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?Jurassic and Cretaceous macrofossils from Sheet 266 (Marlborough): Autumn 2011

M A Woods

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?Jurassic, Cretaceous, Chalk Group, macropalaeontology, lithostratigraphy, chronostratigraphy, biostratigraphy, Cenomanian, Coniacian.

Map

Sheet 266, 1: 50 000 scale, Marlborough

Bibliographical reference

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British Geological Survey offices

BGS Central Enquiries Desk

Tel 0115 936 3143 Fax 0115 936 3276

email enquiries@bgs.ac.uk

Kingsley Dunham Centre, Keyworth, Nottingham NG12 5GG

Tel 0115 936 3241 Fax 0115 936 3488

email sales@bgs.ac.uk

Murchison House, West Mains Road, Edinburgh EH9 3LA

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Tel 029 2052 1962 Fax 029 2052 1963

Maclean Building, Crowmarsh Gifford, Wallingford OX10 8BB

Tel 01491 838800 Fax 01491 692345

Geological Survey of Northern Ireland, Colby House, Stranmillis Court, Belfast BT9 5BF

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Parent Body

Natural Environment Research Council, Polaris House, North Star Avenue, Swindon SN2 1EU

Tel 01793 411500 Fax 01793 411501

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Foreword

This report mainly describes the stratigraphical interpretation of macrofaunas from the Chalk Group of the Marlborough district (Sheet 266). Reworked oysters, possibly from the Upper Jurassic or Lower Cretaceous, are also described. The material was collected in November 2011, by MAW, A R Farrant and P M Hopson, in connection with the resurvey of Sheet 266.

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FIGURES

Summary

Macrofossils from surface and outcrop exposures of the Chalk Group on Sheet 266 (Marlborough) were collected in November 2011 in connection with the resurvey of that district. The material ranges from the *Mantelliceras mantelli* Zone to the *Micraster coranguinum* Zone, and can be assigned to the West Melbury Marly Chalk, Zig Zag Chalk, Holywell Nodular Chalk, Lewes Nodular Chalk and Seaford Chalk formations. At localities exposing the basal Seaford Chalk Formation, the lithology is unusually hard, nodular and sponge-rich, and more closely resembles typical Lewes Nodular Chalk Formation.

A field brash collection of large, thick-shelled oysters showing evidence of reworking, located near the base of the Gault, appear most likely to have been derived from the Lower Cretaceous or Jurassic.

1 Introduction

Material from the Chalk Group exposed at 35 localities is described below. The Chalk Group stratigraphy referred to in this report is shown in Figure 1, and author citations for fossil species are given as a separate appendix.

2 Stratigraphy

(1) Section on east side of path along disused railway track, just south of where A4 crosses the old railway cutting, c. 600 m NW of Savernake Hospital, Marlborough, Wiltshire.

1:10 000 SU26NW NGR: SU 20081 68846

Specimen nos: WMD 15876 – 15896

The fauna is as follows:

Bryozoa:	bryozoan
Brachiopoda:	*Orbirhynchia* sp.
	Terebratulina striatula
Bivalvia:	*Cremnoceramus* sp. (thin-shelled)
	Cremnoceramus? (shell fragment)
	small indeterminate inoceramid shell fragments
	Pycnodonte (attached to inoceramid shell)
	Spondylus sp.
Ammonoidea:	*Scaphites?*
Asteroidea:	skeletal plates
Echinoidea;	test fragments

The material was collected from soft and patchily hard chalk, with nodular flints, locally iron-stained sponge-bearing horizons, and thin wispy marls.

Interpretation: The chalk exposed at this locality is very poorly fossiliferous. Despite extensive searching, no shell fragments of inoceramid bivalves other than *Cremnoceramus* were found. The lithology, fauna and sparsely fossiliferous character of the chalk, tend to suggest assignment to the upper *M. cortestudinarium* Zone, although this interval tends to be characterised by thicker-shelled *Cremnoceramus*. Field relations suggest close proximity of this locality to the base of the Seaford Chalk Formation. Assignment to the basal Seaford Chalk is compatible with the occurrence of thin-shelled *Cremnoceramus*, but not with the absence of *Platyceramus*.

Conclusion: White Chalk Subgroup, ? topmost Lewes Nodular Chalk Formation; Coniacian, ?topmost *M. cortestudinarium* Zone.

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(2) Section on east and west side of disused railway cutting south of Marlborough, immediately south of old bridge over cutting and before reaching north portal of tunnel. 750 m NW of Brown's Farm, just south of Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 19063 68052

Specimen nos: WMD 15897 – 15918

The fauna from a c. 1 – 2 m section of hard, firm and locally soft chalk, with nodular flints and a marl seam, comprises shell fragments of the inoceramid bivalves *Platyceramus* (large & moderately thick fragments) and *Volviceramus involutus* (right valve fragment), and the echinoid *Micraster turonensis?*. The *Micraster* has sharply divided ambulacra, but a granular periplastron, suggesting a level low down within the *M. coranguinum* Zone. Some of the *Platyceramus* occur in conspicuously iron-stained, hard, nodular chalk.

Conclusion: White Chalk Subgroup, basal Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(3) Chalk exposed in roots of fallen tree on south bank of River Kennett, c. 260 m SE of Marlborough College, Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 18603 68419

Specimen nos: WMD 15919 – 15929; ARF 2487 – 2488

The fauna was collected from very hard, nodular, iron-stained and sponge-rich chalk, with flints including a thin broken-up sheet flint. The fauna is as follows:

Bivalvia: *Cremnoceramus waltersdorfensis*

Cremnoceramus?

?Inoceramus lusatiae

Echinoidea: *Micraster normanniae* (x2)

Plesiocorys (*Plesiocorys*) *placenta*

Plesiocorys sp.

Interpretation: The fauna indicates assignment to the uppermost Turonian or basal Coniacian, within the uppermost *P.* (*S.*) *plana* Zone or basal *M. cortestudinarium* Zone. The middle part of the Lewes Nodular Chalk Formation might be inferred.

Conclusion: White Chalk Subgroup, middle Lewes Nodular Chalk Formation; uppermost Turonian or basal Coniacian, topmost *P.* (*S.*) *plana* Zone or basal *M. cortestudinarium* Zone.

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(4) Chalk exposed in gully on south side of Beacon Hill, 400 m NW of Oliver's Castle, and 1.17 km S of church at Heddington, Wiltshire.

1:10 000 ST96NE NGR: ST 99963 65063

Specimen nos: WMD 15930 – 15943

The fauna, in rather massively bedded, grey marly chalk, is as follows:

Brachiopoda: *Monticlarella?*

Bivalvia: *Inoceramus* ex gr. *crippsi* (common)

Inoceramus ex gr. *virgatus?*

Ammonoidea: *Mantelliceras saxbii*

Schloenbachia (common fragmentary remains – many uncollected)

Interpretation: The fauna can be assigned to the *M. saxbii* Subzone at the top of the *M. mantelli* Zone, and the lower part of the West Melbury Marly Chalk might be inferred. The record of possible *Inoceramus virgatus* is interesting, because this inoceramid typifies the overlying *M. dixoni* Zone.

Conclusion: Grey Chalk Subgroup, lower West Melbury Marly Chalk Formation; Lower Cenomanian, *M. mantelli* Zone, *M. saxbii* Subzone, ?*M. dixoni* Zone.

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(5) North portal of old railway tunnel, 650 m WNW of Brown's Farm, south of Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 19088 67936

Specimen nos: WMD 15944 – 15947; 15967 – 15974; ARF 2489 – 2490

The fauna (excluding ARF specimens) was collected from a c. 4.3 m thick succession of rather hard chalk, with horizons of iron-stained, sponge-rich chalk, nodular flints, marl wisps and a 0.1 m thick marl seam (Fig. 2). The base of the section is an estimated 4.5 m above the base of the cutting. Horizon details refer to Figure 2.

Horizon 1:

Bivalvia: *?Volviceramus involutus* (LV fragment)

Horizon 2:

Bivalvia: *Platyceramus* (moderately thick)

?Volviceramus involutus (RV fragment)

Horizon 3:

Bivalvia: *Platyceramus* (thick-shelled, including specimens in nodular flint)

The ARF specimens were collected from the base of the scree slope on the SW side of the cutting, and is possibly ex-situ material. It comprises shell fragments of the bivalves *Platyceramus* and possibly *Volviceramus involutus* (left valve fragment).

Interpretation: The association of thick *Platyceramus*, possible *Volviceramus involutus*, and a well-developed marl seam, indicates assignment to the lower *M. coranguinum* Zone. The lower part of the Seaford Chalk Formation might be inferred. The ARF material is consistent with this interpretation.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(6) Exposure in west bank of disused railway cutting, c. 800 m ENE of Graham Farm, SW of Marlborough, Wiltshire.

1: 10 000 SU16NE NGR: SU 18526 67888

Specimen nos: WMD 15948 – 15966

The fauna includes common shell fragments of the inoceramid bivalve *Platyceramus*, and a left valve fragment of *Volviceramus involutus*.

The above material occurs in unusually hard, nodular, iron-stained and rough-textured chalk, containing nodular and finger flints.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

(7) West bank of disused railway cutting, 200 m N of Wernham Farm, SW of Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 18138 66727

Specimen nos: WMD 15975 – 15982

The fauna comprises cidarid echinoid spine and test fragments, and fragmentary remains of the echinoid *Micraster* sp., all occurring in very soft, low density chalk.

Interpretation: The above fauna is biozonally undiagnostic. However, the interpretation of a nearby locality (see (**8**) below), suggests the possibility of assignment to the upper (Santonian) part of the *M. coranguinum* Zone, in which echinoids, and especially cidarids, are relatively common.

Conclusion: White Chalk Subgroup, ? upper Seaford Chalk Formation; ? Santonian, ? upper *M. coranguinum* Zone.

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(8) West bank of disused railway cutting, 300 m N of Wernham Farm, SW of Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 18102 66852

Specimen nos: WMD 15983 – 15992

The fauna comprises moderately thick shelled fragments of the inoceramid bivalve *Platyceramus*, and a possible shell fragment of *Cladoceramus*. The material occurs in soft chalk with large, flattened nodular flints.

Interpretation: The association of thick-shelled *Platyceramus* in soft chalk with large, flattened nodular flints suggests the upper (Santonian) part of the Seaford Chalk Formation. The possible record of *Cladoceramus* is tentative evidence for the middle (basal Santonian) part of the *M. coranguinum* Zone, in the middle Seaford Chalk Formation.

Conclusion: White Chalk Subgroup, ?middle Seaford Chalk Formation; ?basal Santonian, ? middle *M. coranguinum* Zone.

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(9) Exposures in banks of track ascending west side of Beacon Hill, c. 700 m south of Heddington, Wiltshire.

1:10 000 ST96NE

Specimen nos: WMD 15993 – 16032; ARF 2478 – 2479

The fauna collected from different localities along the track is listed below:

ARF specimens [ST 9941 6748]
Gastropoda: pleurotomarid gastropod (dark phosphatised fragment)
Pholadomya decussata (pale phosphate)

The above specimens occur in clayey glauconitic sandstone

Locality 2 [ST 99483 65693]
Bivalvia: *Inoceramus* ex gr. *virgatus* (x2, including large, bivalved specimen)

Material occurs in grey, marly chalk.

Locality 3 [ST 99530 65636]
Bivalvia: *Inoceramus* ex gr. *virgatus*
Lima aspera
Ammonoidea: *Schloenbachia*

Material occurs in grey, marly chalk.

Locality 4 [ST 99550 65614]
Bivalvia: *Entolium orbiculare*
Inoceramus schoendorfi
Oxytoma seminudum
?O. seminudum

Material occurs in a silty marl with conspicuous *Chondrites* bioturbation picked out as paler sediment burrow infills.

Locality 5 [ST 99574 65586]
Brachiopoda: *Grasirhynchia martini* (x6)
Bivalvia: *Entolium orbiculare* (x2)
Inoceramus tenuis
Inoceramus sp.
Lyropecten (*Aequipecten*) *arlesiensis*
Ammonoidea: *Schloenbachia varians*

Inoceramus tenuis occurs in a hard, pale limestone. The remainder of the fauna occurs above this limestone, in tough, silty chalk with scattered glauconite grains.

Locality 6 [ST 99645 65547]
Ammonoidea: *Acanthoceras* sp.

Locality 7 [ST 99810 65475]
Bivalvia: *Inoceramus pictus*

Locality 8 [ST 99901 65445]
Bivalvia: *Inoceramus pictus*

Interpretation: Above the Glauconitic Marl, represented by the phosphatised ARF specimens, the lower part of the succession, seen at [ST 99379 65801] is massive-bedded chalk with *Inoceramus crippsi*. This chalk is assumed to be broadly correlative (i.e. *M. mantelli* Zone) with that seen on the south side at Beacon Hill and reported on in (**4**) above. Above this, the fauna at Locality 2 indicates the *M. dixoni* Zone, as does that seen at Locality 3, both containing *Inoceramus ex gr. virgatus*. The lithology and fauna of Locality 4 suggest assignment to the lower part of couplet B41 (Gale, 1995), within the *C. inerme* Zone. A level near the top of the West Melbury Marly Chalk can be inferred. Above this, Locality 5 contains evidence of the Tenuis Limestone and couplet C1 of Gale (1995), traditionally named the Cast Bed. The fauna of

C1 as here developed lacks the typically abundant thin-shelled *Entolium orbiculare*, but the small, robust brachiopods are present, though less diverse than is typically the case. This may reflect an ecological response to local environmental factors. The Tenuis Limestone and Cast Bed belong to the basal *A. rhotomagense* Zone, *T. costatus* Subzone, and the basal Zig Zag Chalk can be inferred. Locality 6 is relatively uninformative, apart from indicating a level within the Middle Cenomanian and the Zig Zag Chalk Formation. A series of intensely hard limestones occur in the track between localities 5 and 6, and are potentially feature-forming. *Inoceramus pictus* at localities 7 and 8 indicates either the Middle Cenomanian *A. jukesbrownei* Zone (upper part) or overlying *C. guerangeri* Zone. There is no evidence for the Plenus Marls in the highest chalk exposed along the track, and the top of the exposed succession is inferred to be entirely within the Zig Zag Chalk Formation.

Conclusion: Grey Chalk Subgroup, Glauconitic Marl Member, West Melbury Marly Chalk Formation, Zig Zag Chalk Formation; Cenomanian, *M. mantelli* Zone, *M. dixoni* Zone, *C. inerme* Zone, *A. rhotomagense* Zone, *A. jukesbrownei* Zone, *C. guerangeri* Zone.

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(10) Southern side of Wroughton airfield, Wiltshire.

1:10 000 SU17NW NGR: SU 13875 77960

Specimen nos: PMH 5419 – 5423

The fauna comprises the ammonites *Acanthoceras rhotomagense*, *Turrilites costatus*, *Scaphites obliquus* and *Sciponoceras?*.

Conclusion: Grey Chalk Subgroup, lower Zig Zag Chalk Formation; Middle Cenomanian, *A. rhotomagense* Zone, *T. costatus* Subzone.

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(11) Southern side of Wroughton airfield, Wiltshire.

1:10 000 SU17NW NGR: SU 13945 77970

Specimen nos: PMH 5424 – 5428

The fauna comprises the ammonites *Turrilites* sp. and *Sciponoceras* sp., and the bivalve *Inoceramus atlanticus?*

Conclusion: Grey Chalk Subgroup, lower Zig Zag Chalk Formation; Middle Cenomanian, ?*A. rhotomagense* Zone.

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(12) Southern side of Wroughton airfield, Wiltshire.

1:10 000 SU17NW NGR: SU 13645 77978

Specimen nos: PMH 5429

The specimen is the bivalve *Inoceramus pictus*.

Conclusion: Grey Chalk Subgroup?, Zig Zag Chalk Formation ?; Middle or Upper Cenomanian.

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(13) Eastern side of Wroughton airfield, Wiltshire.

1:10 000 SU17NW NGR: SU 14347 78880

Specimen nos: PMH 5430 – 5431

The specimens are the bivalve *Inoceramus pictus* and the ammonite *Sciponoceras*.

Conclusion: Grey Chalk Subgroup?, Zig Zag Chalk Formation ?; Middle or Upper Cenomanian.

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(14) 300 m south of South Lodge, Shaw Farm, Wilts.

1:10 000 SU16SW NGR: SU 12827 64828

Specimen nos: PMH 5432

The specimen comprises shell fragments of inoceramid bivalves, including moderately thick shelled *Platyceramus* and *Volviceramus involutus*.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(15) 300 m south of South Lodge, Shaw Farm, Wilts.

1:10 000 SU16SW NGR: SU 12864 64826

Specimen nos: PMH 5433

The specimen is the echinoid *Echinocorys scutata* (in flint preservation).

Conclusion: None possible.

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(16) 100 m SW of South Lodge, Shaw Farm, Wilts.

1:10 000 SU16NW NGR: SU 12621 65206

Specimen no.: PMH 5434

The specimen comprises shell fragments of the inoceramid bivalves *Platyceramus* and *?Volviceramus involutus*.

Conclusion: White Chalk Subgroup, ? lower Seaford Chalk Formation; Coniacian, ? lower *M. coranguinum* Zone.

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(17) 100 m SW of South Lodge, Shaw Farm, Wilts.

1:10 000 SU16NW NGR: SU 12593 65210

Specimen no.: PMH 5435

The specimen comprises shell fragments of inoceramid bivalves, including thick-shelled *Platyceramus* and *Volviceramus involutus*.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(18) 400 m NW of Boreham Cottages, Shaw Farm , Wilts.

1:10 000 SU16NW NGR: SU 12828 66428

Specimen no.: PMH 5436

The specimen comprises shell fragments of the inoceramid bivalves *Platyceramus* and *Volviceramus involutus*.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(19) 400 m NW of Boreham Cottages, Shaw Farm , Wilts.

1:10 000 SU16NW NGR: SU 12916 66442

Specimen no.: PMH 5437

The specimen comprises shell fragments of the inoceramid bivalves *Platyceramus* and *Volviceramus involutus*.

Conclusion: White Chalk Subgroup, lower Seaford Chalk Formation; Coniacian, lower *M. coranguinum* Zone.

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(20) Off Ridgeway north of East Kennet, Wiltshire.

1:10 000 SU16NW NGR: SU 12159 69907

Specimen no.: PMH 5438

The specimen is a fragment of the inoceramid bivalve *?Volviceramus involutus* (left valve).

Conclusion: White Chalk Subgroup, ?lower Seaford Chalk Formation; Coniacian, ?lower *M. coranguinum* Zone.

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(21) 400 m W of Huish, Wiltshire.

1:10 000 SU16NW NGR: SU 13960 63610

Specimen no.: PMH 5439

The specimen is the bivalve *Plicatula inflata*.

Conclusion: Grey Chalk Subgroup.

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(22) 400 m NNE of Huish, Wiltshire.

1:10 000 SU16SW NGR: SU 14769 64062

Specimen no.: PMH 5440

The specimen is the brachiopod *Orbirhynchia mantelliana*.

Interpretation: *Orbirhynchia mantelliana* has three widespread acmes within the Grey Chalk Subgroup, in the West Melbury Marly Chalk and lower part of the Zig Zag Chalk Formation.

Conclusion: Grey Chalk Subgroup, no higher than lower Zig Zag Chalk Formation.

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(23) North of Hopton Industrial Estate, Devizes, Wiltshire.

1:10 000 SU06SW NGR: SU 02113 63870

Specimen no.: PMH 5499 – 5500

The specimens are the brachiopod *Kingena concinna* and a gastropod. The lithology is tough, silty chalk.

Interpretation: The record of *Kingena concinna* in tough silty chalk suggests possible assignment to the Cast Bed at the base of the *A. rhotomagense* Zone, at the base of the Zig Zag Chalk Formation.

Conclusion: Grey Chalk Subgroup, ? basal Zig Zag Chalk Formation, ? Cast Bed; Middle Cenomanian, *A. rhotomagense* Zone.

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(24) North of Hopton Industrial Estate, Devizes, Wiltshire.

1:10 000 SU06SW NGR: SU 02100 63918

Specimen no.: PMH 5501

The specimen is the ionceramid bivalve *Inoceramus schoendorfi*.

Interpretation: *Inoceramus schoendorfi* has a narrow range spanning the topmost *M. dixoni* Zone, *C. inerme* Zone and basal *A. rhotomagense* Zone (Gale, 1995).

Conclusion: Grey Chalk Subgroup, upper West Melbury Marly Chalk Formation or basal Zig Zag Chalk Formation; upper Lower Cenomanian or lower Middle Cenomanian, uppermost *M. dixoni* Zone, *C. inerme* Zone or basal *A. rhotomagense* Zone.

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(25) West End Farm, Bishops Cannings, Wiltshire.

1:10 000 SU06SW NGR: SU 02996 64341

Specimen no.: PMH 5502 – 5503

The specimens are a gastropod and the brachiopod *?Grasirhynchia martini*.

Interpretation: The specimens are biozonally undiagnostic, but *Grasirhynchia martini* is common in the local equivalent of the Cast Bed (see (**9**) above), and gastropods are more generally typical at this level.

Conclusion: Grey Chalk Subgroup, ?basal Zig Zag Chalk Formation; ? Middle Cenomanian, ? *A. rhotomagense* Zone.

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(26) Stone Pit Hill, Bishops Cannings, Wiltshire.

1:10 000 SU06SW NGR: SU 03196 64922

Specimen nos: PMH 5504 – 5505

The specimens are of the brachiopod *Orbirhynchia* sp.

Conclusion: None possible. The field assignment is '?Melbourn Rock'(Holywell Nodular Chalk Formation) in which *Orbirhynchia* is locally common.

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(27) North of Hopton Industrial Estate, Wiltshire.

1:10 000 SU06SW NGR: SU 02065 64022

Specimen nos: PMH 5506

The specimen is the inoceramid bivalve *Inoceramus*. The fragmentary specimen shows some resemblance to *Inoceramus tenuis*.

Interpretation: *Inoceramus tenuis* characterises the basal *A. rhotomagense* Zone, in the topmost West Melbury Marly Chalk Formation (Gale, 1995).

Conclusion: Grey Chalk Subgroup, ? topmost West Melbury Marly Chalk Formation.

(28) North of Hopton Industrial Estate, Wiltshire.

1:10 000 SU06SW NGR: SU 02430 64130

Specimen nos: PMH 5507 – 5510

The specimens are the bivalves *Plicatula inflata* and *Inoceramus schoendorfi*.

Interpretation: *Inoceramus schoendorfi* has a narrow range spanning the topmost *M. dixoni* Zone, *C. inerme* Zone and basal *A. rhotomagense* Zone (Gale, 1995).

Conclusion: Grey Chalk Subgroup, upper West Melbury Marly Chalk Formation or basal Zig Zag Chalk Formation; upper Lower Cenomanian or lower Middle Cenomanian, uppermost *M. dixoni* Zone, *C. inerme* Zone or basal *A. rhotomagense* Zone.

(29) In track cutting in small exposure on north side, 1.81 km NE of Heddington Church, 1.84 km WNW of Morgans Hill trig point, Wiltshire.

1:10 000 SU06NW NGR: SU 01234 67480

Specimen nos: ARF 2475 – 2477

The specimens comprise the ammonite *Schloenbachia varians* (keel not preserved) and the inoceramid bivalve *Inoceramus* ex gr. *virgatus*.

Conclusion: Grey Chalk Subgroup, West Melbury Marly Chalk Formation; Lower Cenomanian, *M. dixoni* Zone.

(30) Brash at base of hill in field on NW side of fence.

1:10 000 SU06NW NGR: SU 0064 6598

Specimen nos: ARF 2480 – 2486

The fauna comprises the ammonites *Schloenbachia* and *Hypotutrrilites* aff. *tuberculatus,* and the bivalve *Inoceramus* ex gr. *virgatus*.

Interpretation: The material indicates assignment to the *M. dixoni* Zone and possibly also the underlying *M. mantelli* Zone (Wright & Kennedy, 1996).

Conclusion: Grey Chalk Subgroup, West Melbury Marly Chalk Formation; Lower Cenomanian, ?*M. mantelli* Zone & *M. dixoni* Zone.

(31) On steep slope in large field, approx 30 m north of fence corner, 840 m SW of Preshute Church, 440 m SSE of Manton Primary School, Wiltshire.

1:10 000 SU16NE NGR: SU 1729 6806

Specimen nos: ARF 2491

The specimen comprises shell fragments of the bivalves *Platyceramus* and *?Volviceramus involutus* (left valve fragment).

Conclusion: White Chalk Subgroup, ?lower Seaford Chalk Formation; ?Coniacian, ?lower *M. coranguinum* Zone.

(32) Top of slope south of College playing fields, on footpath, 600 m due south of Preshute Church, Marlborough, Wiltshire.

1:10 000 SU16NE NGR: SU 1797 6797

Specimen nos: ARF 2492

The specimen comprises shell fragments of the bivalve *Platyceramus*, including moderately thick-shelled examples.

Conclusion: White Chalk Subgroup, ?Seaford Chalk Formation;? *M. coranguinum* Zone.

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(33) On track at base of Beacon Hill, 870 m WNW of Olivers castle car park, 1.23 km SSE of Heddington Church, Wiltshire.

1:10 000 ST16NE NGR: ST 9962 6500

Specimen nos: ARF 2493 – 2497

The specimens comprise the bivalves *Inoceramus* ex gr. *crippsi* and *Inoceramus* ex gr. *virgatus?*, an indeterminate ammonite whorl fragment, and the ammonite *Schloenbachia?*

Interpretation: The fauna is inferred to have been collected from a short interval above the gully section described at (**4**) above. The possible record of *Inoceramus virgatus* is tentative evidence of the *M. dixoni* Zone. This is consistent with the interpretation of locality (**4**) which largely belongs to the top of the *M. mantelli* Zone, but which may also include the *M. dixoni* Zone.

Conclusion: Grey Chalk Subgroup, West Melbury Marly Chalk Formation; Lower Cenomanian, ?*M. dixoni* Zone.

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(34) Small exposure at top of slope by fence on north side of deep gully at the base of Beacon Hill, c.100 m east of track cross-roads and 720 m SW of Heddington Church.

1:10 000 ST96NE NGR: ST 9927 6583

Specimen no.: ARF 2498

The specimen comprises fragments of the ammonite *Mortoniceras* (*Mortoniceras*) *inflatum*, in distinctly micaceous glauconitic sandstone. This locality is the westward extension of the track section described at (**9**) above.

Interpretation: In the traditional ammonite zonal scheme, as outlined by Owen (1984), *Mortoniceras* (*M.*) *inflatum* is the index of the lower part of the Upper Albian, spanning the *D. cristatum*, *H. orbignyi*, *H. varicosum* and *C. auritus* subzones. However, *M.* (*M.*) *inflatum* is actually more-or-less restricted to the *C. auritus* Subzone, and Owen and Mutterlose (2006) proposed a revised Upper Albian ammonite zonal scheme that reflects this reality (Fig. 3).

The strongly micaceous lithology of the sandstone is comparable to the Cann Sandstone Member of the Devizes district (Woods et al., 2008). The fact that this specimen was collected from the local top of the Upper Greensand suggests that the lateral equivalents of the Potterne Sandstone and Easterton Sandstone members are thin or absent in this part of the Marlborough district.

Conclusion: Upper Greensand Formation, ?Cann Sand Member; Late Albian, *M.* (*M.*) *inflatum* Zone sensu Owen & Mutterlose (2006) (= *C. auritus* Subzone sensu Owen (1984).

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(35) Brash from field, on footpath 470 m NW of road junction at Knight's Marsh Farm, 900 m SSE of radio mast near leisure centre.

1:10 000 ST06NW NGR: SU 0018 6918

Specimen no.: ARF 2499

The specimens are large (>100 mm), very thick-shelled (> 30 mm) oysters. The material is worn, with evidence of borings infilled with ferruginous sediment. The specimens are also patchily iron-stained.

Although the size, thickness and surface ornament are similar to the oyster *Aetostreon latissima* from the Lower Greensand preserved in the BGS Type and Stratigraphical Collection, none show evidence of the clear spiral 'exogyrine' growth habit that characterises *A. latissima*, particularly as the umbo is approached. The specimens might represent another large species of Lower Cretaceous oyster, described by Woods (1912) as *Ostrea leymerii*, and identified by Casey (1961) as having a broad range within the Early Aptian to Lower Albian Lower Greensand Group. Unfortunately there are no specimens of this oyster in the BGS Type & Stratigraphical Collection to permit direct comparison.

The specimens are also somewhat similar to Upper Jurassic *Gryphaea* (*Bilobissa*) *dilatata*, the height of which can reach 200 mm. Comparison with material figured by Arkell (1929 – 1937) also suggests that some specimens are extremely thick, particularly the holotype, which is from the glacial drift of Suffolk. This extreme thickness is not really shown by material in the BGS Type and Stratigraphical Collection.

Conclusion: ?Upper Jurassic or Lower Cretaceous (Early Aptian to Lower Albian); almost certainly reworked, based on style of preservation.

Appendix 1 – Author citations for fossil species

Acanthoceras rhotomagense (Brongniart, 1822)
Aetostreon latissima (Lamarck, *)
Cremnoceramus waltersdorfensis (Andert, 1911)
Echinocorys scutata (Leske, 1778)
Entolium orbiculare (J Sowerby, 1817)
Grasirhynchia martini (Mantell, 1822)
Gryphaea (*Bilobissa*) *dilatata* J Sowerby, 1816
Hypotutrrilites aff. *tuberculatus* (Bosc, 1801)
Inoceramus atlanticus (Heinz, 1936)
Inoceramus ex gr. *crippsi* Mantell, 1822
Inoceramus pictus J de C Sowerby, 1829
Inoceramus schoendorfi Heinz, 1928
Inoceramus tenuis Mantell, 1822
Inoceramus ex gr. *virgatus* Schlüter, 1877
Kingena concinna Owen, 1970
Lima aspera (Mantell, 1822)
Lyropecten (*Aequipecten*) *arlesiensis* (Woods, 1902)
Mantelliceras saxbii (Sharpe, 1857)
Micraster normanniae Bucaille, 1883
Micraster turonensis (Bayle, 1878)
Mortoniceras (*Mortoniceras*) *inflatum* (J Sowerby, 1818)
Ostrea leymerii Leymerie, 1842 (ex Deshayes MS)
Orbirhynchia mantelliana (J de C Sowerby, 1826)
Oxytoma seminudum (Dames, 1874)
Plesiocorys (*Plesiocorys*) *placenta* (Agassiz, 1840)
Plicatula inflata J de C Sowerby, 1823
Pholadomya decussata (Mantell, 1822)
Scaphites obliquus J Sowerby, 1813
Schloenbachia varians (J Sowerby, 1817)
Turrilites costatus Lamarck, 1801
Terebratulina striatula (Mantell, 1822)
Volviceramus involutus (J de C Sowerby, 1828)

*: date to be added

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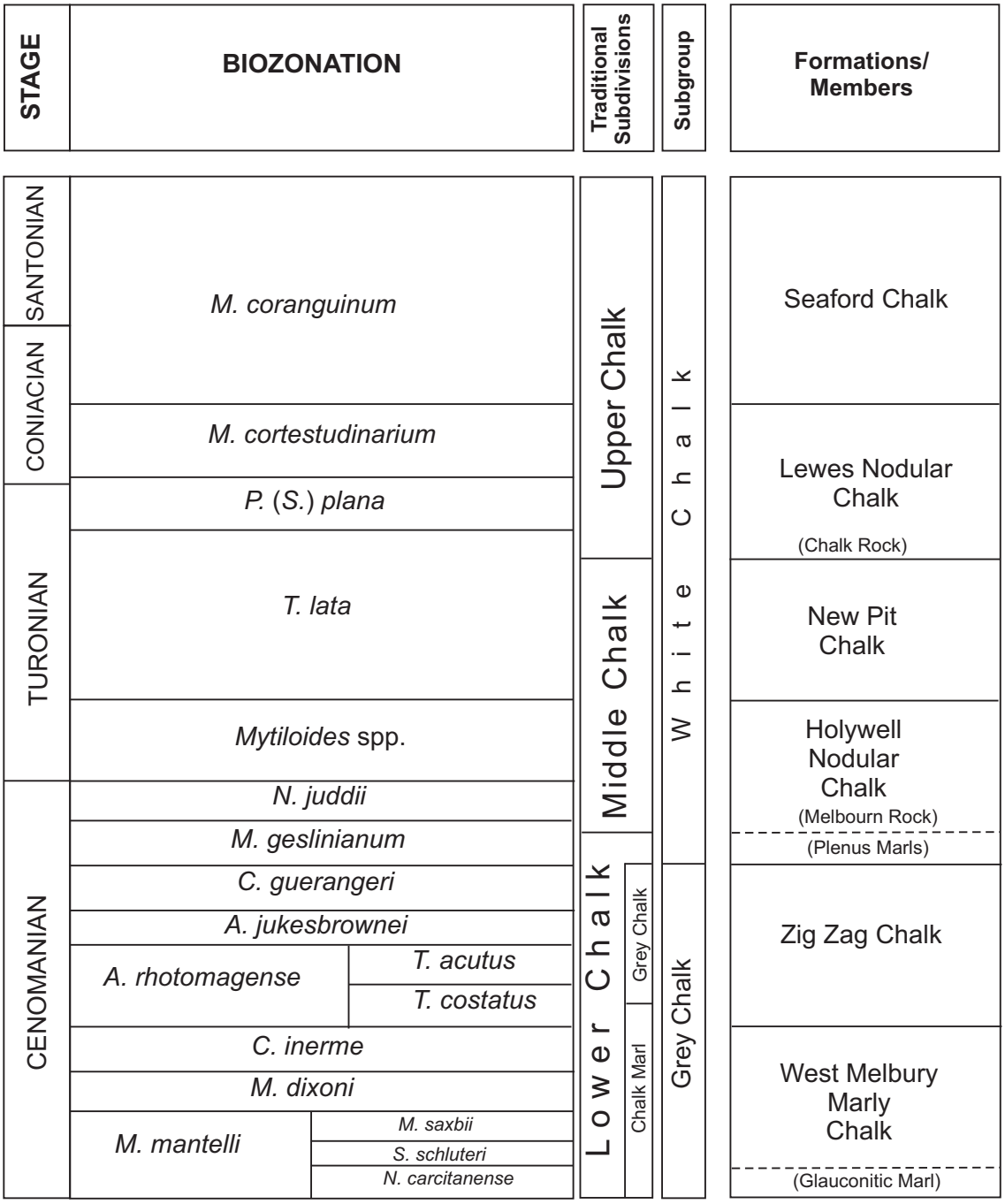

Figure 1 The stratigraphy of the Chalk Group referred to in this report

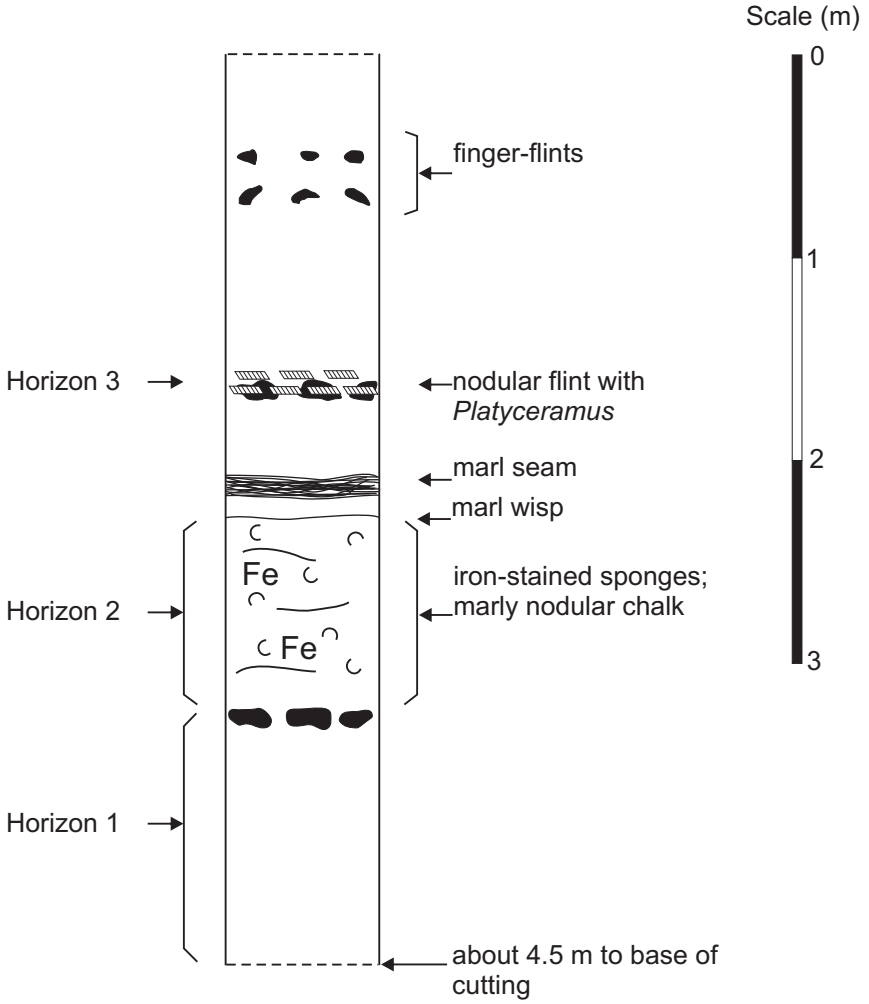

Figure 2 The Chalk succession seen in the north portal of the tunnel on the abandoned railway line south-west of Marlborough [SU 19088 67936] ((**5**) of report)

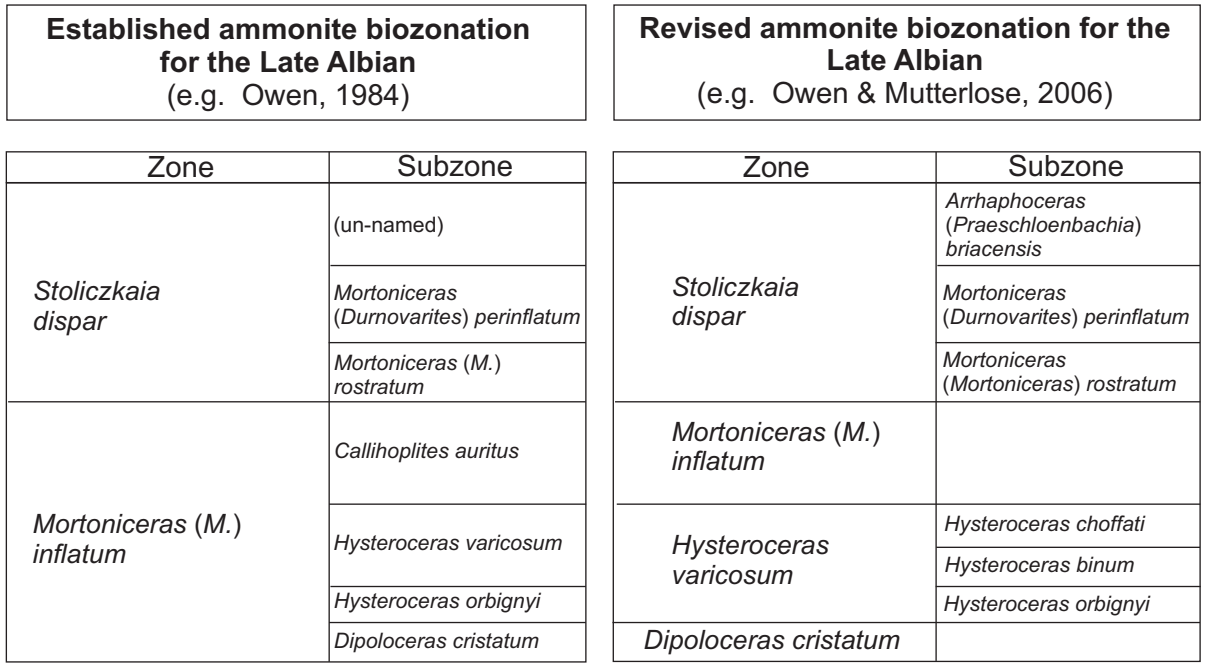

Figure 3 Comparison of the established ammonite biozonal scheme for the Late Albian with the revised scheme of Owen & Mutterlose (2006)