

73 m.:sample 6:*Pseudopolygnathus vogesi*

75-82,50 m.:green shales,locally marly

82,50-86 m.:compact sandy marls
sample 7:
Bispathodus bispathodus ---→ *B.aculeatus plumulus*
B.costatus cf.morphotype 1 (specimens displaying long narrow basal cavity)
Icriodus costatus
Polygnathus streeli n.sp.

86-87 m.:green laminated sandstone

87-89 m.:organoclastis limestone beds with crinoid layers and cross-bedding,alternating with shaly beds
sample 8:*Bispathodus aculeatus plumulus*
B.stabilis morphotype 1
Icriodus costatus
ss N60W 45NE

89-95 m.:micaceou sandstones containing plant debris, alternating with a few thin beds of coarse calcareous sandsrone,followed by laminated micaceous sandstones,also with calcareous sandstone

95-100 m.:massively bedded green sandstones

100-107 m.:shaly sandstones,laminated sandstones rich in plant debris and"pseudonodules"(loadcasts)

107-108 m.:fossiliferous calcareous sandstones and sandy shales;at the base an organoclastic limestone bed
sample 9:*Bispathodus aculeatus aculeatus*
B.aculeatus anteposicornis
B.aculeatus plumulus
B.cyrius nodus
B.stabilis morphotype 1
Icriodus costatus
Pelekysgnathus sp.
Polygnathus communis communis
P.streeli n.sp.

108-120 m.:sandy-shaly sequence in the centre of an anticline
N-limb:ss N60W 70NE
S-limb:ss N55W 75SW

120-124 m.:laminated sandstone beds
ss N55W 75SW

124-126 m.:compact sandstone
ss N65W 65SW

126 m.:shaly sandstone with weathered micaceous sandstone;at the base lenticular sandy limestone

sample 10:*Apatognathus varians*
Bispathodus aculeatus aculeatus
B.aculeatus anteposicornis
B.aculeatus plumulus
B.bispathodus
B.bispathodus --→ *B.costatus* morphotype 1
B.costatus morphotype 2 (with tendency toward *Pseudopolygnathus vogesi*)
B.stabilis morphotype 1
Icriodus costatus
Pelekysgnathus sp.
Polygnathus communis communis
P.streeli n.sp.
Spathognathodus inornatus
S.strigosus

127;50 m.:synclinal fold

134 m.:anticlinal fold in finely bedded sandstones with"pseudonodules"(loadcasts)
N-limb:ss N55W 50NE
S-limb:ss N70W 40SW --→ horizontal

140 m.:synclinal fold
S-limb:ss N60W 45NE

141,50 m.:anticlinal fold in compact sandstones
N-limb:ss N60W 35-40NE
S-limb:ss N60W 80SW

147,50-156 m.:laminated and micaceous sandstones containing nodular limestone beds, intercalated by shaly beds
151 m.:more sandy shales

156-160,50 m.:fossiliferous nodular limestone beds
sample 11:thin section:
Rectoseptaglomospiranella cf. *asiatica*
ss N80W vertical

160,50-178 m.:fissile green shales,passing into marls with nodular and lenticular limestones,containing an abundant macrofauna,visible in the axis of a symmetrical synclinal fold
sample 12:*Apatognathus varians*
Bispathodus costatus morphotype 1
B.costatus morphotype 1 --→ morphotype 2
Icriodus costatus
Polygnathus delicatulus
Spathognathodus inornatus
*S.*sp.aff.*S.inornatus*
S.strigosus

169 m.:axial plane
S-limb:ss N70W 50NE
sf N75W vertical

178-184 m.:reappearance of the calcareous sequence with limestone lentils and nodules;bedded limestones at the base
ss N45W 60NE
184-188 m.:progressively more sandy
188-193 m.:compact laminated sandstones with calcareous microbrecciated sandstone bed
ss N60W 65-70NE
193-203 m.:green sandy shales with thin-bedded shaly or laminated sandstones
ss N65W 80NE
203-207,50 m.:rhythmic succession of compact sandstones with calcareous sandstone,marl and shale; or green laminated sandstone and calcareous sandstone topped with thin beds in coarse organoclastic limestone
204 m.:sample 14a herein:
Bispathodus aculeatus aculeatus
B.aculetus anteposicornis
B.aculeatus plumulus
B.stabilis morphotype 1
B.stabilis --→ *B.aculeatus*
B.stabilis --→ *B.bispathodus*
Icriodus costatus
Pelekysgnathus sp.
Polygnathus communis communis
P.delicatulus
P.streeli n.sp.
Protognathodus meischneri
Spathognathodus strigosus
*Sp.*sp.difformed

sample 14b:in organoclastic calcareous sandstone
Bispathodus aculeatus aculeatus
B.aculeatus plumulus
B.cyrius nodus (similar to *B.aculeatus anteposicornis*,but blade containing more denticles,basal cavity *strigosus*-like)
B.costatus morphotype 1
Icriodus costatus
Pelekysgnathus sp.
Polygnathus communis communis
Spathognathodus strigosus
Bispathodus stabilis morphotype 1

sample 14c:in sandy organoclastic limestone
Bispathodus aculeatus aculeatus
B.aculeatus anteposicornis
B.aculeatus plumulus
B.bispathodus
B.costatus fragment
B.stabilis morphotype 1
B.stabilis --→ *B.aculeatus* (with incipient splitting of laterally thickened denticles)
Icriodus costatus
Nothognathella sp.
Polygnathus group *nodocostatus*
*P.*sp.cf.*P.perplexus*
P.streeli n.sp.
Pseudopolygnathus vogesi
Spathognathodus strigosus

205,50 m.:green laminated sandstones with"pseudonodules"(loadcasts)
207,50-212 m.:green shales with thin-bedded sandstones and calcareous sandstones
211 m.:compact sandstone beds
212 m.:badly stratified compact sandstone beds in the centre of an anticlinal fold
N-limb:ss N60W 80NE
S-limb:ss N80W 35S
sf N60W 70NE
219 m.:synclinal fold
S-limb:ss N75W 35NE
225 m.:anticlinal fold in laminated sandstones,locally ripple marks
227,50 m.:"pseudonodules"(loadcasts)
S-limb:ss N75W 75--→35SW
232-241 m.:not exposed
241 m.:sandstone beds
241-255 m.:not exposed
255-257 m.:nodular limestones
ss N75W 35NE
257 m.:end of the outcrop
265 m.:bridge

o o o o o o o o o o o o o o

An analogous lithological succession in a comparable tectonic structure is exposed along the western slope of the road cut.(Fig.3,W-slope).

III- THE RAILWAY SECTION AT WALCOURT (Pl.173E-18)(Fig.4)

The lithology of the Walcourt section has been described in detail by Conil,1964.In addition,a tectonic cross-section is given on Fig.4.
The distribution of the different lithological sequences (sequences"a" to "p"),defined by Conil,figures below the section on the same drawing.
The presence of the earliest "strunian"stromatoporoids in sequence"1" and at the top of sequence"p",will especially be noted here.
This section has also been sampled for conodonts,and their distribution is represented on Table 2.
Although the sequence"p" is composed of crinoidal limestone,it does not contain any conodonts at all.

When comparing the studied sections,a lithological parallellism is easily discerned.All the exposed parts of the Yves-Gomezée section are located below the sequence"1" at Walcourt,just below the first appearance of the strunian stromatoporoids.The mainly sandy basal sequence,containing some horizons with "pseudonodules"(loadcasts),and limestone lentils rich in conodonts at Yves-Gomezée,corresponds to the sequence"c" at Walcourt.

The macrofauna list can be completed by the presence of"*Camarotoechia*" within the sequences"i" and"o",and the strunian trilobite *Phacops accipitrinus* at the base of the sequence"o" (sample 5).

IV- ABANDONNED QUARRY NEAR A FORMER MILL,NORTH OF THE EAU D'YVES (Pl.173E-82)(Fig.1)

at the upper part of the quarry (thickness over 5 m.), laminated sandstone beds
at the lower part (thickness over 3 m.) massively bedded sandstones with loadcasting structures,topped with organoclastic limestone lentils
sample W10,yielding the following conodonts per kg.:

1	*Bispathodus aculeatus aculeatus*
1	*B.aculeatus anteposicornis*
1	*B.aculeatus plumulus*
3	*B.aculeatus* subsp.indet.
3	*B.aculeatus* --→ *B.costatus* morphotype 2
1	*B.bispathodus*
1	*B.costatus* morphotype 2
1	*B.stabilis* morphotype 1
12	*Icriodus costatus*
5	*Polygnathus communis communis*
3	*Spathognathodus strigosus*
12	others

This lithological succession is well comparable to the lowermost levels of the Yves-Gomezée section.
Sample W10 equals samples YG14.
ss horizontal,or gently dipping southward.

Conodonts YG	9	14c	14b	14a	10	8	11 = 7		12 = 6		5	4	3	2	1
P.communis communis	1	-	1	5	3	-	-	-	-	-	-	5	-	-	-
P.streeli n.sp.	1	1	-	3	6	-	-	3	-	-	-	-	-	-	-
P.delicatulus	-	-	-	1	-	-	-	-	X	-	4	-	1	-	-
P.gr.nodocostatus	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
*P.*sp.indet.	-	X	-	-	-	-	-	-	-	-	1	-	-	-	-
Pelekysgnathus	X	-	1	5	1	-	-	-	-	-	-	-	-	-	-
I.costatus	19	4	12	22	24	1	-	1	2	-	-	1	-	-	-
S.strigosus	-	X	1	1	X	-	-	-	X	-	-	X	-	-	-
S.inornatus	-	-	-	-	X	-	-	-	1	-	-	-	-	-	-
*S.*aff.*inornatus*	-	--	-	-	-	-	-	-	X	-	-	1	-	-	-
Nothognathella	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
Pr.meischneri	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
B.stabilis	X	2	1	6	4	1	-	-	-	-	-	1	-	-	-
B.stabilis→*B.aculeatus*	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
B.cyrius nodus	X	-	1	-	-	-	-	-	-	-	-	-	-	-	-
B.bispathodus	-	3	-	X	2	-	-	-	-	-	-	-	-	-	-
B.aculeatus aculeatus	1	5	3	3	1	-	-	-	-	-	-	1	-	-	-
B.aculeatus plumulus	4	5	4	18	1	7	-	1	-	-	X	-	-	-	-
B.ac.anteposicornis	X	X	-	X	X	-	-	-	-	-	-	-	-	-	-
B.aculeatus subsp.indet.	1	4	-	-	3	-	-	-	-	-	-	-	-	-	-
B.costatus	-	X	3	-	1	-	1	2	2	-	-	X	-	-	-
*B.*cf.*spinulicostatus*	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
*B.*sp.indet.	X	X	4	-	6	-	-	-	-	-	-	-	-	-	-
Ps.vogesi	-	X	-	-	-	-	-	-	-	1	-	X	-	-	-
*Ps.*cf.*Ps.brevipennatus*	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
others	7	10	1	43	15	1	3	3	9	1	11	12	3	-	-
total specimens	58	90	24	199	104	8	2	7	25	2	32	36	3	0	0
weight of samples in kg.	1.5	2.25	0.75	1.8	1.45	0.75	0.75	0.75	1.55	0.75	1.8	1.5	0.75		
number of conodonts per kg	39	40	32	111	72	11	3	9	16	3	18	24	4	0	0

Table 1: Conodont distribution in the Yves-Gomezée section
numbers of conodonts are reported per kg. (X=less than 1 conodont per kg.)
sample numbers in ascending order (YG9 is the lowermost sample)

Conodonts W	1	2	3	4	5	6	7	8	9
P.communis communis	4	-	3	-	-	-	-	-	-
I.costatus	7	-	-	-	-	-	-	-	-
B.aculeatus plumulus	7	-	-	1	-	-	-	-	-
S.strigosus	-	1	-	-	-	-	-	--	-
P.delicatulus	-	1	-	-	1	-	-	-	-
B.aculeatus anteposicornis	-	1	-	-	-	-	-	--	-
Ps.vogesi	-	1	-	-	1	3	-	-	-
B.aculeatus aculeatus	-	-	1	-	-	-	-	-	-
*P.*sp.A Groessens,1975	-	-	-	-	1	1	-	-	-
*Ps.*cf.*brevipennatus*	-	-	-	-	1	-	-	-	-
others	3	10	10	2	7	5	-	-	-
total specimens	15	12	11	3	9	7	0	0	0
weight of samples in kg.	.75	.75	.75	1	.75	.75			
number of conodonts per kg.	20	16	15	3	12	9	0	0	0

Table 2:Conodont distribution in the Walcourt section
numbers of conodonts are reported per kg.

V- BIOSTRATIGRAPHY

1.CONODONTS (fig.5, tab.1+2, Pl.1-13)

The biostratigraphic subdivision is based upon the standard biozonation, established by ZIEGLER (1962,1971), and the recent revision by ZIEGLER, SANDBERG & AUSTIN (1974).
In the studied fauna, *Bispathodus* (Pl.5-8), is represented mostly by the *B.aculeatus plumulus* form subspecies. *B.bispathodus* is confined to the basal layers of the studied sections. *B.costatus*, with a regular vertical distribution, but never abundant, is represented mostly by both morphotypes(ZIEGLER, SANDBERG & AUSTIN, 1974).
It is important to notice that many transitional forms between these formspecies and -subspecies are found, a characteristic phenomenon at the initial diversification of a new group. Forms, similar to the *Spathognathodus cyrius* group of RHODES, AUSTIN & DRUCE,1969, have also their place within this new formgenus, *Bispathodus*.
Pseudopolygnathus, evolved from *Bispathodus*, is represented by *Pseudopolygnathus vogesi*. Until now, *P.vogesi* was described from Lower Carboniferous formations only.(RHODES AUSTIN & DRUCE,1969, DRUCE,1969),(Pl.4,fig.1-3).
Some specimens (Pl.4, fig.4-5) are similar to *P.cf brevipennatus*(ZIEGLER, SANDBERG & AUSTIN,1974), the probable ancestor of *P.vogesi*. Transitional forms between *B.costatus* and *P.vogesi* are not uncommon.(YG 10).
One specimen of *Protognathodus meischneri*, the first form of the *Protognathodus*-stock, indistinctly evolved from *Bispathodus stabilis*, was recorded from sample YG 14a (Pl.2, fig.10).
Bispathodus cf.Spinulicostatus (Pl.5, fig.1), occurs in the upper calcareous horizons (YG 5).
Other relevant zone-markers do not occur, probably because of facies restrictions, which leads us to the assumption that the exposed rosk formations are stratigraphically situated around the Lower/Middle *costatus*-Zone limit.
An important constituent in the lowermost conodont beds, but rapidly decreasing and completely disappearing in younger strata, is the *Icriodus-Pelekysgnathus* group. Different types of *Icriodus* can be recognized (see ANDERSON,1966), (Pl.9-11), which possibly are the result of a progressive wearing or maturing of a single form; therefor, we retain only *Icriodus costatus* as a diagnostic formspecies.
Spathognathodus strigosus, although less abundant, has about the same distribution pattern as *Icriodus costatus*.
Polygnathus is represented by different forms as *P.communis communis* (Pl.2,fig.1-9,11-12), *P.delicatulus* (Pl.3,fig.1-6), both frequent but obviously mutually exclusive.
P.streeli n.sp., resembling *P.communis*, is confined to the lower part of the studied sections.(Pl.1, fig.1-7)

A remnant Famennian polygnathid fauna, possibly reworked, is found in the lowermost conodont beds.(Pl.3, fig.7-9). The upper crinoidic limestone beds, which generally are almost barren of conodonts, contained rare specimens of *Polygnathus n.sp.A GROESSENS,1975*, a form probably related to *Siphonodella praesulcata* (Pl.1, fig.8-9) (W5 and W6).

Systematic note: *Polygnathus streeli n.sp.*

Derivatio nominis: dedicated to Prof.Dr.M.Streel, of the University of Liège, the eminent specialist of the Devonian-Carboniferous System boundary.

Holotype: C1244 : Plate 1, fig.7; Plate 13, fig.4.

Locus typicus: Yves-Gomezée road section.

Stratum typicum: YG n°9

Material: 20 specimens

Diagnosis: A species belonging to the genus *Polygnathus*, characterized by a short and strongly asymmetric platform, and a large lenticular basal cavity.

Description: The unit is curved and inclined; The free blade consists of about 8 to 10 mostly equidimensional denticles. The platform is short (about half the total length), strongly asymmetrical and does not reach the posterior carina tip. The platform margins are upturned, and show a parallel orientation. The oral surface of the platform is smooth or slightly crenulated toward the margins. The carina is high and composed of almost completely fused nodes or denticles. On the aboral side of the unit, a deep longitudinal groove, which is continuing under the anterior part of the platform, is situated in the basal area, which shows quite visible lenticular growth lines.(incipient inverted basal cavity). The basal pit is situated at the transition point between free blade and platform. Posterior to the pit, a distinct keel progresses to the posterior end of the unit.

Remarks: *Polygnathus streeli* is similar to *Polygnathus communis communis BRANSON & MEHL*, and *Polygnathus brevilaminus BRANSON & MEHL*, but there is a distinct difference between their basal cavities.

Range: *Polygnathus streeli* occurs in the lower and possibly the middle part of the *costatus*-Zone in Belgium.

2.SPORES (by M.Streel)

Ten different samples have been taken at the Yves-Gomezée road section, of which only sample 9 did not contain any spores. All other samples 1-8 and 10 indicated the PL-zone. The following spores are identified: *Aneurospora greggsi, Aneurospora incohata, Aurospora macra, Grandispora microseta, Grandispora uncata, Raistrickia variabilis, Retusotriletes planus, Rugospora flexuosa, Rugospora versabilis, Spelaeotriletes lepidophytus* (for taxonomy see BECKER,BLESS, STREEL & THOREZ.1974).
S.lepidophytus is recorded from all 9 samples but in insufficiently large numbers to be of any use for a valuable statistic mean size measurement, which makes it difficult to compare with the reference biometric scale (STREEL,1966).
No typical species of the Middle and Upper PL-subzones are recognized, but the state of conservation of the material does not allow an assignment of the samples to one of the 3 defined subzones.
At Walcourt, 10 samples also are taken and studied, of which only two contained identifiable spores : S3, sampled 3 meters below the base of unit "c" of R.CONIL,1964; and S10, recovered from the unit "e" of the same author. S3 does not contain *S.lepidophytus*, but *Raistrickia variabilis*, and is assigned to the Upper VU-zone. S10 contains *S.lepidophytus*, as well as most of the species recorded from Yves-Gomezée (cf.supra). For the reasons already mentioned above, a clear assignment of this sample to one of the PL-subzones is impossible.

The lithological correlation of the lower part of the Yves-Gomezée section, containing an undoubted PL-zone flora, with the upper half of unit "c" at Walcourt (CONIL,1964), which is situated only a few meters above S3 in unit "b", containing an Upper VU-zone flora, indicates that the lower limit of the PL-zone should be placed near the base of unit "c" at Walcourt, or just below the exposed beds at Yves-Gomezée.
This induces an unexpected equivalence of at least, the upper half of the sandstone unit "c", with the lower part of the "Schistes de l'Epinette" (Fa2d)(CONIL & LYS,1967), at the classical section of Avesnelles, in northern France.

3.FORAMINIFERA

A quite typical fauna, corresponding to the Fa2d (BOUCKAERT, STREEL & THOREZ,1968), equivalent to the lower and middle part of the "Schistes de l'Epinette" (CONIL & LYS,1970), in the classical Avesnelles section, and comparable to the fauna mentioned by R.CONIL (1964) from Walcourt, has been observed in the upper units of the Yves-Gomezée road section.(YG1+5). Thin sections from lower levels, contained at most a less typical foraminiferal fauna.(YG11).
Thanks to the help of R.CONIL, the following forms have been recognized :

- *Bisphaera irregularis*
- *Endothyra parakosvensis* subsp.*imminuta*
- *E.parakosvensis* subsp.*nigra*
- *Quasiendothyra communis communis*
- *Q.regularis regularis*
- cf.*Rectoseptaglomospiranella asiatica*
- *Paracaligella*

as algal forms :

- *Girvanella ducii*
- *Girvanella wetheredi*

4.TRILOBITES (By G.HAHN)

Trilobites, occuring in samples W5 (unit "o" of CONIL,1964), YG4 (corresponding to unit "g" of CONIL,1964) and YG17 (the same sequence as in YG4, but situated at the opposite side of the Yves-Gomezée road section), all in a black shale - nodular limestone facies, rich in macrofossils, belong to one species, *Phacops accipitrinus*, which is the most abundant species in the Uppermost Devonian (Strunian, toVI),and useful as an index fossil for this age.

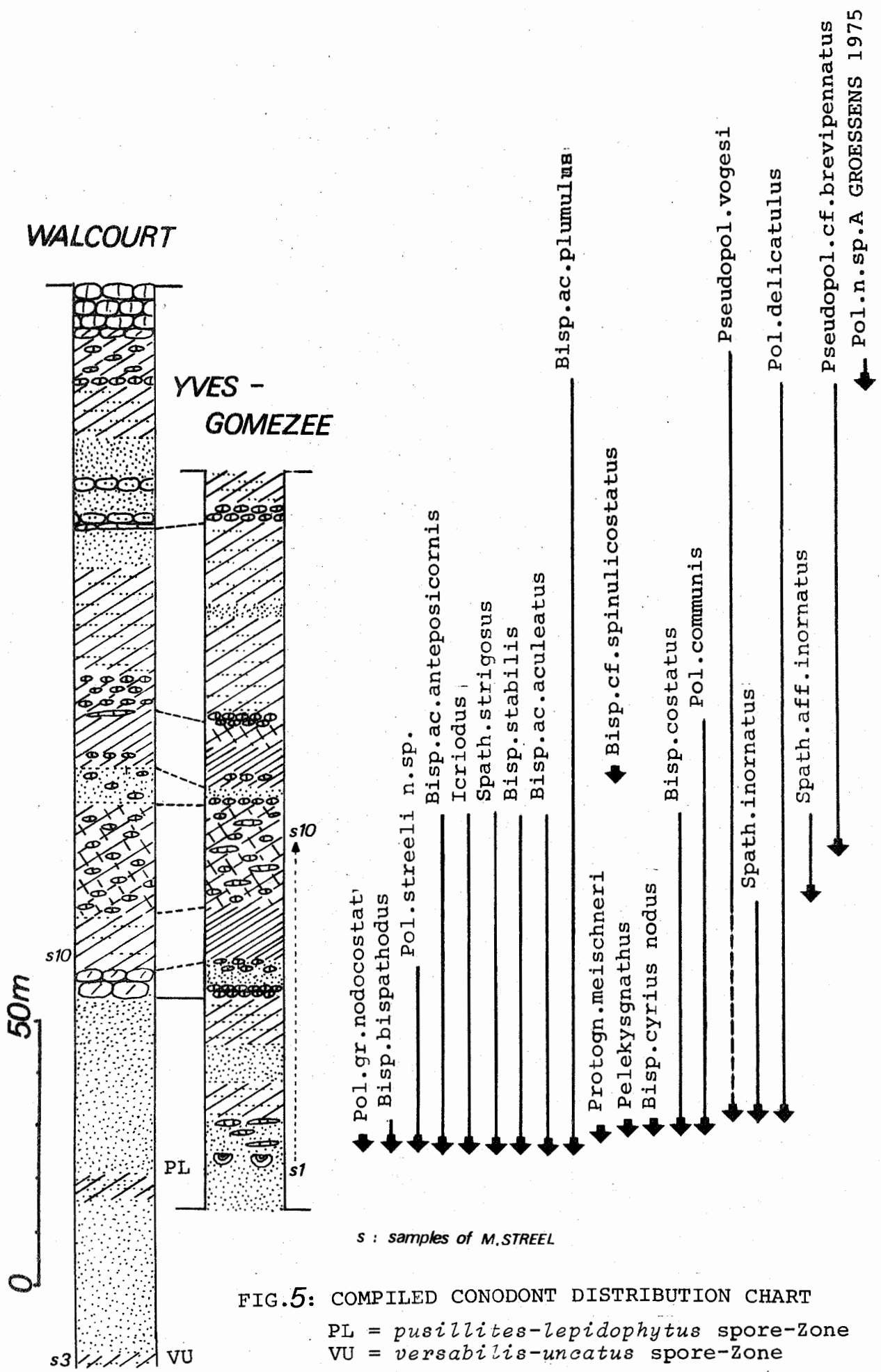

FIG.5: COMPILED CONODONT DISTRIBUTION CHART

PL = *pusillites-lepidophytus* spore-Zone
VU = *versabilis-uncatus* spore-Zone

ACKNOWLEDGEMENTS

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R.Conil (Louvain-la-Neuve) gave detailed information about the Walcourt section,which he previously studied,and examined the thin section microfauna.
M.Streel (Liège) took an active part in the preparation of this study.We want to express our thanks by dedicating a new Polygnathus conodont-form to him.
G.Hahn (Marburg) kindly examined the trilobite fauna.
M.Bless (Heerlen) read and corrected the manuscript.
We thank the"Comté Elektronenmikroskopie KUL" and the F.K.F.O.
Many thanks to M.Lhode (Liège) and M.Roosen (Leuven) for their help with the scanning photographs,to F. Wuyts and J.Ferdinand for their technical assistance.

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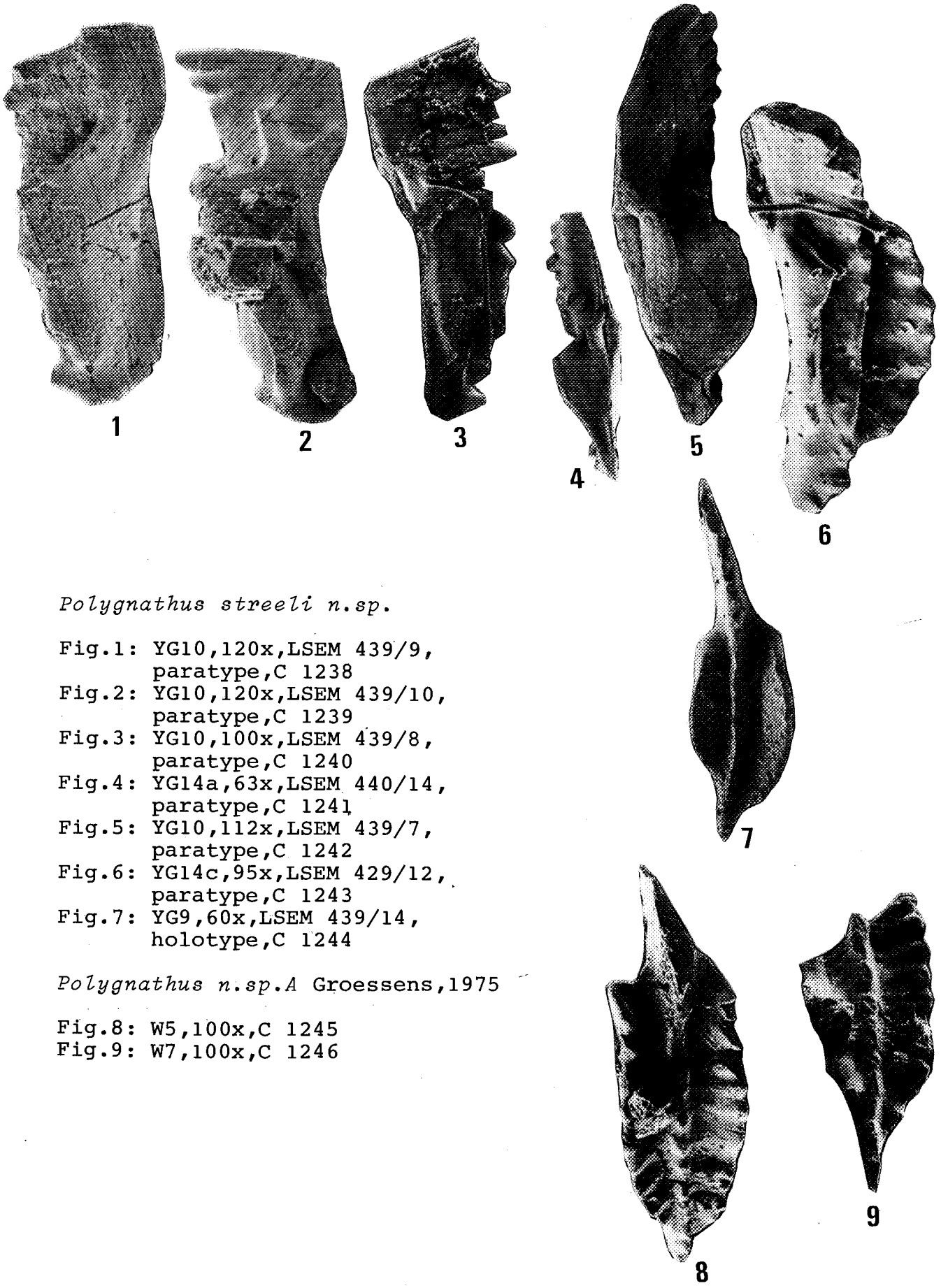
P L A T E S 1 - 1 3

Plates 1-12: magnifications individually indicated
LSEM: Leuven Scanning Electron Microscope registration numbers
Plate 13: magnification 35 x

PLATE 1



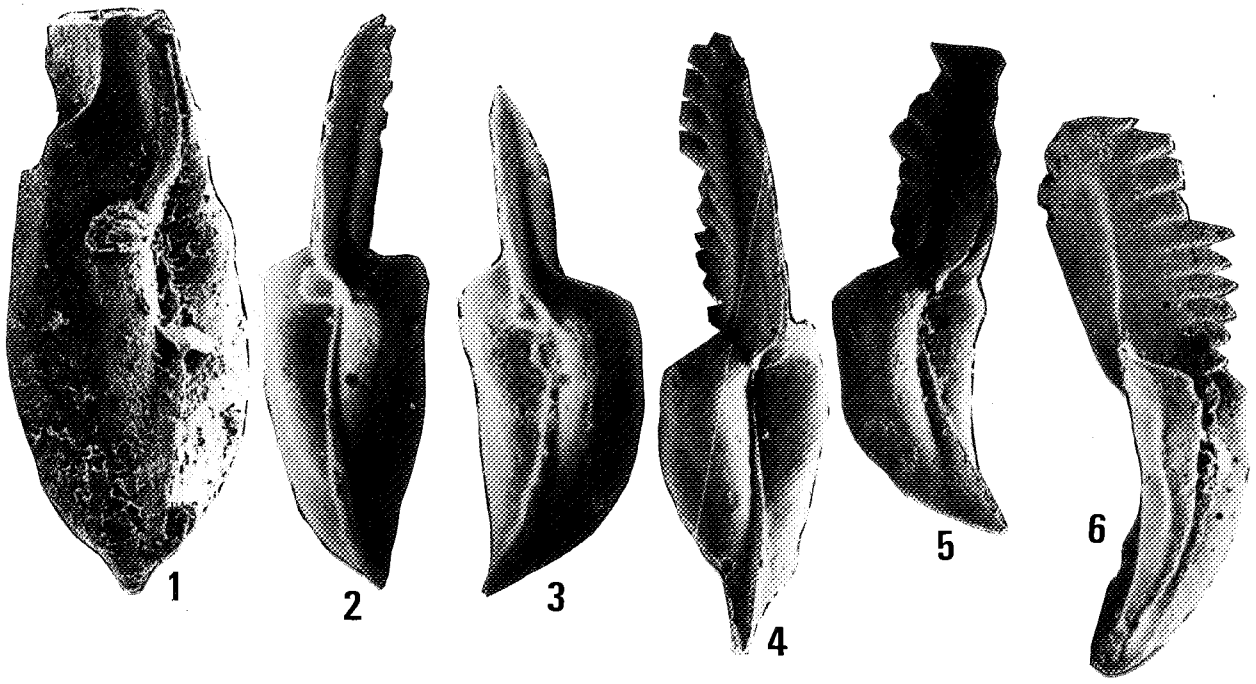
Polygnathus streeli n.sp.

Fig.1: YG10,120x,LSEM 439/9,
paratype,C 1238
Fig.2: YG10,120x,LSEM 439/10,
paratype,C 1239
Fig.3: YG10,100x,LSEM 439/8,
paratype,C 1240
Fig.4: YG14a,63x,LSEM 440/14,
paratype,C 1241
Fig.5: YG10,112x,LSEM 439/7,
paratype,C 1242
Fig.6: YG14c,95x,LSEM 429/12,
paratype,C 1243
Fig.7: YG9,60x,LSEM 439/14,
holotype,C 1244

Polygnathus n.sp.A Groessens,1975

Fig.8: W5,100x,C 1245
Fig.9: W7,100x,C 1246

PLATE 2



Polygnathus communis
Branson&Mehl,1934

Fig.1: YG10,120x,LSEM 439/13, C 1247
Fig.2: YG4,115x,LSEM 426/32, C 1248
Fig.3: YG4,120x,LSEM 426/34, C 1249
Fig.4: YG14a,122x,LSEM 440/15, C 1250
Fig.5: YG4,115x,LSEM 440/6, C 1251
Fig.6: YG4,112x,LSEM 440/21, C 1252
Fig.7: YG4,120x,LSEM 426/33, C 1253
Fig.8: YG4,115x,LSEM 440/20, C 1254
Fig.9: YG14a,60x,LSEM 440/16, C 1255
Fig.11: YG14a,100x,C 1256
Fig.12: YG14a,100x,C 1257

Protognathodus meischneri
Ziegler,1969

Fig.10: YG14a,200x,C 1258

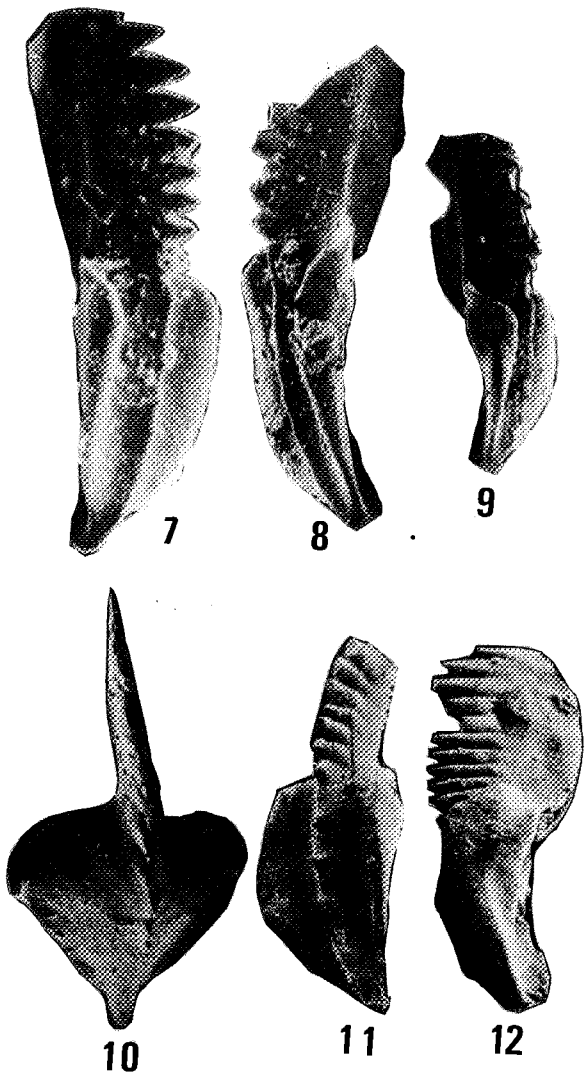
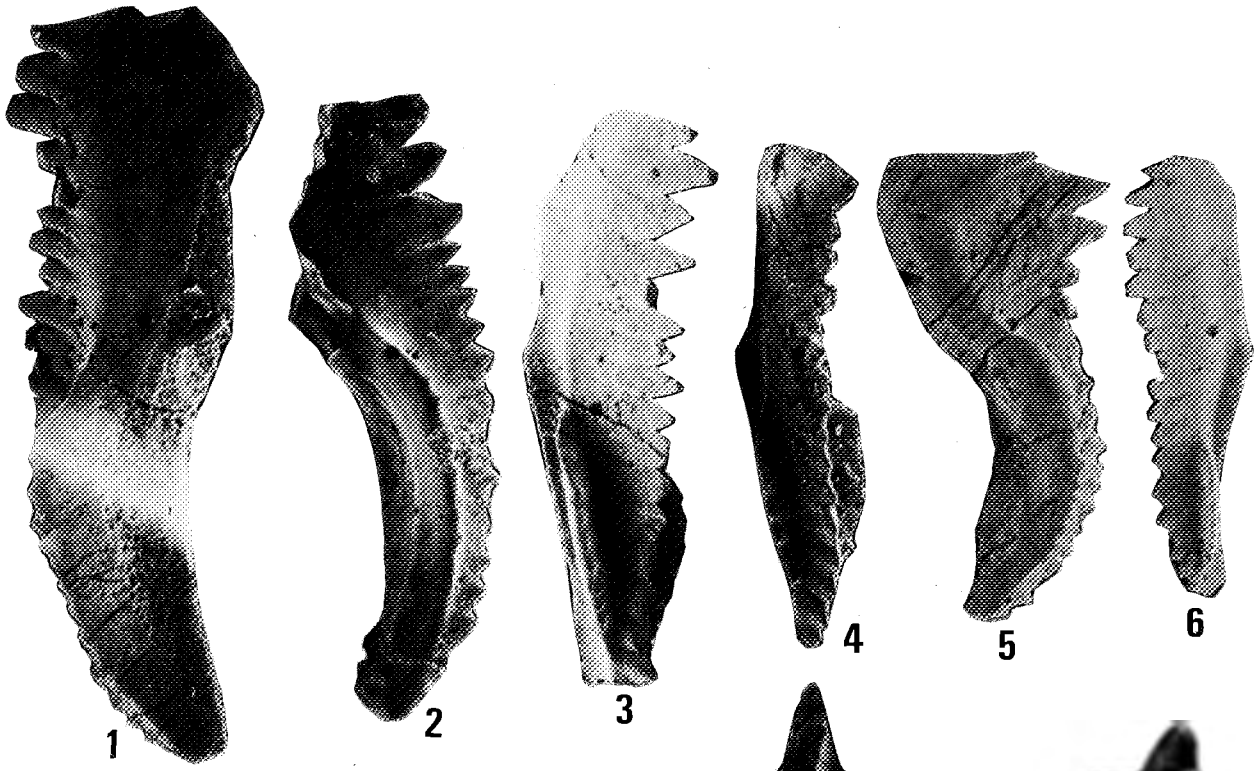
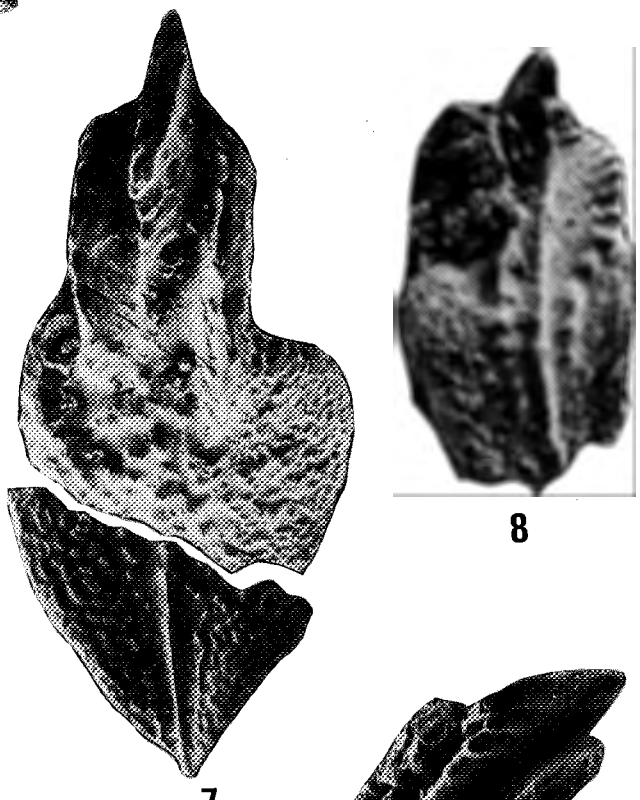
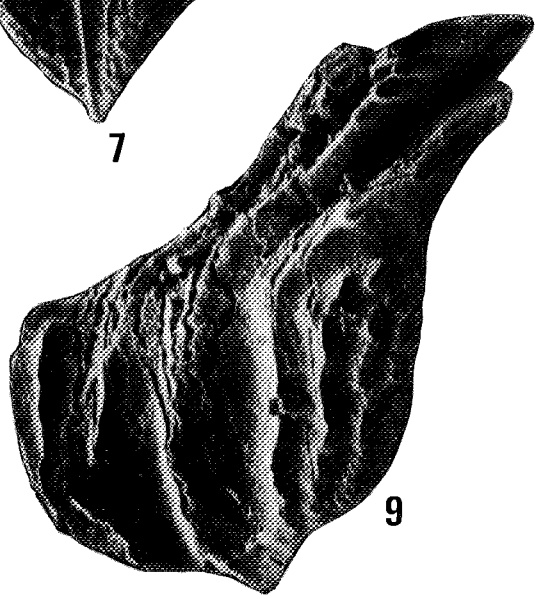


PLATE 3







Polygnathus delicatulus
Ulrich&Bassler,1926

Fig.1: YG5,102x,LSEM 440/1,
C 1259
Fig.2: YG5,102x,LSEM 440/2,
C 1260
Fig.3: YG5,110x,LSEM 440/5,
C 1261
Fig.4: YG5,105x,LSEM 440/3,
C 1262
Fig.5: YG5,58x,LSEM 439/19,
C 1263
Fig.6: YG12,110x,LSEM 439/4,
C 1264

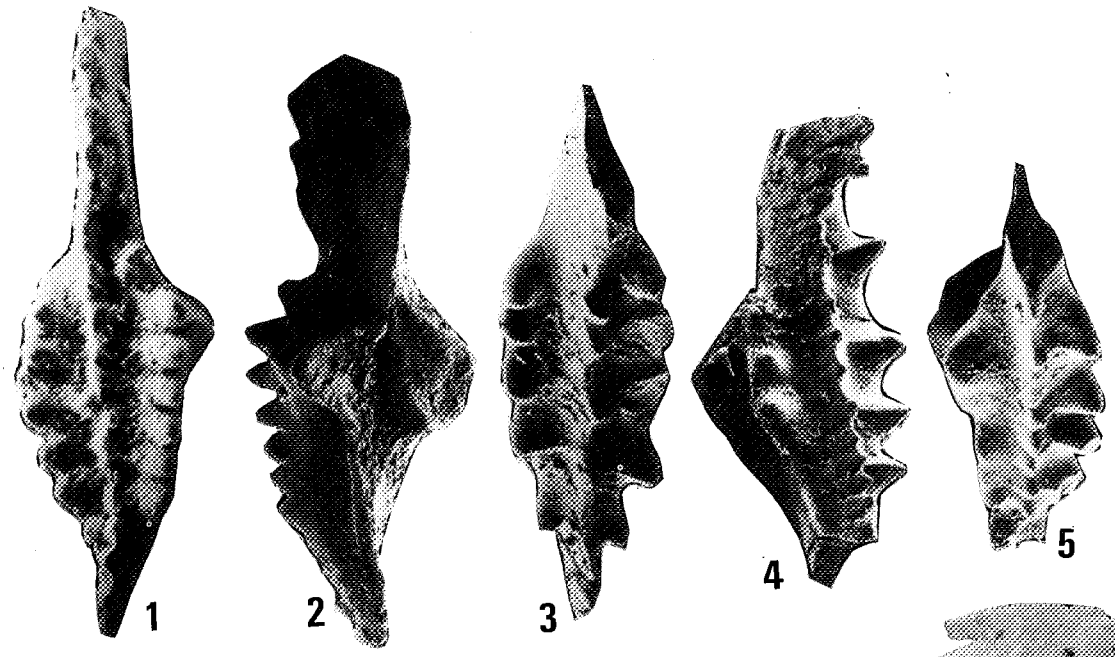
Polygnathus gr.nodocostatus
Branson&Mehl,1934

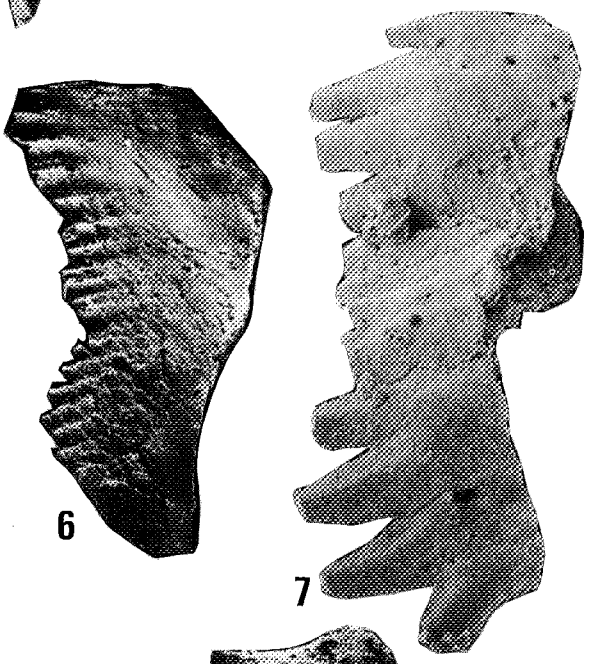
Fig.7: YG14c,45x,LSEM 430/2+5,
C 1265
Fig.8: YG14c,45x,LSEM 430/3,
C 1266

Polygnathus sp.cf.P.perplexus
Thomas,1949

Fig.9: YG14c,90x,LSEM 430/4,
C 1267

PLATE 4





Pseudopolygnathus vogesi
Rhodes,Austin&Druce,1969

Fig.1: YG6,60x,LSEM 426/31,
C 1268;upper view
Fig.2: YG6,55x,LSEM 440/22,
C 1268;lower view
Fig.3: W5,95x,C 1269

Pseudopolygnathus cf.P.brevi-
pennatus Ziegler,1962

Fig.4: W5,100x,C 1270;specimen
transitional to *P.vogesi*
Fig.5: YG5,95x,C 1271

Spathognathodus strigosus
(Branson&Mehl,1934)

Fig.6: YG12,100x,C 1272

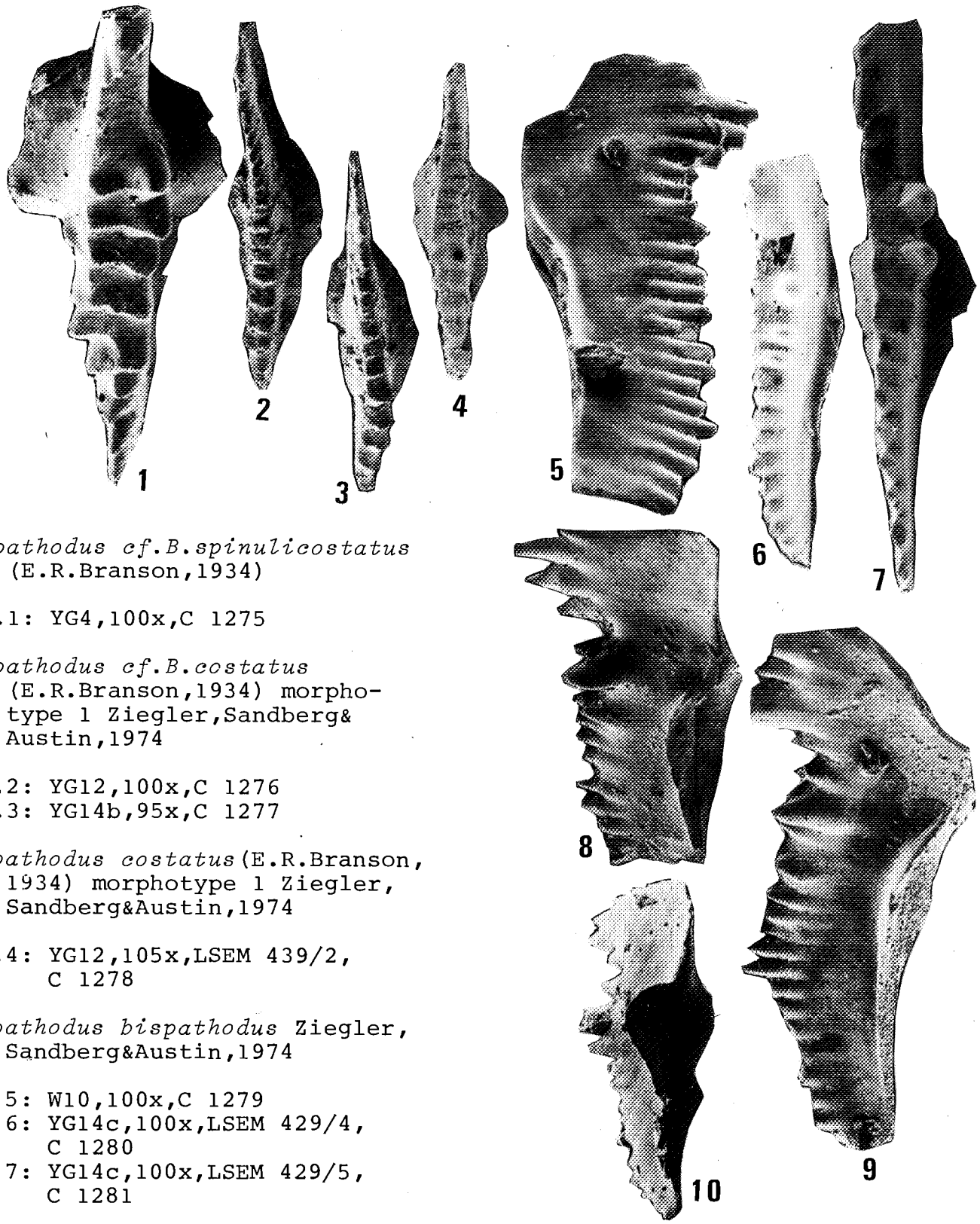
Spathognathodus aff.S.inornatus
(Branson&Mehl,1934)

Fig.7: YG12,210x,LSEM 439/3,
C 1273

Spathognathodus inornatus
(Branson&Mehl,1934)

Fig.8: YG12,190x,C 1274

PLATE 5



Bispathodus cf.B.spinulicostatus (E.R.Branson,1934)

Fig.1: YG4,100x,C 1275

Bispathodus cf.B.costatus (E.R.Branson,1934) morphotype 1 Ziegler,Sandberg& Austin,1974

Fig.2: YG12,100x,C 1276
Fig.3: YG14b,95x,C 1277

Bispathodus costatus (E.R.Branson, 1934) morphotype 1 Ziegler, Sandberg&Austin,1974

Fig.4: YG12,105x,LSEM 439/2, C 1278

Bispathodus bispathodus Ziegler, Sandberg&Austin,1974

Fig.5: W10,100x,C 1279
Fig.6: YG14c,100x,LSEM 429/4, C 1280
Fig.7: YG14c,100x,LSEM 429/5, C 1281

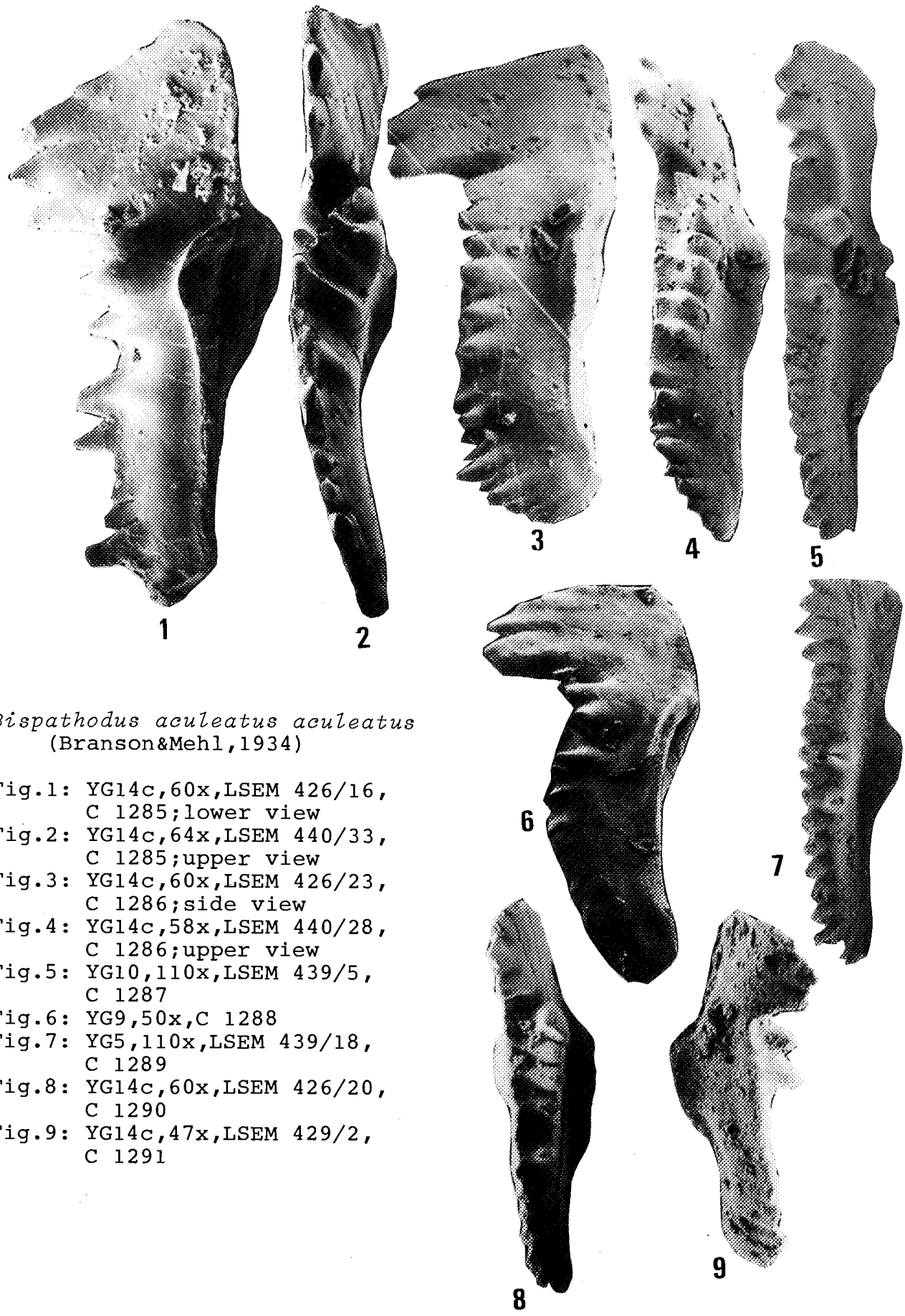
Bispathodus aculeatus anteposicornis (Scott,1961)

Fig.8: W2,100x,C 1282
Fig.9: YG14a,100x,C 1283;atypical specimen

Bispathodus bispathodus Ziegler,Sandberg&Austin,1974 --> *B.aculeatus aculeatus* (Branson&Mehl,1934)

Fig.10: YG14a,65x,LSEM 440/13,C 1284

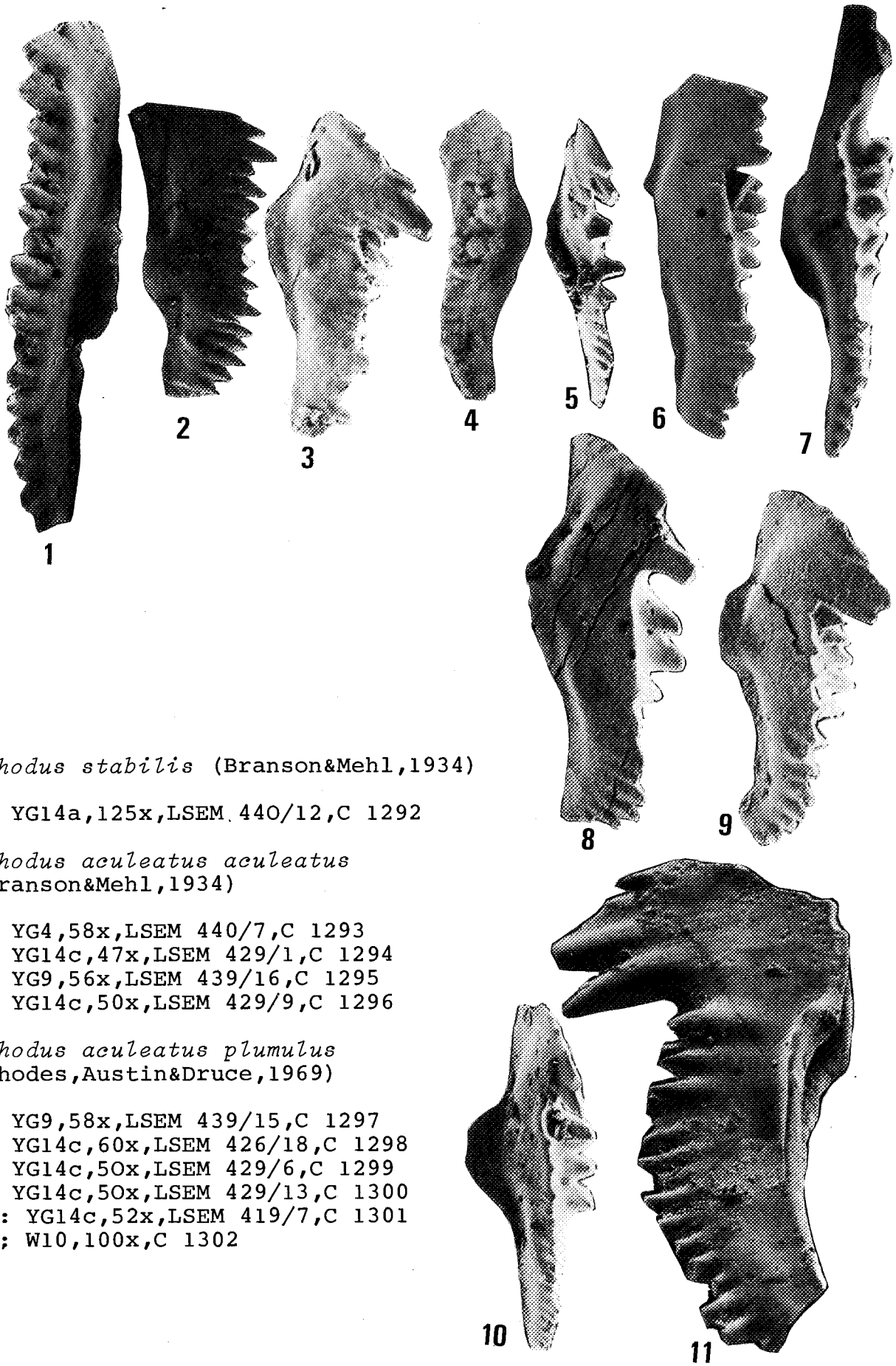
PLATE 6



Bispathodus aculeatus aculeatus
(Branson&Mehl,1934)

Fig.1: YG14c,60x,LSEM 426/16,
C 1285;lower view
Fig.2: YG14c,64x,LSEM 440/33,
C 1285;upper view
Fig.3: YG14c,60x,LSEM 426/23,
C 1286;side view
Fig.4: YG14c,58x,LSEM 440/28,
C 1286;upper view
Fig.5: YG10,110x,LSEM 439/5,
C 1287
Fig.6: YG9,50x,C 1288
Fig.7: YG5,110x,LSEM 439/18,
C 1289
Fig.8: YG14c,60x,LSEM 426/20,
C 1290
Fig.9: YG14c,47x,LSEM 429/2,
C 1291

PLATE 7



Bispathodus stabilis (Branson&Mehl,1934)

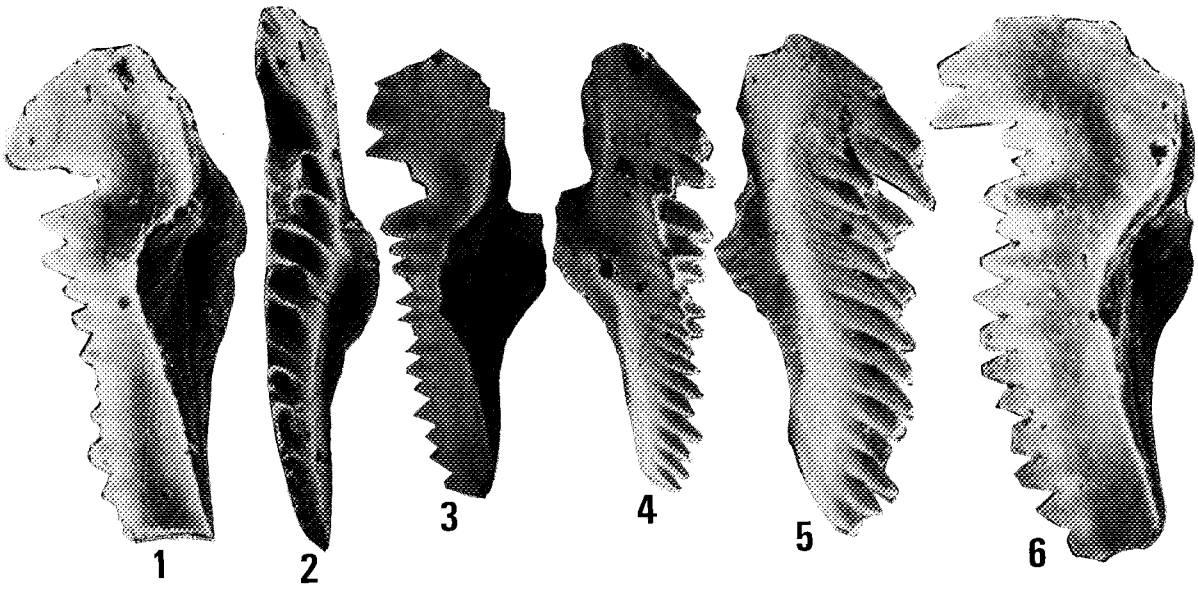
Fig.1: YG14a,125x,LSEM 440/12,C 1292

Bispathodus aculeatus aculeatus
(Branson&Mehl,1934)

Fig.2: YG4,58x,LSEM 440/7,C 1293
Fig.3: YG14c,47x,LSEM 429/1,C 1294
Fig.4: YG9,56x,LSEM 439/16,C 1295
Fig.5: YG14c,50x,LSEM 429/9,C 1296

Bispathodus aculeatus plumulus
(Rhodes,Austin&Druce,1969)

Fig.6: YG9,58x,LSEM 439/15,C 1297
Fig.7: YG14c,60x,LSEM 426/18,C 1298
Fig.8: YG14c,50x,LSEM 429/6,C 1299
Fig.9: YG14c,50x,LSEM 429/13,C 1300
Fig.10: YG14c,52x,LSEM 419/7,C 1301
Fig.11; W10,100x,C 1302

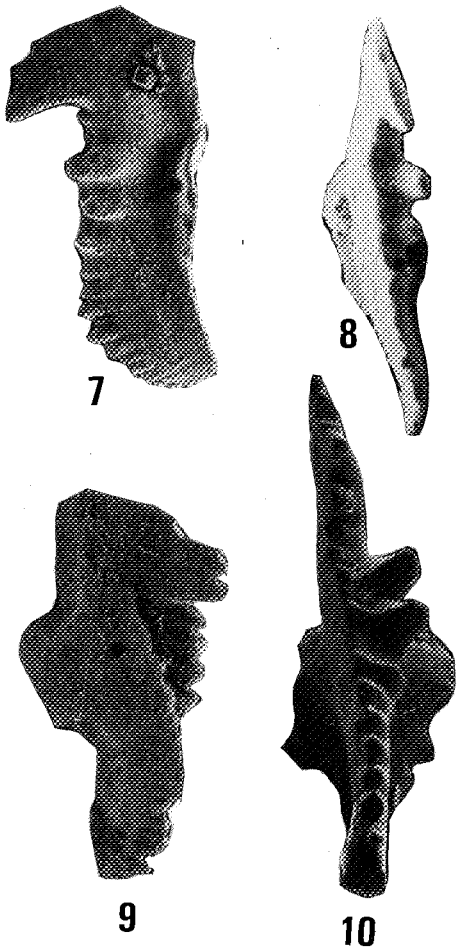


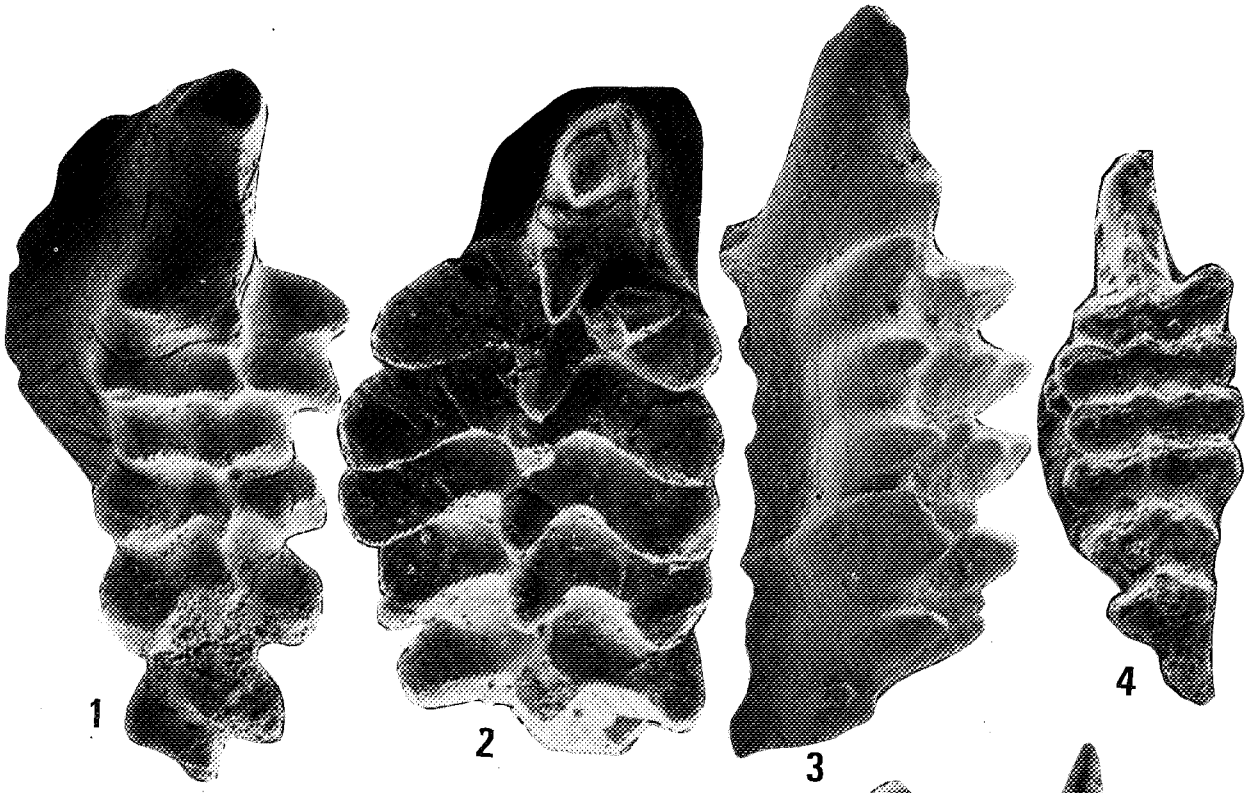
Bispathodus aculeatus plumulus
(Rhodes,Austin&Druce,1969)

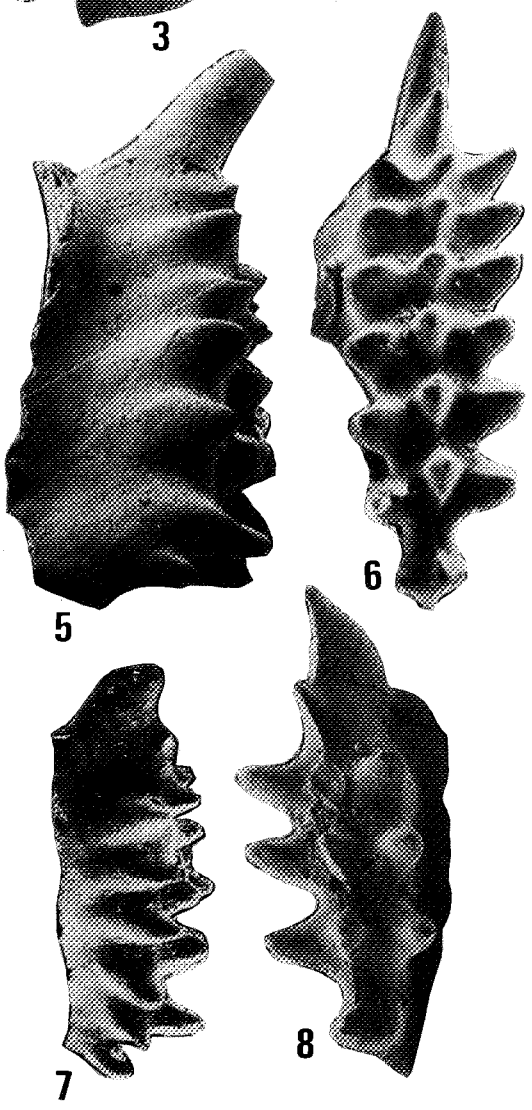
Fig.1: YG14c,60x,LSEM 426/17,
C 1303;lower view
Fig.2: YG14c,64x,LSEM 440/32,
C 1303;upper view
Fig.3: YG14c,60x,LSEM 426/19,
C 1304;lower view
Fig.4: YG14c,60x,LSEM 440/31,
C 1304;upper view
Fig.5: YG14c,116x,LSEM 440/30,
C 1305;upper view
Fig.6: YG14c,115x,LSEM 426/21,
C 1305;lower view
Fig.7: YG9,52x,LSEM 440/24,
C 1306;side view
Fig.8: YG9,55x,LSEM 426/29,
C 1306;upper view
Fig.9: YG5,52x,LSEM 439/20,
C 1307

Bispathodus bispathodus Ziegler,
Sandberg&Austin,1974 -->
B.aculeatus plumulus (Rhodes,
Austin&Druce,1969)

Fig.10: YG14a,100x,C 1308

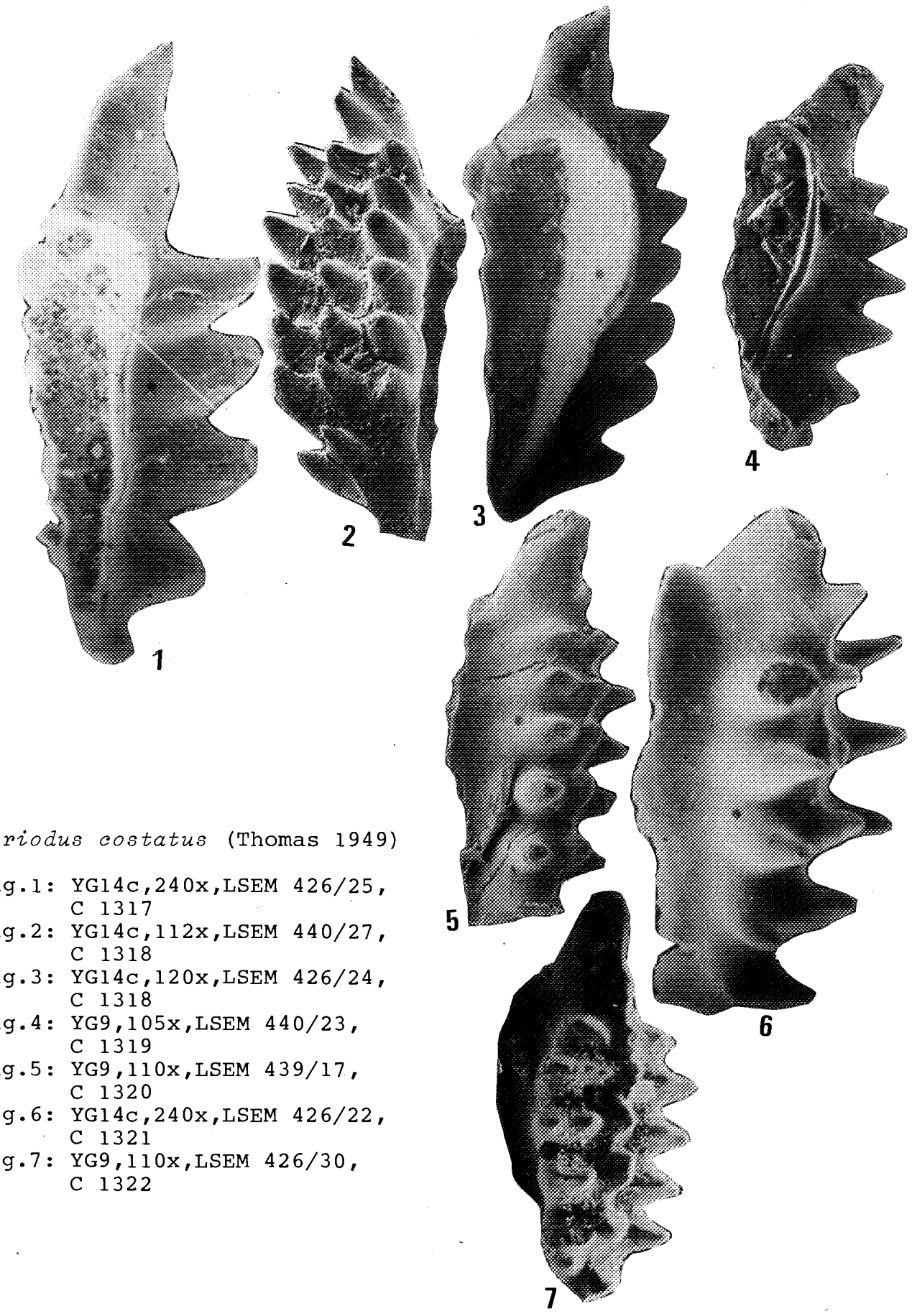






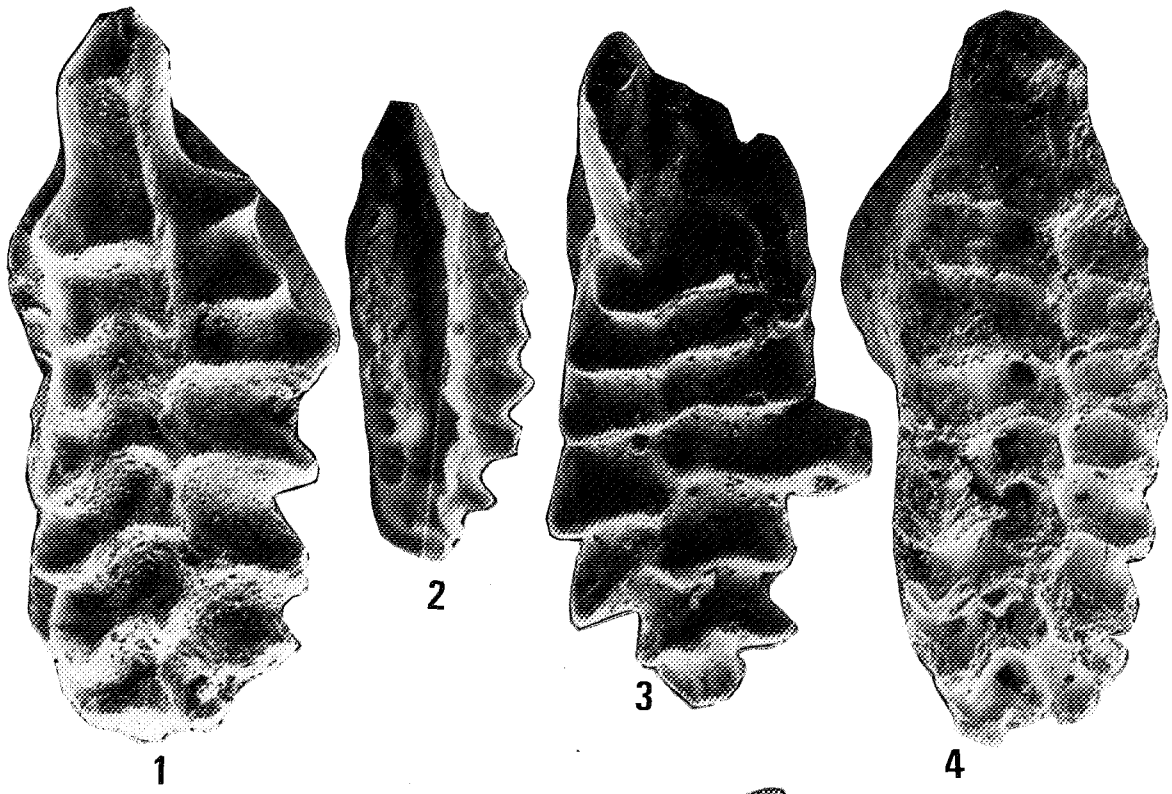
Icriodus costatus (Thomas 1949)

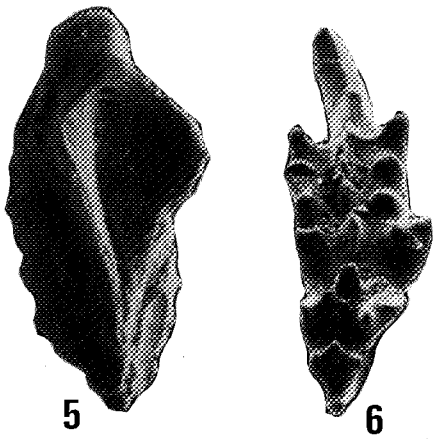
Fig.1: YG14b,120x,LSEM 440/8; C 1309
Fig.2: YG12,190x,C 1310
Fig.3: YG10,125x,LSEM 439/11, C 1311
Fig.4: W10,100x,C 1312
Fig.5: YG14a,112x,LSEM 440/11, C 1313
Fig.6: YG14c,100x,LSEM 429/10, C 1314
Fig.7: YG14c,100x,LSEM 429/11, C 1315
Fig.8: YG10,130x,LSEM 439/12, C 1316



Icriodus costatus (Thomas 1949)

Fig.1: YG14c,240x,LSEM 426/25, C 1317
Fig.2: YG14c,112x,LSEM 440/27, C 1318
Fig.3: YG14c,120x,LSEM 426/24, C 1318
Fig.4: YG9,105x,LSEM 440/23, C 1319
Fig.5: YG9,110x,LSEM 439/17, C 1320
Fig.6: YG14c,240x,LSEM 426/22, C 1321
Fig.7: YG9,110x,LSEM 426/30, C 1322



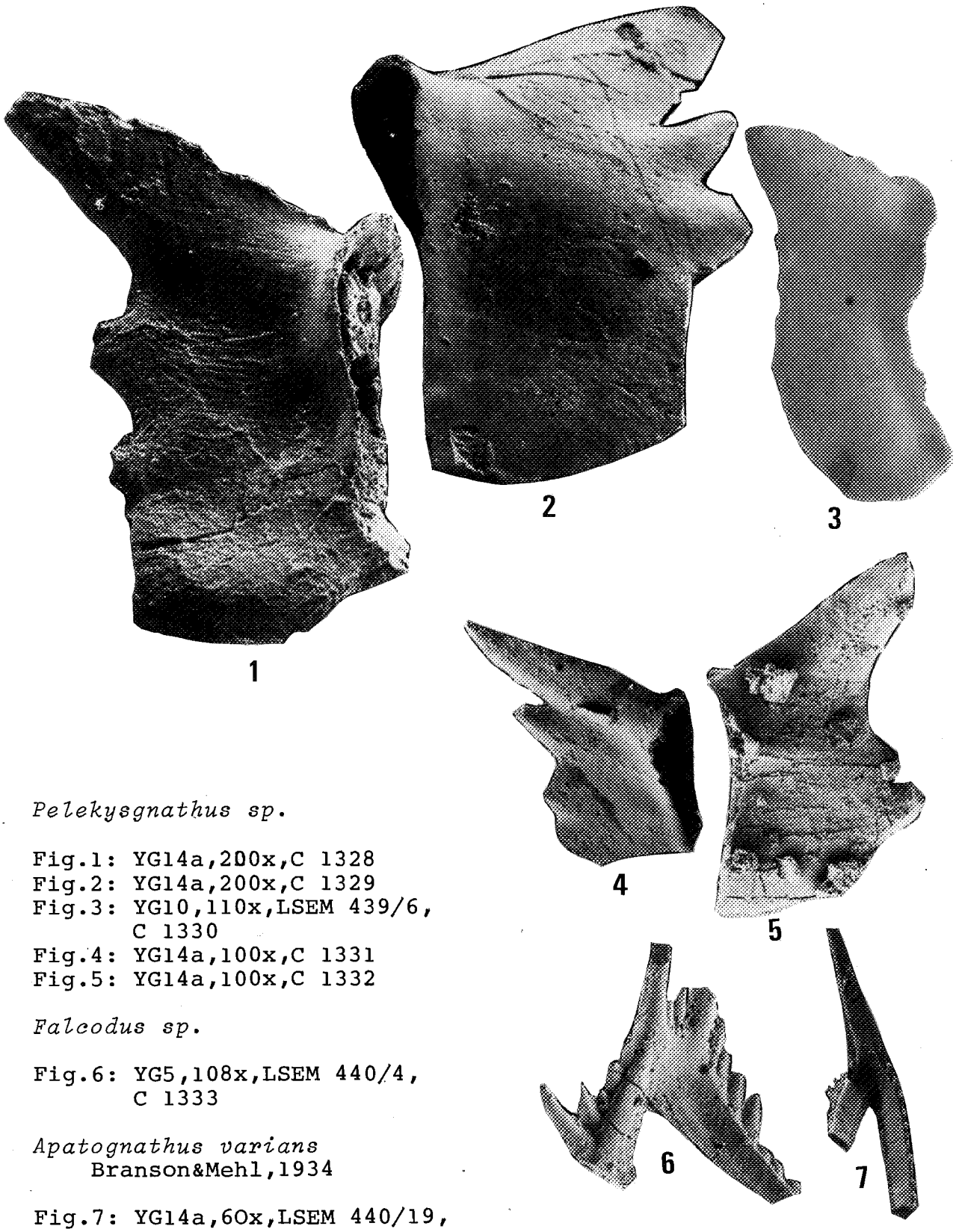


Icriodus costatus (Thomas 1949)

Fig.1: YG9,100x,C 1323
Fig.2: YG14c,60x,LSEM 426/26, C 1324
Fig.3: YG9,100x,C 1325
Fig.4: YG14c,105x,LSEM 440/25, C 1326;upper view
Fig.5: YG14c,60x,LSEM 426/27, C 1326;lower view
Fig.6: YG9,50x,C 1327

Pyrite framboid

Fig.7: W2,200x



Pelekysgnathus sp.

Fig.1: YG14a,200x,C 1328
Fig.2: YG14a,200x,C 1329
Fig.3: YG10,110x,LSEM 439/6,
C 1330
Fig.4: YG14a,100x,C 1331
Fig.5: YG14a,100x,C 1332

Falcodus sp.

Fig.6: YG5,108x,LSEM 440/4,
C 1333

Apatognathus varians
Branson&Mehl,1934

Fig.7: YG14a,60x,LSEM 440/19,
C 1334

PLATE 13

Polygnathus delicatulus Ulrich&Bassler,1926

Fig.1 a,b,c: YG 5,C 1263
Fig.2 a,b,c: YG 5,C 1259

Pseudopolygnathus vogesi Rhodes,Austin&Druce,1969

Fig.3: YG 6,C 1268

Polygnathus streeli n.sp.

Fig.4 a,b: YG 9,C 1244,holotype
Fig.5 a,b,c: YG 10,C 1242,paratype

Polygnathus communis communis Branson&Mehl,1934

Fig.6: YG 14c,C 1250

Bispathodus aculeatus aculeatus (Branson&Mehl,1934)

Fig.7 a,b: YG 4,C 1293
Fig.10: YG 14c,C 1290
Fig.15: YG 14c,C 1285
Fig.16 a,b,17: YG 14c,C 1286

Bispathodus aculeatus cf.*anteposicornis* (Scott,1961)

Fig.8 a,b: YG 14a,C 1283

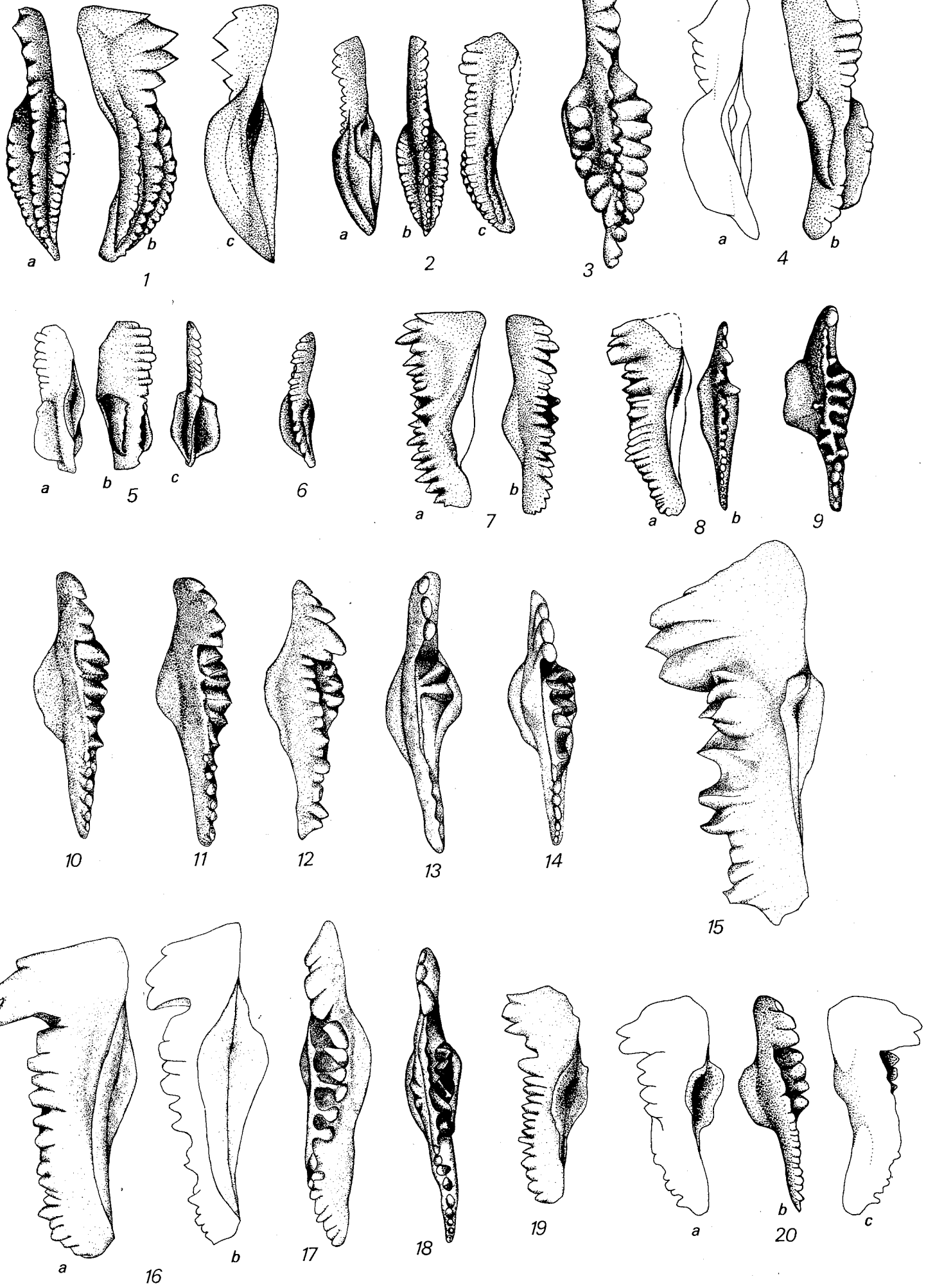
Bispathodus cf.*B.spinulicostatus* (E.R.Branson,1934)

Fig.9: YG 4,C 1275

Bispathodus aculeatus plumulus (Rhodes,Austin&Druce,1969)

Fig.11: YG 14c
Fig.12: YG 14c
Fig.13: YG 14c
Fig.14: YG 14c,C 1300
Fig.18: YG 14c,C 1298
Fig.19: YG 14c,C 1304
Fig.20 a,b,c: YG 5,C 1307

PLATE 13


a
b
1
c
a
b
2
c
3
a
4
b
a
b
5
c
6
7
a
b
a
8
b
9
10
11
12
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a
16
b
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18
19
a
20
b
c

FIG.4 P.P. 1976 / 6

WALCOURT

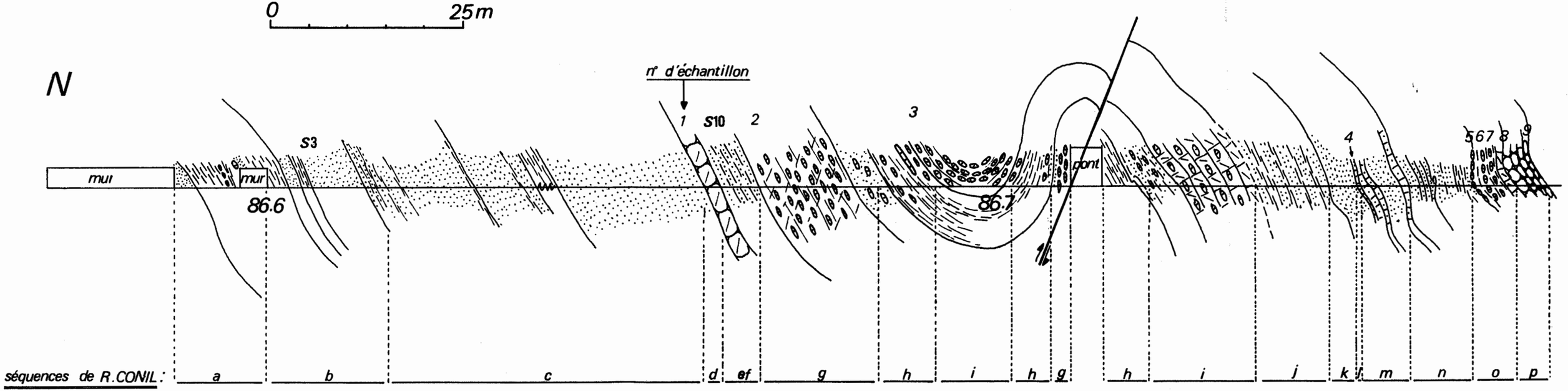

FIG. 3 P.P. 1976 / 6

YVES-GOMEZEE

s : samples M.STREEL