

**MEMOIRS OF THE GEOLOGICAL  
SURVEY OF GREAT  
BRITAIN AND THE MUSEUM OF  
PRACTICAL GEOLOGY**

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Memoirs of the Geological Survey of Great Britain and the Museum of Practical Geology by  
Various

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**VARIOUS**

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BRITAIN AND THE MUSEUM OF  
PRACTICAL GEOLOGY**



MEMOIRS  
OF THE  
GEOLOGICAL SURVEY  
OF  
GREAT BRITAIN,  
AND OF THE  
MUSEUM OF PRACTICAL GEOLOGY.

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GEOLOGY OF PARTS OF  
WILTSHIRE AND GLOUCESTERSHIRE,  
(SHEET 34.)

BY  
A. C. RAMSAY, F.R.S., F.G.S., LOCAL DIRECTOR,  
W. T. AVELINE, F.G.S., and EDWARD HULL, B.A., F.G.S.  
LISTS OF FOSSILS BY ROBERT ETHERIDGE, F.R.S.E., F.G.S.

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## NOTICE.

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I TRUST that the accompanying Memoir will prove acceptable to the Public, and especially to the Landowners and Agriculturists in those parts of Wiltshire and Gloucestershire, the geological relations of which are described in Sheet 34.

RODERICK I. MURCHISON,

Nov. 10, 1858.

Director General.

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THE country mapped in Sheet No. 34 consists of a series of formations from the Lower Lias of Stroud Valley up to the Plastic clay of Marlborough Downs and Aldbourn Chase. Of these, the Oolite and Cretaceous rocks near Corsham and Calne, and all the Upper Cretaceous and Tertiary rocks, were surveyed by Mr. W. T. Aveline; and part of the Lower Greensand, and all the remaining Oolites down to the Lias, by Mr. E. Hull, forming the greater part of the Sheet. The larger part of the Memoir is by Mr. Hull, who contributes the descriptions of the Lias and Oolite rocks (excepting at Swindon). The Cretaceous and Eocene strata are described by Mr. Aveline; and the Portland and Purbeck beds, and the Grey Wethers, by myself. The lists of fossils are by Mr. Etheridge.

A. C. RAMSAY,

Local Director of the Geological  
Survey of Great Britain.

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# GEOLOGY OF PARTS OF WILTSHIRE AND GLOUCESTERSHIRE.

(SHEET 34.)

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## PHYSICAL FEATURES OF THE LIASSIC AND OOLITIC DISTRICTS.

THIS area may be described as part of an elevated plain or table-land, with a general south-easterly slope towards the base of the Chalk escarpment. It rises gradually towards the north and west, and is abruptly terminated by the Oolitic escarpment which overlooks the vale of the Severn. The direction of this escarpment is shown in Sheets 35 and 44. It forms the boundary of the Cotteswold Hills. Of the numerous valleys by which this table-land is intersected some of the most beautiful enter the district under consideration in the country round Stroud, at the north-west corner of the Sheet, and present valuable sections of the strata, as they crop out along their flanks.

The central portion of the table-land is traversed by several parallel minor ridges, trending from the south-west to the north-east. They are formed of limestones, viz., the great Oolite,\* Cornbrash,† and Coralline oolite‡; while the intervening hollows consist of the Oxford and Kimmeridge clays. It is to be observed, however, that the Oxford clay in some places rises higher than the Cornbrash at the line of junction. The bands of limestone are usually cultivated for grain, while the clays form meadows and pasture lands.

Overlooking the broad oolitic plain there rises a second escarpment formed of the Chalk. Between Cherhill and Compton Beauchamp it trends in a sinuous line from south-west to north-east, and the plain immediately at its base consists chiefly of Gault and Kimmeridge clay. The Chalk itself in

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\* Marked *g'* in the Geological Survey Sheets.

† " *g''* " " "  
‡ " *g'''* " " "



## LOWER LIAS.

this Sheet consists partly of two escarpments, more particularly described at page 37. Marlborough Downs, and the country east and north-east of Ogbourne St. George, form the upper escarpment.

It will save repetition to mention that the general dip of the strata is towards the south-east, at angles varying from 1 to 3 degrees. The formations are described in ascending order.

### GEOLOGICAL FORMATIONS.

#### LIAS.

*Lower Lias.*—The existence of this formation in Sheet 34, is inferred from the occurrence of marshy ground at the base of the Marlstone. It occupies a very small area at the entrance of Stroud valley, and is marked *g'*.

#### CHARACTERISTIC FOSSILS OF THE LOWER LIAS (*g'*).

##### *Echinodermata.*

*Acrosalenia crinifera.* Quenst.

##### *Brachiopoda.*

*Spirifer Walcottii.* Sow.

„ *rostratus.* Schloth.

*Terebratula numismalis.* Lam.

*Rhynchonella rimosa.* Buch.

##### *Conchifera.*

*Plicatula spinosa.* Sow.

*Gryphæa incurva.* Sow.

*Pecten novemcostæ.* Sow.

*Lima pectinoides.* Sow.

„ *gigantea.* Sow.

*Crenatula ventricosa.* Sow.

*Modiola minima.* Sow.

„ *cuneata.* Sow.

*Area truncata.* Sow.

*Trifonia litterata,* Phill.

*Cardinia attenuata.* Stuch.

„ *hybrida.* Stuch.

„ *Iisteri.* Stuch.

*Hippopodium ponderosum.* Sow.

*Nucula complanata.* Phill.

*Leda ovum.* Sow.

##### *Gasteropoda.*

*Pleurotomaria Anglica.* Sow.

*Trochus imbricatus.* Sow.

##### *Cephalopoda.*

*Ammonites Henleyi.* Sow.

„ *communis.* Sow.

„ *planicostatus.* Sow.

„ *obtusus.* Sow.

*Marlstone*.—This formation (marked *g*<sup>a</sup>) forms small tabulated promontories along the flanks of the Oolitic escarpment, examples of which may be seen around Stroud.

It consists of two parts; an upper rock bed of ferruginous calcareous sandstone, resting on a series of soft sands of various colours, with nodular masses of impure limestone and balls of concretionary iron ore. It usually becomes more clayey towards the base, and passes imperceptibly into the Lower Lias clay. The top bed is frequently a hard limestone, a few inches thick, containing *Rhynchonella variabilis* in great abundance, and in some places *Ammonites annulatus*.

CHARACTERISTIC FOSSILS OF THE MARLSTONE, *g*<sup>a</sup>.

*Brachiopoda.*

<i>Terebratula quadrifida.</i> Lam.	<i>Rhynchonella acuta.</i> Sow.
" <i>punctata.</i> Sow.	" <i>tetrahedra.</i> Sow.
" <i>resupinata.</i>	" <i>variabilis.</i> Schloth.
	<i>Lingula Beanii.</i> Phill.

*Conchifera.*

<i>Gryphæa gigantea.</i> Sow.	<i>Modiola cuneata.</i> Sow.
<i>Pecten sublaevis.</i> Phill.	" <i>scalprum.</i> Sow.
" <i>æquivalvis.</i> Sow.	<i>Cardium truncatum.</i> Sow.
" <i>cinctus.</i> Sow.	<i>Unicardium cardioides.</i> Phill.
" <i>cingulatus.</i> Goldf.	<i>Cardinia concinna.</i> Stuch.
<i>Plicatula spinosa.</i> Sow.	<i>Myacites unionoides.</i>
<i>Avicula novemcostæ.</i> Brown.	<i>Pholadomya ambigua.</i> Sow.
<i>Litna punctata.</i> Sow.	

*Gasteropoda.*

*Pleurotomaria expansa.* Sow.

*Echinodermata.*

*Uraster Gaveyi.* Forbes.

*Ophiura Egertoni.*

*Cephalopoda.*

<i>Ammonites fimbriatus.</i> Sow.
" <i>annulatus.</i> Sow.
" <i>rotiformis.</i> Sow.
" <i>margaritatus.</i> Montf.
" <i>spinatus.</i> Brug.
" <i>Planicostatus.</i> Sow.
<i>Belemnites elongatus.</i> Miller.
" <i>arcuarius.</i> Schloth.
<i>Nautilus truncatus.</i> Sow.

*Upper Lias Clay and Sand.*—These strata compose the flanks of the valleys which ramify in several directions from Stroud valley. Though, for reasons stated in a previous memoir,\* the sands which lie between the Upper Lias clay and Inferior Oolite are considered liassic, yet it is proper to observe, that Mr. Lycett and some other geologists view these beds as composing an independent zone.

*Upper Lias Clay.*—This forms a thin band of blue clay in Stroud and Nailsworth valleys, and is marked *g'*. It is rarely exposed to view, but its presence is indicated by the outburst of springs and marshy ground. The characteristic fossils are—

CHARACTERISTIC FOSSILS OF THE UPPER LIAS CLAY, *g'*.

Ammonites	opalinus.	Rein.
"	serpentinus.	Sow.
"	bifrons.	Brug.
"	normanianus.	D'Orb.
"	thouarcensis.	D'Orb.
"	annulatus.	Sow.
"	communis.	Sow.
"	radians.	Schloth.
"	stristalus.	Sow.
"	concauus.	Sow.
Belemnites	elongatus.	Miller.
"	compressus.	Voltz.
"	irregularis.	Schloth.

*Pisces.*

Leptolepis concentricus. Ag.

*Upper Lias Sand.*—This upper member, numbered *g'*, consists of fine siliceous sand, with occasional lenticular nodular bands of siliceous limestone, terminated upwards by a bed of calcareo-ferruginous sandstone, frequently well stored with fossils.

This top bed, from the fact of its containing a large number of cephalopoda of liassic species, has been named by Dr. Wright the "cephalopoda bed,"† but together with these there is a con-

\* Geology of Cheltenham, by E. Hull.—Memoirs of the Geological Survey, p. 35 et seq.

† Dr. Wright, Quart. Jour. Geol. Soc., Nov. 1856.