

**45. MEMOIRS OF THE GEOLOGICAL  
SURVEY OF GREAT BRITAIN AND THE  
MUSEUM OF PRACTICAL GEOLOGY.  
THE GEOLOGY OF THE COUNTRY  
ROUND BANBURY, WOODSTOCK,  
BICESTER, AND BUCKINGHAM**

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The geology of the country round Banbury, Woodstock, Bicester, and Buckingham by A. H.  
Green

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**A. H. GREEN**

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AND BUCKINGHAM.

(SHEET 45 OF THE MAP OF THE GEOLOGICAL SURVEY OF  
GREAT BRITAIN.)

BY

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LISTS OF FOSSILS BY R. ETHERIDGE, F.R.S.E., F.G.S.

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support informed decision-making.

3. The third part of the document focuses on the role of technology in modern data management. It discusses how advanced software solutions can streamline data collection, storage, and analysis, leading to more efficient and accurate results.

4. The fourth part of the document addresses the challenges associated with data security and privacy. It stresses the importance of implementing robust security measures to protect sensitive information from unauthorized access and breaches.

5. The fifth part of the document concludes by summarizing the key findings and recommendations. It reiterates the importance of a data-driven approach and encourages the organization to continue investing in data management capabilities to stay competitive in the market.

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**THE GEOLOGY**  
OF  
**THE COUNTRY ROUND BANBURY, WOODSTOCK,  
BICESTER, AND BUCKINGHAM.**

(SHEET 45 OF THE MAP OF THE GEOLOGICAL SURVEY OF  
GREAT BRITAIN.)

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**CHAPTER I.**

**INTRODUCTORY.**

THE description of the Geology of the country lying within Sheet 45 of the Map of the Geological Survey of Great Britain, which is the object of the present Memoir, has been drawn up from the following sources. For the S.W. quarter I have used the map and descriptive memoir of Mr. E. Hull. The N.W. and S.E. quarters and the north-western half of the N.E. quarter were surveyed by Messrs. E. Hull, H. Bauerman, W. Whitaker, and T. R. Polwhele, and here I have had the help of their guidance and notes,\* to which I have been able to add a few observations of my own. Much very valuable information about the neighbourhood of Oxford was kindly placed in my hands by Prof. Phillips. For the mapping and description of the remainder, and for the general arrangement of the Memoir, I am myself answerable.

The fossils lists have been drawn up by Mr. Etheridge, from a paper by Mr. Whiteaves, read before the British Association in 1860; from Professor Phillips' article on the "Geology of the Neighbourhood of Oxford," in the Oxford Essays for 1855; from Dr. Fitton's paper on the Strata below the Chalk (Trans. Geol. Soc. 2nd series, vol. iv.); and from collections made by the officers of the Survey.

The map contains about 600 square miles, and takes in parts of the counties of Gloucestershire, Northamptonshire, Oxfordshire, and Buckinghamshire. The chief towns are Banbury, Chipping Norton, and Deddington in the N.W. quarter; Buckingham and Brackley in the N.E.; Woodstock and Witney in the S.W.; and Bicester in the S.E.

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\* The account of the Portland, Parbeck, and Cretaceous beds is almost wholly from the pen of Mr. Whitaker.

The Geological Formations that are met with are ;

Post-Pliocene.	{	Low-level Gravels. Clays and Gravels of the Boulder period
Cretaceous.	{	Upper. Gault. Lower. Lower Greensand.
Upper Oolite.	{	Purbeck Beds. Portland Stone. Portland Sand. Kimeridge Clay.
Middle Oolite.	{	Coral Rag. Lower Calcareous Grit. Oxford Clay.
Lower Oolite.	{	Cornbrash. Forest Marble. Great or Bath Oolite. Inferior Oolite.
Lias.	{	Upper Lias Clay. Marlstone. Lower Lias Clay.

#### PHYSICAL GEOGRAPHY OF THE DISTRICT.

The physical features are such as everywhere mark the Oolitic districts of central England.

The clays and limestones of which the Oolite series is made up are brought in turn to the surface by a gentle rise of the beds to the north-west. The softer strata, yielding more easily to denudation, form valleys or gently undulating plains; while the harder limestones have given rise to table lands, rising slightly to the north-west, and ending with a sharp cliff-like edge at their junction with the clays below.

These features can be fully seen, however, only where the country is free from Drift. Over a great part of the eastern half of the map a thick covering of clay and gravel hides them from sight, spreading with a sameness of outline over the whole of the country.\*

A small patch at the north-east corner of the map, rather tame in look, is occupied by the Lower Lias Clay.

Between the escarpment of the marlstone which bounds this tract on the east and the escarpment of the Great Oolite lies a plateau of marlstone, channelled by the valleys of the Cherwell and its branches, which cut down to the Lower Lias, and studded over with hills of Upper Lias Clay, often capped by Great Oolite beds. Many outlying patches of the two last-named formations, which have been let down into the marlstone by faults, and so saved from denudation, are found over the plateau.

From the plateau just described the Great Oolite rises on the east with a bold escarpment, running from Chipping Norton through Dunstow and Aynho to Farthinghoe. "The rock forms a tabulated surface, intersected by narrow channel-like valleys, and sloping

\* Here too, from the absence of these guiding features, it becomes difficult, at times impossible, to fix exactly the boundaries of the several formations. They have been drawn as closely as the state of things would allow, and I shall endeavour to explain below the grounds on which they rest and how far they may be relied upon.

"gradually to the south at an angle of about  $1^{\circ}$ , nearly corresponding with the dip of the beds."\* We have here in fact a repetition of the Marlstone plateau, and one like it dotted over in Whychwood Forest with outliers, formed in this case of Forest Marble and capped by Cornbrash and Oxford Clay. Towards the north-east a thick covering of Drift lies upon the Great Oolite, and gives to the country a more undulating surface.

The Cornbrash, where broad spreads of it free from Drift occur, forms plains so flat as almost to bring to mind the fens of Lincolnshire. The country round Bicester is a case in point.

The Oxford Clay, the formation next above, "generally commences in the form of a low ridge of wet ground, rising above the flat surface of the Cornbrash. Of these ridges examples occur at Leafeld, Ramsden Heath, Witney, Round Castle near Bladon, Tackley Heath, Kirklington, Bletchingdon,"† and between Stratton Audley and Fringford.

The greater part of the remainder of the map is occupied by this formation and the Kimeridge Clay, and the country is feebly undulating and heavy in look. It is broken by a row of inliers of Cornbrash, brought up along an anticlinal line ranging from Islip to Marsh Gibbon, which however form no very marked objects in the landscape. To the south-east of these hills several outliers of Portland Oolite, capped by Lower Greensand, specially those of Quainton, Brill, and Muswell Hills, and the Coralline Oolite headland of Wytham Hill, stand out in pleasing contrast to the dreary sameness of the clay country.

The outcrop of the Coral Rag for the most part makes but little show; to the south, however, "it forms a tabulated area on which are built the villages of Headington, Elsfield, Beckley, and Stanton St. John."‡

The following are the approximate heights in feet of some of the chief points above the level of the sea:—Wytham Hill, 583; R. Isis at Oxford, 190; Junction of the Evenlode and Isis, 237; Woodstock Church, 323; hill half a mile north of Chipping Norton, 728; Epwell Hill, 836; Banbury Canal, 315; high ground of Whittlewood Forest, 860; Canal at Buckingham, 250; Quainton Hill, 754; Muswell Hill, 744.

The drainage of the country is carried off by three rivers, the Severn, the Thames, and the Ouse.

A small triangle at the north-west corner of the map, coinciding very nearly with the area occupied by the Lower Lias, is drained by the river Stour, which finds its way, through the Avon, into the Severn.

This tract is bounded by a line which enters the map by the high ground of Shenlow and Epwell Hills (the latter, 836 feet above the sea, being the highest point in the district), runs west of Epwell to Tadmarton Camp, and then turning to the south-west follows the ridge of Rollerich Hill.

It will be seen that this line of watershed runs very nearly along the Marlstone escarpment.

To the east of the line just marked out lies a part of the valley of the Thames, drained by four tributaries of that river, the Windrush, the Evenlode, the Cherwell, and the Thame.

\* *Geology of the Country round Woodstock (Mems. of Geol. Survey)*, p. 15.

† *Geology of the Country round Woodstock*, p. 26.

‡ *Geology of Parts of Oxon and Berks (Memoirs of Geol. Survey)*, p. 7.