

**MEMOIRS OF THE GEOLOGICAL  
SURVEY. ENGLAND AND WALES.  
THE GEOLOGY OF PARTS OF  
NOTTINGHAMPSHIRE, YORKSHIRE,  
AND DERBUSHIRE**

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**W. TALBOT AVELINE**

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**MEMOIRS OF THE GEOLOGICAL SURVEY.**

**ENGLAND AND WALES.**

THE

**GEOLOGY OF PARTS OF NOTTINGHAMSHIRE,  
YORKSHIRE, AND DERBYSHIRE.**

(EXPLANATION OF QUARTER SHEET No. 82 N.E.) *Old Series*

BY

W. TALBOT AVELINE, F.G.S.

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## NOTICE.

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THE first edition of this Memoir was published in 1861. Since then discoveries have been made, which have led to some modifications in the classification of the sub-divisions of the Coal-Measures and of the Permian strata. One of the results is, that the Red Rock of Rotherham, and its equivalents in this sheet formerly by most geologists considered to be of Permian age on account of their lying on an eroded surface, have been shown to belong to the Upper Coal-Measures. This position is proved by MR. AVELINE, not only in connexion with the behaviour of the strata that partly form the surface of the ground, but also by the mode of occurrence of the same Red Rocks in the well-known Shireoaks Coal-pit, where, in the shaft, beds of shale, ironstone, and coal, similar to those below "the Red Rock" were also found above it.

Other improvements, of a minor kind, are here and there inserted in this edition.

ANDREW C. RAMSAY,  
Director General.

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## NOTICE.

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THE district comprised in Quarter-sheet 82 N.E. of the Geological Survey Map of England and Wales, and described in the following pages, constitutes a portion of the south-eastern edge of the Yorkshire and Derbyshire Coalfield, of which, though principally occupied by Permian and Triassic rocks, it forms a part, the Coal-Measures being concealed by these overlapping beds, but proved to extend beneath them.

The area was surveyed in 1857-58 by MR. AVELINE, and the first edition of this Explanation was published in 1861.

The nomenclature of the few fossils known from this district, has been revised by MR. ETHERIDGE.

Besides the important Coal-seams, as yet but partially worked, that underlie much, if not the whole of the district, the upper part of the Carboniferous and lower part of the Permian series afford valuable building- and grindstones, one of which, the North Auston stone, was selected by the Royal Commissioners for the Houses of Parliament.

H. W. BRISTOW,  
Senior Director.

Geological Survey Office,  
28, Jermyn Street, London, S.W.  
22nd November 1879.

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## CONTENTS.

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	PAGE
DIRECTOR GENERAL'S NOTICE - - - - -	3
DIRECTOR'S NOTICE - - - - -	4
TABLE OF GEOLOGICAL FORMATIONS - - - - -	7
<b>COAL-MEASURES :</b>	
<b>LOWER COAL-MEASURES :</b>	
Section at Shireoaks Colliery - - - - -	9
Soft Grindstone Beds - - - - -	11
<b>UPPER COAL-MEASURES :</b>	
Red Rock of Rotherham and Harthill Sandstone - - - - -	12
Fossil Plants at Harthill - - - - -	12
<b>PERMIAN SERIES :</b>	
<b>QUICKSAND</b> - - - - -	15
<b>LOWER MAGNESIAN LIMESTONE :</b>	
Streetly Quarries, near Worksop - - - - -	16
Shireoaks Quarries - - - - -	16
Branchiff Lime-works - - - - -	16
Kiverton Park Station Quarries - - - - -	16
North Anston Quarries - - - - -	16
Roche Abbey Quarry - - - - -	17
Section at Shireoaks - - - - -	17
Fossils in Dodiddles Quarry, Loughton-en-le-Morthen	18
Toe Lane - - - - -	18
<b>MIDDLE MARLS AND SANDSTONES :</b>	
Worksop Manor Park, Ratcliff, Cuckney - - - - -	18
Red Hill - - - - -	18
Worksop - - - - -	18
Shireoaks - - - - -	19
Walling Wells - - - - -	19
Carlton, Langold - - - - -	19
Letwell, Lamb Lane - - - - -	19
Sandbeck, Malpas Hill - - - - -	20
<b>UPPER MAGNESIAN LIMESTONE :</b>	
Outliers at Gateford Hill - - - - -	21
Gateford and Ramoth Gilead - - - - -	21
Carlton, Oldcoats (fossils at) - - - - -	21

	PAGE
<b>UPPER MARLS :</b>	
Whin Common, Carlton - - - -	22
<b>NEW RED SANDSTONE :</b>	
Table of Strata - - - -	22
<b>BUNTER SANDSTONE :</b>	
Lower Soft Red and Mottled Sandstone - -	22
Moulding Sand, Worksop Manor Park - -	22
Pebble Beds and Conglomerates - - -	23
<b>KEUPER BEDS :</b>	
Waterstones - - - -	24
Upper Keuper Marls - - - -	24
<b>DRIFT</b> - - - -	25
<b>ALLUVIUM</b> - - - -	26
<b>PHYSICAL GEOLOGY :</b>	
<b>UNCONFORMITIES :</b>	
Between Upper and Lower Coal-measures - -	26
" Carboniferous and Permian - - -	26
" Lower Magnesian Limestone and Middle Marls	26
" Middle Marls and Upper Magnesian Limestone	27
" Permian and New Red Sandstone - -	27
" Bunter and Keuper - - - -	27
<b>FAULTS :</b>	
South Anston - - - -	27
Kiverton Park Station - - - -	28
Clay Lands - - - -	28
Gateford - - - -	29
Everton - - - -	28
Maltby Common - - - -	28
Fardell's House - - - -	29
<b>DIP OF STRATA</b> - - - -	29
<b>SOILS</b> - - - -	29

THE  
GEOLOGY OF PARTS OF NOTTINGHAMSHIRE,  
YORKSHIRE, AND DERBYSHIRE.

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THE district delineated on this map comprises an area of about 170 square miles in Yorkshire, Nottinghamshire, and Derbyshire. The principal towns are Bawtry and Tickhill in Yorkshire, and Retford and Worksop in Nottinghamshire. Only a very small portion of Derbyshire lies within the district; the areas of the other two counties are about equal.

The river Idle flows from south to north through the western part of the district. The smaller rivers and brooks that drain the country into the Idle have a general flow from west to east.

The physical features of the district are very variable, and much cut up into hill and dale, but the chief features are a succession of ridges, with their steep sides facing the west, and their gentler slopes towards the east; and if these ridges were not so much cut up by cross valleys, and interrupted by minor undulations, they would be still more marked. One of these steep escarpments strikes from the northern edge of the district, 2 miles north-west of Maltby, southwards to the western border of the map,  $1\frac{1}{2}$  miles south of Harthill. Another from the northern border, 2 miles west of Tickhill, runs southward to near Worksop, and a third ridge from a mile east of Tickhill to the Manor Park, near Worksop. Besides these there are several minor ridges of the same kind. All these features, as well as the varieties of soil, are due to geological causes.

The geological formations that occur in this country, represented on the map by the different colours, letters, and figures, are given in the following Table.

ALLUVIUM.

TRIAS or NEW RED SAND- STONE, f	}	Keuper	Red Marl and Sandstone	f <sup>o</sup>
			Waterstones (Porous Sandstones and Marls)	f <sup>1</sup>
	}	Bunter	Pebble Beds or Conglomerate	f <sup>2</sup>
			Lower Soft Red Sandstone	f <sup>3</sup>
PERMIAN or MAGNESIAN LIMESTONE SERIES, g	}		Upper Marls	g <sup>1</sup>
			Upper Magnesian Limestone	g <sup>2</sup>
			Middle Marls and Sandstones	g <sup>3</sup>
			Lower Magnesian Limestone	g <sup>4</sup>
CARBONIFEROUS, d	}		Quicksand	d <sup>1</sup>
			Upper Coal-measures	d <sup>2</sup>
			Lower Coal-measures	d <sup>3</sup>