

**69 OLD SERIES, MEMOIRS OF THE  
GEOLOGICAL SURVEY, ENGLAND  
AND WALES. THE GEOLOGY OF THE  
BORDERS OF THE WASH: INCLUDING  
BOSTON AND HUNSTANTON**

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**W. WHITAKER & A. J. JUKES-BROWNE**

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INCLUDING BOSTON AND HUNSTANTON.

(EXPLANATION OF SHEET 69 OLD SERIES.)

BY  
W. WHITAKER, B.A., F.R.S.  
AND  
A. J. JUKES-BROWNE, B.A., F.G.S.

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## PREFACE.

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THE districts described in this volume are contained in Sheet 69 (Old Series) of the one-inch Geological Survey Map of England and Wales. They embrace The Wash and the tracts of Lincolnshire and West Norfolk which surround that inlet of the sea. On the south and west lies the great plain of the Fenland, while to the east the ground undulates as a wide plateau, no part of which reaches 300 feet in height.

The western part of the region was chiefly surveyed by MR. S. B. J. SKERTCHLY and was described by him in a general Memoir on the Fenland (1877). The eastern or Norfolk portion, consisting of Cretaceous rocks, partially concealed under deposits of sand, gravel, and boulder-clay, was mapped by MESSRS. W. WHITAKER, H. B. WOODWARD, A. C. G. CAMERON, C. REID, G. BARROW, and S. B. J. SKERTCHLY.

The present Memoir was entrusted to the editorship of MR. WHITAKER, and on his retirement from the Survey it was completed by MR. JUKES-BROWNE. For such parts of the district of the Fenland and The Wash as are included in Sheet 69 the descriptions given in MR. SKERTCHLY'S Memoir, just referred to, have been reprinted in the following pages. The eastern district is described by the various officers who took part in the Survey, and whose several contributions are marked by their initials. MR. WILLIAM HILL rendered important service to the Geological Survey by making special examinations of the zones and lithological subdivisions of the Chalk, and supplying much valuable information in regard thereto.

The geology of the country illustrated by the Map and Memoir possesses considerable interest, but the well-known Red Chalk of Hunstanton is no doubt its distinguishing feature. As far back as 1816 this band of rock was noticed by WILLIAM SMITH. Among the later observers reference may be made to R. C. TAYLOR, SEDGWICK, C. B. ROSE, THE REV. T. WILTSHIRE, and PROFESSOR H. G. SEELEY. The age and relations of the Red Chalk were fully discussed by MR.

WHITAKER in 1883, and were established by MESSRS. JUKES-BROWNE and W. HILL in 1887.

Regarding the Lower Greensand, our information, originally derived from the local researches of ROSE, followed by those of FITTON, was made much more complete and accurate by MR. J. J. H. TEALL in his Sedgwick Prize Essay for 1873. Quite recently some important additions to our knowledge of this subject have been made by MR. G. W. LAMPLUGH in the course of his researches in connection with the Geological Survey Memoir on the Lower Cretaceous rocks.

The Chalk, though it occupies most of the eastern district, forms no prominent features like the Downs of the counties to the south. It has been greatly planed down, and is likewise covered with wide sheets of boulder-clay and gravel. The boulder-clay stretches also beneath the Fenland, in some parts of which it attains a great thickness.

ARCH. GEIKIE,

Director-General.

*Geological Survey Office,*

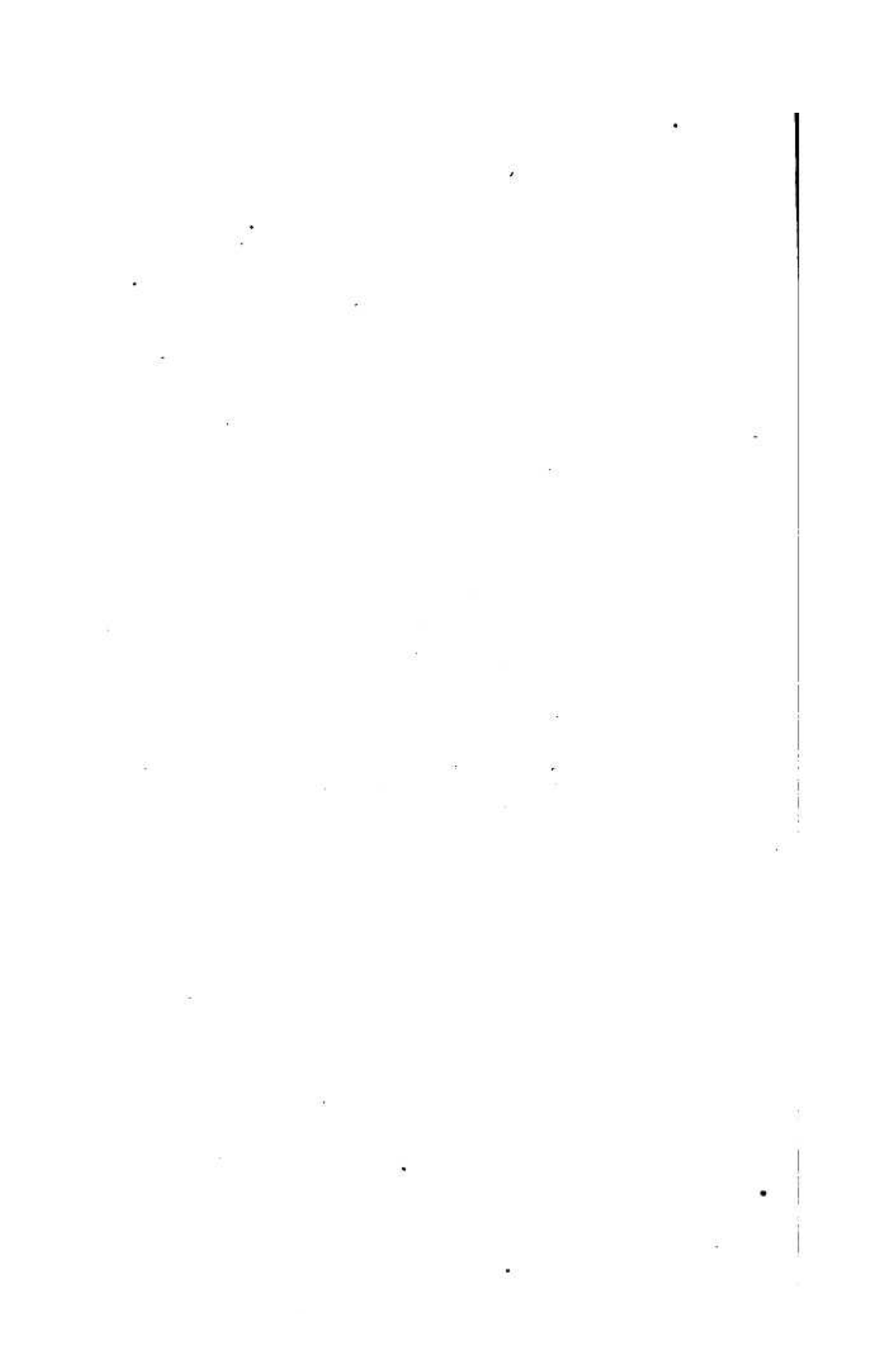
*28, Jermyn Street, London, S.W.,*

*10th October, 1898.*

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The notes of MR. W. HILL and of the several Officers of the Geological Survey who were engaged on parts of the area described, are as follows, the numbers referring to the pages to which they have contributed :—

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