

IPSWICH GEOLOGICAL GROUP

BULLETIN NO. 16.

(January 1976.)

CONTENTS

R .M.	Bibliography Ipswich Geol. Group. Bulletins 1-15.	2 - 6
R. Markham.	Introduction to Suffolk Geology.	6 - 8
K. Hammond.	Divers find North Sea interesting.	9
S. J. J. MacFarlane	Stoke Tunnel Boreholes.	9 - 11
J. Cooper.	Sections recorded by Tertiary Research Group at Bramford.	11 - 12
R. Markham.	A list of Norwich Crag Fossils from Wangford Wood.	13
J. Llewellyn Jones.	List of recent Marine- Molluscs picked up at Bawdsey.	13
P. Cambridge.	On the Comparative age of the Craggs of East Anglia and the Antwerp area.	14
J. E. Rayner.	Fossils 'Down Under.	15 - 16
R. A. D. M.	Financial Statement. Geol.Group.1974.	16

BIBLIOGRAPHY - BULLETIN IPSWICH GEOLOGICAL GROUP.

No.1 - (September 1966, for August 1966)

H. E. P. Spencer	"Geographic and Geological Notes on the Ipswich District".	pp. 1-3
(R. Agas, reprint)	"An Account of Dunwich in 1589".	4
S. J. J. MacFarlane.	"The Crag Exposure to the West of the Water Tower on Rushmere Heath".	5-7
R. Markham."	Marsupites from the Gipping Valley Chalk".	6
R. Markham	"Note of some Crag fossils in the Museum of the Geology Dept. of Birmingham University".	6
(R. M.)	"Illustrations of Common Crag molluscs".	8-10
C. Holcombe.	"Section through junction of Red and Coralline Crag, "The Rocks" Ramsholt"	10-12
(R. M.)	"Bibliography: Paramoudra Club Bulletin (Nos. 1-14)	11-13
(J. Frere, reprint).	"Account of Flint-Weapons discovered at Hoxne, Suffolk".	14
(W. Smith, reprint)	"Extracts from "Strata identified by Organised Fossils".	15
(R. M.)	"Bibliography: Proceedings- of- the Prehistoric Society of East Anglia". 16-19	
C. Allen	"Fossils collected from the London Clay, 1963".	19-20
(R. M.)	"Simplified Table of Local Strata".	20
R. Markham	"An excavation in, the Coralline Crag at Tattingstone".	21-23
R. Markham	"Waldringfield Crag".	24-25
R. Markham	"Notes on Weavers Pit, Tuddenham St. Martin".	25-27

No2. (March 1967)

(R. M.)	"Fossils recorded from the Gipping Valley Chalk".	1-3
R. Markham	"Fossils from the Gipping Valley Chalk and a note on the Zones".	3-4
C. Allen	"Chalk in the Orwell Valley".	4
(R. M.)	"Bibliography - Transactions of the Norfolk and Norwich Naturalists' Society"(Vol.1- vol 10, no.1).	5-7
(R. M.)	"Bibliography - W. G. Clarke".	7
R. M.)	("Bibliography-Proceedings of the Prehistoric Society (Vol.1 - Vol. 32).	8-9
C. Allen	"The Geography of the 'Crag Sea' ".	10-11
C. Allen	"Red Crag Barnacles at Bramford".	11
H. E. P. Spencer	"Sizewell Norwich Crag; Rifle Range Site (1953) ".	12
R. Markham	"Crag Fossils from Broome (1963) ".	12-13
R. Markham	"Notes on Nucella in the Weybourne Crag (April 1963)".	14
R. Markham	"Notes on the Forest-Bed Deer Jaws in the Norwich Castle Museum".	14-18
R. Markham	"A Forest-Bed Pig".	14
R. Markham	"Upper Pleistocene Mammals of Norfolk".	18-22

No3. (August 1967)

R. Markham	"Battisford Red Crag Dig"	1-4
R. Markham	"Interglacial Beds at Beetley, Norfolk"	4-5
P. Grainger	"Celestine (Strontium Sulphate)"	6
R. Markham	"Note on 'William's Pit,' Claydon"	6
R. Markham	"Some examples of recent induration from the Norfolk coast"	6
R. Markham	"A Forest Bed Horse Jaw from Paston, Norfolk"	7, 25

No 3. (cont.)		
(R. M.)	"Bibliography - The Advancement of Science, Volumes VII.-XXI (1950-1965)	pp7-8
(R. M.)	"Bibliography - Antiquity, 1927-1965"	8
(R. M.)	"Bibliography -The Journal of the Ipswich and District Field Club"	8-9
(R. M.)	"Bibliography-The Journal of the Ipswich and District Natural History Society"	9
(R. M.)	"Bibliography-Norfolk Research Committee Bulletin,1-16"	9-10
(R. M.)	"Bibliography-Transactions of the Suffolk Naturalists' Society, Vol.7-Vol. 13, Part 5<>"	10-13
S. J. MacFarlane	"The Bourne Park Trench Exposures "	13-14
R. Markham	"Note on a deformed elephant-tooth from the Forest Bed"	15-16; 25
R. Markham	"Sudbourne Park Coralline Crag Dig. 14th.May 1967"	16-18
S. J. MacFarlane	"Observations at the site of the St. Albans Secondary School, Ipswich. August 7th.1965"	18
R. Markham	"Some Meat Equivalents of Bones from a Roman Rubbish Pit"	18
R. Markham	"The Foxhall Mandible"	18-21; 25
S. J. MacFarlane	"An Auger Traverse near Blacksmiths Corner, Belstead"	22, 23
(R. M.)	"Notes for Beginners."	22,24
(R. M.)	"Comment, and Notes on 1966-1967."	26-27

No.4, (June 1968, for February 1968)

J. S. H. Collins	"A Report on the Cirripedes found in an exposure of the Red Crag at Beggar's Hollow, Ipswich."	1-2
J. S. H. Collins	"Portunus depurator (Linne.) from the Coralline Crag of Suffolk"	2
R. Markham	"Preliminary note on Coralline Crag from boreholes between Orford and Aldeburgh."	3-6
P. Cambridge	"A derived brachiopod from the Red Crag"	6
P. Cambridge	"Reviews."	7-8
P. Grainger	"A Temporary Exposure at Tattingstone (O.S. TM/134379)"	8-10
R. Markham	"An Introduction to the Geological Collections of Ipswich Museum."	10-14
P Christie	"Belemnites at Lackford."	15
R. Markham	"Some References."	15-16
J. S. H. Collins	"Cirripedes of the Chalk (U. Cretaceous) of Norfolk."	16-17
R. Markham	"A Scalaria from St. Erth, Cornwall."	17-18
P. Grainger	"A Section through the Basement-Bed of the London Clay at Grovelands Pit, Reading (for comparison with that in the Ipswich Area)."	18
(Editorial)		19

No5 (April-June 1969)

M. R. Leader	"The Systematics of Belemnitella praecursor Stolley, and its distinction from Belemnitella mucronata senior Schlotheim 1813 "	1-4
J. S. H. Collins	"A Guide to the Identification of Crag (Plio/Pleistocene) Acorn Barnacles of the genus Balanus s.l."	3-6
P. Grainger	"Coastal Glacial Deposits in Cork, Waterford and Wexford (S.E. Ireland)"	7-10
(R. M.)	"Some Bibliographies."	10
R. Markham	"Notes on the Hippopotamus in England."	11-12

No.6. (July 1969)

R. Markham	"Fieldtrip to Cornwall; South Devon. September 1968 "	1- 2
R. Markham	"Notes on Museums and Societies in Norfolk, Suffolk and Essex."	2-3
(R. M.)	"Comments and Notes on 1967- 1968."	4-5
R. Markham	"The Blackhoath Beds Fauna of Abbey Wood"	5-7
R. Markham	"Geology of parts of North-West Scotland."	7-10
P. Grainger	"Notes on two boreholes near Felixstowe."	10

No.7. (Autumn 1969)

	(Contents)	1
P. Grainger	"Report of the Ipswich Geological Group Field Meeting at Reading, 22nd. June 1969"	2
P. Grainger	"Report of the Ipswich Geological Group Field Meeting at Levington Creek 8th. July 1969"	2-3
J. Holden	"Report of the Ipswich Geological Group Meeting on Sunday 21st. September at Great Blakenham boulder clay pit."	3
H. E. P. Spencer	"The Crag Elephant-Archidiskodon meridionalis. New localities"	4
P. E. P. Norton	"A Preliminary Note on the re-opened Crag Pit at Hill Farm Wangford, NG: TM 462 777."	4-5
R. Markham	A List of East Anglian Recent Bivalve Molluscs."	5-7
T. Pain & D. Beatty	"The Viviparidae."	8-9
R. Markham	"Note on the Geology of Stonehaven, Kincardineshire."	9-10
P. Grainger	"... to encourage interest and research into local geology," I.G.G. Bull. 1. 1966	10-11
P. Grainger	"Radio-carbon Dating and the Weichselian."	11-12
R. Markham	"Notes for Amateur Mineralogists."	12-13
R. Markham	"Bibliography: Proceedings of the Geologists' Association 1960-1969"	13-14
R. Markham	"Comment and Notes on 1968-1969."	15-16

No.8. (September 1970)

	(Contents)	1
J. Wymer	"Clacton-on-Sea, Essex. Archaeological excavations conducted by the Dept. of Anatomy, University of Chicago, by Prof. Ronald Singer and Mr. John Wymer. Notes on results of first season: July - September 1969."	2-3
J. S. H. Collins	"Thoughts on Palaeocarcinology."	3-6
R. Markham	"Notes on Early Scientific Societies in Ipswich"	7-8
R. Markham	"Introduction to the ' Mull Leaf Beds of Scotland"	9
R. Markham	"A Collection from the old crag pit at Stratton Hall, Levington."	10-11
R. Markham	"List of Fossil Hominid Sites."	11-15
D Whitten	"Migma and Magma"	15-16
R. M.	"Bibliography: Quarterly Journal of the Geological Society; 1949-1965."	17
R. Markham	"Aldeburgh. Beachcombing."	17-18
R. M.	"Notes taken from "Current Trends in Palaeobotany " by C. A. Arnold' in 'Earth Science Reviews, Vol.4 No.4. Dec. 1968 (Publ. by Elsevier, Netherlands.)	18-19
P. Grainger	"Swanscombe. Note taken from 'Swanscombe, 1968' by J. d'A. Waechter and B. W. Conway, Proc. R. Anthropol. Inst. 1968, p58-61.	19-20

No.9 (January 1971)

	(Contents)	1
P. Grainger	A description of exposures in a pit at Stowmarket, Suffolk"	8-4
R. Dixon	"The Budleigh Stillerton Pebble Bed."	5-10, 17-18
P. Grainger	"Report on the Quaternary Research Association meeting in East Anglia, 3 -7th April 1970."	10-11
G. E. Fletcher	"Notes on a temporary exposure at Matks Tey, Essex."	11-13
P. Grainger & J. Holden	"A short note on the Post Office site at Martlesham."	13
R. A. D. Markham	"Introductory notes on the local Eocene deposits."	14
R. A. D. Markham	"Notes on the pits at Bramford & Great Blakenham."	15
R. M.	"Publications and meetings in 1969 - 1970."	15-16
R. M. & P. G.	"Finance, September 1969 - August 1970."	16

No.10 (August 1971)

	(Contents)	1
P. Grainger	"A note on sand-filled pipes in the Coralline Crag at Sudboume Park, Suffolk."	2-4
P. Grainger	"Bibliography Lower and Middle Palaeolithic Industries."	4
P. E. Long	"Notes on fossiliferous coastal exposures at Covehithe. Suffolk."	5-13
R. A. D. Markham	"Some Norwich Crag-Westleton Bed junctions in the Southwold Area"	13-15
R. A. D. Markham	"Notes on immigrant shells in Britain."	15
P. Grainger	"Sections exposed in a pit at Aldham, near Hadleigh."	16-18

No.11. (December 1972)

	(Contents)	1
R. G. Dixon	"A Review of the Chillesford Beds." ' 2-9	2-9
(J.J. Wymer)	"The Lower Palaeolithic Deposits at Hoxne, Suffolk."	10-14
R. A. D. Markham	"A Bibliography of the Foraminifera of the Crag."	15-16
(C. E. Ranson & R. A. D. Markham	"Reports of Field Meetings with the Suffolk Naturalists Society"	16-18
	"List of Geological Group Members,1966-1971"	18-19
R. A. D. M	"Financial Statement: Geological Group 1970-1971"	20
P. G.	"Editor's Note."	20

No.12. (September 1973)

	(Contents)	1
R. A. D. Markham	"Crag from a borehole at Overstrand. Norfolk."	2
R. G. Dixon	"Notes on Foraminifera from the Scrobicularia Crag at Chillesford	3-5
R. A. D. Markham	"Fossils found at some Red Crag sites."	5-6
R. A. D. Markham	"Hunstanton Cliff."	6-7
R. A. D. Markham	"Report of the Field Meeting to the' Pliocene of Suffolk April 24th.1971"	7-8
P. Grainger	"Walton-on~the-Naze field trip report, December 30th.1972"	8
R. G. Dixon	"Report of Field Excursion to Romsholt (The Rocks), April 29th. 1973."	9

No. 13 (December 1974)

	(Contents)	1
R. G. Dixon	"Brief Description of Silurian(?) Sedirnent from a borehole sample at Ipswich Museum.	2-3
C. Radley & R. M. Cheeseman	"Orwell Park Observatory."	3-5
R. Markham	"Neogene Foraminifera: Further References."	5-7
R. Markham	"Financial Statement: Geological Group 1971-1972"	8

No.13 (cont.)		
R. Markham	"Bibliography-Transactions Suffolk Naturalists Society and Suffolk Natural History. 1967 – 1972".	8

No.14 (March 1975)

	(Contents)	1
R. Markham	"Notes on some Gipping Valley Sites"	2-3
R. Markham	"Preliminary Note of the Section at Blake's Pit. Bramerton"	4
R. Markham	"The Ipswich Scientific Society and Others."	5-8
R. A. D. M.	"Financial Statement: Geological Group, 1973"	8

No.15 (August 1975)

	(Contents)	1
R. Markham	"Notes on some Red Crag Exposures."	2-4
R. M.	"Bibliography; the printed Bulletin of the Geological Society of Norfolk. Nos.19-27. (1971-1975)	5-6
R. Markham	"The Tattingstone Digs: Preliminary Notes."	6-8

R. M.

AN INTRODUCTION TO SUFFOLK GEOLOGY.

Suffolk is an undulating region, the greater part of the country lying between 80 and 200 feet above sea level.

Most of the county is covered by glacial Boulder Clay, the only appreciable areas not so covered consisting of Chalk, Loam and Alluvium in the north-west, and London Clay, Crag, Sand and Gravel, and Alluvium in the south-east and along the east coast.

The largest valleys (Waveney, Blyth, Gipping, Brett, Stour, Lark and Little Ouse) in boulder clay country either cut down into underlying deposits or are filled with later deposits, giving variety to soil types.

CHALK.

Chalk, deposited in Upper Cretaceous seas about 90 million years ago, forms the foundation of almost the whole of Suffolk, but is only prominent at the surface in the west of the county. The base of the Chalk is gently inclined towards the south and east where it thickens to over 800 feet.

There are many varieties of chalk - soft, gritty, hard, but all are composed of calcium carbonate; the chalk acts as a water storehouse. Stratigraphically the Chalk is divided into Lower, Middle, and Upper Chalk.

The Lower Chalk consists of grey marl and grey and white chalk and is found near Mildenhall and Lakenheath.

The Middle Chalk is found at Newmarket and Brandon, and contains some flint nodule bands.

The Upper Chalk is generally soft and often contains nodular flints. It is found at the surface at Haverhill, Ixworth, Botesdale, Bury-St-Edmunds and Sudbury, but in the east of the county it is much obscured by later (especially glacial drift) deposits although it may be seen in the Gipping Valley between Needham Market and Ipswich.

(continued on next page)

(Continued – AN INTRODUCTION TO SUFFOLK GEOLOGY)

EOCENE

After deposition of the chalk the area was raised as a landmass. In Eocene times, about 50 million years ago, the south and east of the county was invaded by a sea which deposited a series of sand and clays, often over 100 feet thick, on the chalk.

The Lower London Tertiaries consist of green and mottled clays and sands which outcrop near Sudbury and Ipswich.

The London Clay is a brown or blue clay resting on the Lower London Tertiaries, and is mainly exposed along the borders of the rivers Deben (below Woodbridge), Orwell, Stour (below Sudbury) and their tributaries. It may contain selenite (calcium sulphate), iron sulphide (pyrites) and masses of calcareous mudstone.

CRAG DEPOSITS.

The south and east of the county was again submerged during Pliocene (7 million years old) and Lower Pleistocene (about 1½ million years old) times. The resulting 'crag' ("shelly sand") deposits rest mainly on Eocene beds; but on Chalk in the west.

The Pliocene Coralline Crag consists of shelly sands and soft limestone found mainly between Aldeburgh and Orford.

The Lower Pleistocene Red Crag usually consists of shelly and ferruginous sands found in the area between the Stour and Aide, mainly east of Ipswich, and may be seen at many places, including Tattingstone, Felixstowe, Newbourn, Shottisham and Butley. The Red Crag may contain ironstone bands and phosphatic nodules ("coprolites"); in places the fossils shells have been dissolved by ground-water.

The Norwich Crag series (also of Lower Pleistocene age) is found north of Aldeburgh and consists of sands (sometimes shelly), laminated clays, and pebbly gravels. The deposits outcrop in the east of the county, including Thorpeness, Westleton, Southwold and Beccles; they may reach over 100 feet in thickness.

GLACIAL DEPOSITS ('DRIFT')

Deposits of glacial origin cover the greater part of the county. The thickness, extent, and composition of these deposits is very variable.

Chalky boulder clay covers the greater part of central and south-west Suffolk. It is usually a tough bluish-grey, or brown stony clay; in places it may be fairly sandy.

Sand and gravel (meltwater material) is found in much of the eastern part of the county, south and east of Ipswich, giving rise to the lighter sand of the heathlands. There is also thin sand on the chalk of northwest Suffolk.

The major river valleys usually contain areas of gravel and loam. Other effects of glacial action may give rise to contorted deposits, frost cracks, and patterned ground (such as the 'stone stripes' of Breckland.)

(continued on next page)

RECENT DEPOSITS

Alluvium, including estuarine and freshwater marsh and fen deposits, forms flat land bordering rivers, and is liable to flooding in wet weather. It consists mainly of mud, silt, clay and peat, and is well seen in the Orford area, the lower reaches of the river Waveney and Mildenhall Fen.

Along the coast, marine shingle beaches (including the great beach of Orford Ness) are important, and blown sand is locally seen.

The greater part of the county, often known as 'High Suffolk' is covered by Boulder Clay of glacial origin. However, the north-west and south and east of Suffolk are composed of different geological strata and show different surface features.

NORTH-WEST AND WEST.

To the north and west of MILdenhall and Lakenheath is a flat low-lying area of post glacial peat, part of the great area of Fenland.

Chalk comes to the surface near Newmarket, where such typical chalkland features as short turf and scarcity of surface water may be seen.

Chalk also comes close to the surface between Mildenhall and Brandon, but is here covered by thin sandy drift deposits; there is little surface water. Naturally a heathland, this area is part of the Brecklands.

HIGH SUFFOLK.

A rather featureless plateau area with gentle sloping valleys. Formed of generally heavy and tenacious glacial boulder clay (but with local variation), variety of rock and soil types are found where streams have cut through the glacial drift to expose underlying strata, and where gravels and loams have been deposited in valleys in the boulder clay.

EAST AND SOUTH EAST.

The alluvial clay and peat deposits of Broadland are found in the Waveney Valley.

Along the east coast from Gorleston to Aldeburgh is a narrow and discontinuous tract of sand and gravel. South of Aldeburgh it extends inland to Woodbridge and Ipswich, forming heathland areas ("Sandlings") which are penetrated by the estuaries of the Stour, Orwell and Deben; these valley/3 expose Crag and Eocene deposits on their lower slopes.

Low cliffs along the coast are nearly all in soft sands, gravels and clays, mainly of Crag age (as at Dunwich and Southwold), but including glacial deposits (near Lowestoft) and London Clay (Felixstowe.)

Modern beach shingle forms extensive accumulations, as at Orford Ness, where the largest shingle spit on the east coast diverts the River Aide southwards from Aldeburgh to enter the sea near Shingle Street. K stuary regions contain areas of saltmarsh. Blown sand is of local occurrence along the coast.

(R.M.)

(The above short article was originally for use elsewhere, but not used)

DIVERS FIND NORTH SEA-INTERESTING.

Summer's sun shrugs off winter doubts as I sit on the beach at Thorpeness with Ed. Correa. We wait, edged in shade, for the other divers to arrive. The cold North Sea seems to wait too, as she patiently laps the sand-pebbled shore.

The warm June afternoon promises good things for the American and British divers of the Ipswich branch of the British Sub-Aqua Club. And it means fascinating finds for Robert Markham of the Ipswich Natural History Museum and the members of the Ipswich Natural History and Geological Societies.

The last of the divers arrives and Graham Timpson, the club's diving officer, begins to brief them on the dive. He gives depth and current flows and safety precautions. Then he assigns each man a diving partner.

Ed Correa, a staff sergeant serving as an air operations specialist for Base Operations and the only full-fledged member of the local club, is teamed with 67th. Aerospace Rescue and Recovery Squadron (ARRS) pararescueman A1C Jim Koller, for the first dive. A1C Joe Kasprzak, also a 67th. PJ, and Sgt. Mike Lowe, an aircraft maintenance specialist with the 67th. are paired for dive number two.

Now Mr. Markham explains the purpose of the dive. "We are interested in samples of deposits that typify this area," he says, pointing at a map, "particularly the deposit from the Coralline. Crag which is situated about a mile out and runs between Thorpeness and Aldeburgh."

The divers then stow suits, tanks, fins and the rest of their gear aboard the rubber boat which will serve as their diving platform and shove off. The motor pushes the boat into the softly rolling sea. The boat shrinks slowly to a dot, then disappears into the haze.

The sun and sea and soft breezes have me sinking into a haze of my own, when, suddenly a shout startles me! The boat lies 200 yards offshore! Everyone flocks to the landing point!

The raft is slid onto the sand and the plastic bags full of samples carefully handed to Mr. Markham. He empties them into yellow plastic pans. Mr. Markham and his associates painstakingly sift through the contents of the pans: starfish, sponges, rust-coloured pieces of the Coralline Crag. Their magnifying glasses sparkle in the sunlight.

The second dive, closer than the first, nets many species of crab. But a spider crab with its long spiny legs is the centre of attention. Still the sea holds one of her treasures. An old cannon found on the second dive could not be marked for later recovery.

As I leave, I glance at the sea, sun-streaked and waiting. A cannon waits as well!; for another dive on another day.... patiently.

K. Hammond.

(this account of the meeting on Sunday 8th. June 1975 is taken, with kind permission from 'Phantom Forum' (the Bentwaters and Woodbridge Air Base Newspaper), Friday June 20th.1975 page 9. The cannon has since been recovered.)

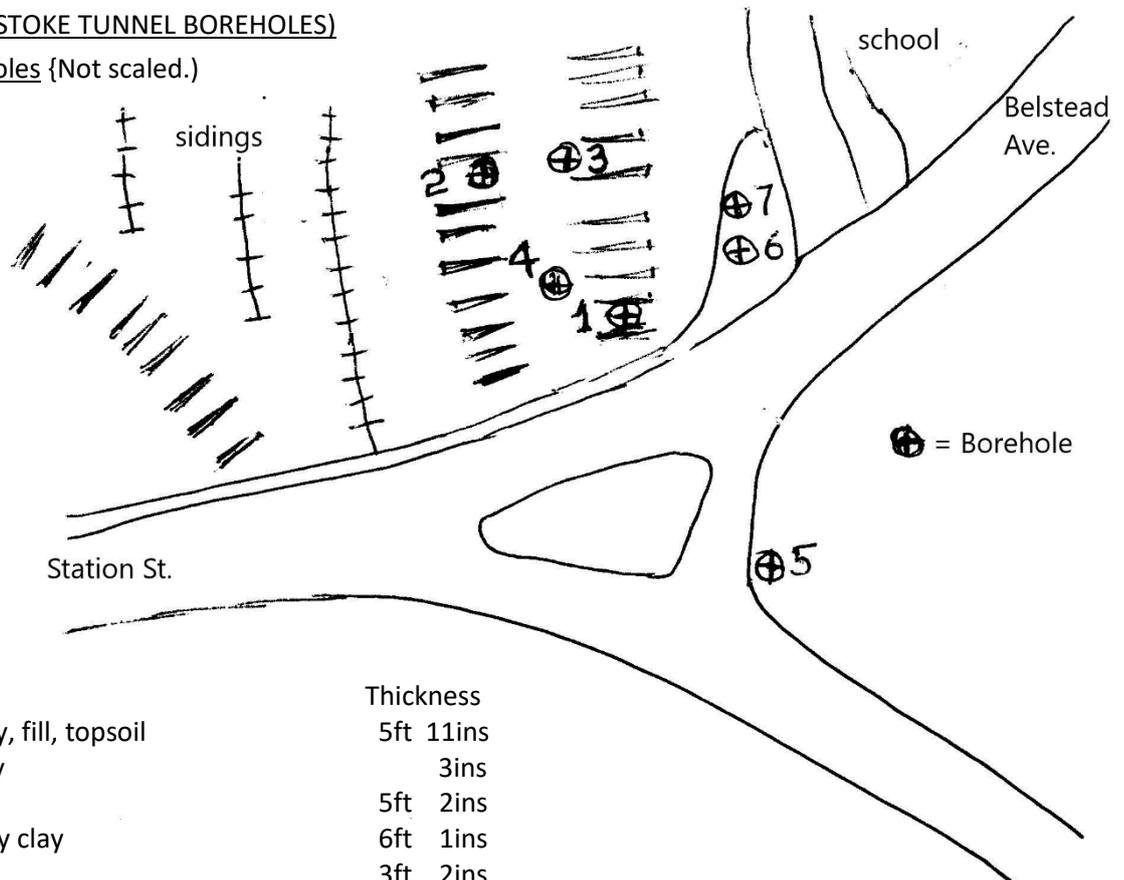
STOKE TUNNEL BOREHOLES, August/September 1970.

A short note regarding boreholes made during Aug./Sept. 1970 by the British Rail Soil Mechanics Lab. York. The boreholes were made at the southern end of the Ipswich Station Tunnel, on the western side of the embankment and in the entrance of the Belstead Avenue Infants School. Seven boreholes were put down; of which the stratigraphy of 5 is recorded.

(continued on next page.)

(Continued - STOKE TUNNEL BOREHOLES)

Site of boreholes {Not scaled.}



Borehole 2

	Thickness
Mixed clay, fill, topsoil	5ft 11ins
Sandy clay	3ins
Grey clay	5ft 2ins
Sandy grey clay	6ft 1ins
Sand	3ft 2ins
Very wet (running) sand	4ft 9ins
Hard red clay	4ft 10ins
Sandy clay with sand patches	4ft 10ins
Silver sand	2ft 1ins

Borehole 3

Mixed fill topsoil	1ft 7 ins
Sandy clay	9ft 2ins
Grey clay	8ft 4ins
Sandy clay	6ft 9ins
Sandy clay with stones	1ft 4ins
Sand	7ft 9ins
Very wet (Running) sand	1ft 5ins
Hard red/grey clay	4ft 6ins
Silt and sand	1ft 11ins
Silver sand	1ft 0ins
Grey clay	3ins
Silver sand	1ft 0ins

water from 11ft 1 ins below surface

Borehole 4

Mixed fill topsoil	1ft 4ins
Sand/clay	7ft 6ins
Grey clay	8ft 4ins
Silver sand/gravel mixed	6ft 11ins
Very wet silver sand (running)	3ft 6ins
Red/grey clay	2ft 10ins
Red sandy clay	6ft 2ins
Silver sand/grey clay mixed	2ft 9ins
Silver sand	9ins

water from 29ft 11ins below surface

(Continued - STOKE TUNNEL BOREHOLES.)

Borehole 5

Mixed fill topsoil	3ft 6ins	
Sandy clay	8ft 1ins	
Sand and gravel	12ft 1ins	
Running sand (Very wet)	2ft 7ins	
Gravel	4ins	water
Brown clay	3ft 9ins	
Dark grey clay	4ft 5ins	
Brown clay	2ft 11ins	
Dark grey clay		

Borehole 7

Mixed fill	3ft 1ins	
Orange sand	8ft 10ins	
Orange sandy clay	11ft 11ins	water from c.20 – 22ft below surface
Dark grey clay	8ft 6ins	water at 29ft 8ins below surface
Dark grey clay/sandy silt	12ft 8ins	water at 32ft 8ins below surface
Sand pale yellow		

S. J. J. MacFarlane.

SECTIONS RECORDED BY TERTIARY RESEARCH GROUP AT BRAMFORD, 20.11.1971.

1. Coe's Pit or Paper Mill Lane Pits, off Papermill Lane, Bramford, near Ipswich, Suffolk. TM 129 482.

Sections in Coe's Pit.

<u>A. SE corner of pit.</u>	Measured by D. Ward and J. Cooper.	ft.	ins.	metres
Topsoil		1-2		0.30-0.61
7. Grey clay seen to about		1		0.30
6. Intensely glauconitic sandy clay with polished pebbles c.3mm across. Shark tooth seen			7	0.18
5. Soapy fractured clay with clay stones 12ins x 3½ ins (0.30m x 0.09m) at top		1	4	0.40
4. Sandy clay, dark brown, iron-staining on fracture planes with fresh and rolled flint pebbles in lower 18ins (0.45m)		3	6	1.07
3. Angular flints (Bull Head Bed.)			2-5	0.05-0.13
2. "Black Band" (as at Pegwell Bay, Kent)			½-1	0.012-0.05
1. Shattered Chalk (Quadrata Zone.)				

Interpretation; Units 2-5 are Thanet sands. Unit 6 is Woolwich Bottom Bed.

Unit 7 is Woolwich Series.

<u>B. 20 yards (18m) NE of A.</u>	Measured by D. Ward and J. Cooper.	ft.	ins.	metres
Crag pebble bed (incorporates Suffolk Pebble Bed in part and boxstones		1 or so		>0.30
UNCONFORMITY				
9. Fawn sand becoming greenish with 3ins (0.075m) silty green band. seen to		7		2.12
8. Band of sandy clay and silts becoming more sandy towards top		1		0.30
7. Grey clay, comparatively non-glauconitic		1		0.30
6. Intensely glauconitic sandy clay with polished pebbles c. 3mm across			7-8	0.17-0.20

Interpretation; Unit 6 is Woolwich Bottom Bed. Units 7-8 Woolwich Series.

Unit numbers are the same for both sections.

Compare these sections with those given by Boswell, P. G. H. 1927, The Geology of the Country around Ipswich. pp.17-18. Mem. geol. Surv. UK.

2. Old brick pit between Fisk Grove and the Grove, off Papermill Lane, Bramford, Near Ipswich. TM 130 477. About a quarter of a mile S. of Coe's Pit.

Suffolk Pebble Bed dug out at TM 1305 4781

Vertical section dug at TM 1303 4779 Measured by D. Ward, J. Cooper and R. I. Kirby.

Unit			ft.	ins.	metres
5	G	Pebbly Glacial sands (with pebbles derived from both the Crag and the Eocene) in a matrix of yellow sand. Quartzite and gneiss pebbles seen. ? also Crag Sands (boxstones at base)	4	4	1.32
		UNCONFORMITY			
4	F	? London Clay or true London Clay Basement bed		4	0.10
3	E	Oldhaven Beds (or possibly LCBB). Grey-brown sandy clay (gritty to the teeth) with bioturbation and sand-filled burrow-systems (? callianassid).	5	8	1.72
	D	Pebble Bed (Suffolk Pebble Bed) cemented partially by iron pan top and bottom. Average pebble size 20mm in light fawn sand. Pebbles seemed to be smaller in the middle of the bed.	1		0.30
	C	Fawn to yellow flase-bedded sands	7	8	2.32
1	B	Bed of red and grey clay pellets (2mm dia) small 4 polished stones and vegetable (wood) remains. Ironstained tip and bottom		2	0.05
	A	Drilled by auger: Fawn to bright-orange sands with occasional blue-grey clay partings	10		3.04

The auger took the sedition 13ft (3.96m) below the base of the pit.

Interpretation.

(5) Pleistocene drifts

(4f) Lower Ypresian

(3) Lower Ypresian

(2) Ypresian transgression

(1) Sparnacian sands = sandy facies of Woolwich and Reading Beds.

Compare these sections with those given by Boswell P. G. H. 1927. The Geology of the Country around Ipswich, pp.17-18. Mem. geol. Survey. U.K.

J. Cooper.

A LIST OF NORWICH CRAG FOSSILS FROM WANGFORD WOOD.

BIVALVES.

Yoldia oblongoides
Acila cobboldiae
Corbula gibba
Macoma obliqua
M. praetenuis
M. calcarea
Cardium edule
Phacoides borealis
Donax
Scrobicularia plana
Mya arenaria
Mytilus edulis
Spisula
Arctica islandica
Carbicula fluminalis
a pholad
2 or 3 spp.to be identified

VERTEBRATES

Fish vertebrae
Thornback ray spine base
Bone fragments
Microtine incisor

GASTROPODS

Potamides tricinctus
Turritella communis
T. incrassata
Hydrobia
Littorina
Nucella lapillus
Melampus pyramidalis
'Natica'
Scala groenlandica
'Gibbula'
Calyptrea chinensis
'Bela'
Viviparus
?Trivia

OTHER INVERTBRATES

Sponge :- Cliona
Barnacle valves
Crab claw

The commonest forms are : Macoma obliqua, M. praetenuis, Cardium, Mytilus, Mya, Corbula, Donax, Scrobicularia, Spisula, the pholad, Littorina, 'Natica', and barnacle valves.

Further reading on the site.

- Norton P. E. P. 1969. "A Preliminary Note on the re-opened Crag Pit at Hill Farm Wangford, NG; TM 462 777." Bull. Ipswich. Geol. Group 7, 4-5.
- Markham R. A. D. 1971. "Some Norwich Crag-Westleton Bed junctions in the Southwold area." Bull. Ipswich Geol. Group. No.10 pp13-15.
- Spencer H. E. P. 1970. "A Contribution to the Geological History of Suffolk. Part 4. The Interglacial Epochs. ". Suffolk nat. hist. 15, 148-195.
- Cambridge P. G. 1971. "Report on Field Meetings to Wangford, and East Suffolk." Bull. Geol. Soc. Norfolk, no.20 pp.34-36.
- West. R. G. S. 7 Norton P. E. P. "The Icenian Crag of southeast Suffolk." Norton. 1974. Phil. Trans. Roy. Soc. London. B, vol.269 pp.1-28.

R. Markham

LIST OF RECENT MARINE MOLLUSCA PICKED UP AT BAWDSEY.

(from beach and shingle spit, Geological Group meeting, 3rd August 1974.) - mostly B records (Conchological Society classification) or single valves for the bivalves.

GASTROPODS.

Calliostoma zizyphinum
Littorina littorea
Littorina littoralis (A)
Crepidula fornicata
Natica catena
Nucella lapillus
Ocenebra erinacea
Neptunea antiqua
Buccinum undatum
Nassarius reticulatus

LAMELLIBRANCHS.

Mytilus edulis
Ostrea edulis
Chlamys varia
Cardium edule
Venus striatula
Petricola pholadiformis
Macoma balthica
Mactra corallina
Pholas dactylus
Barnea Candida

J. Llewellyn Jones

ON THE COMPARATIVE AGE OF THE CRAGS OF EAST ANGLIA AND THE ANTWERP AREA.

The succession in Holland and Belgium is more complete in the lower part of the Crag series and the Plio-Pleistocene beds have been recorded in some detail in the numerous sections exposed during work on new roads and the docks about Antwerp. The following are the divisions usually recognised:

- Sands of Merksem
- Sands of Kruischans
- Sands of Kallo
- Crag of Luchtbal
- Sands of Kattendijk

The position of the Plio-Pleistocene boundary is in some dispute, the area of dispute being the Sands of Kruischans which some workers place in the Pliocene and others in the Pleistocene. If we compare the Antwerp series with the Crag of East Anglia the relative ages are easily established. The fauna of the Coralline Crag (Gedgravian) is not well known at depth, but in the visible sections it appears to be later than the Sands of Kattendijk which contain a number of species unknown in the Coralline Crag. On the other hand, the fauna matches so closely that of the Crag of Luchtbal, not only in general character but also in actual species, that their equivalence cannot be doubted. In both, the sudden abundance of polyzoans, the number of gadoid otoliths and the abundance of echinoid fragments is striking. However, compared with the Gedgravian the Crag of Luchtbal is much condensed and in some sections may even be missing. No beds of the age of the Sands of Kallo have been detected in East Anglia but certain characteristic species appear in the Red Crag and have every appearance of being derivative i.e. Angulus benedoni and Pecten westendorpianus. The Sands of Kruischans cannot be identified in the East Anglia series either, but again there is some evidence of material of this age occurring in the Red Crag. Certain peculiar nodules from the Sands of Kruischans were described as a possible pogonophore, Tasselia ordami and exactly the same nodules have been found in the Red Crag Nodule Bed where they are much phosphatised and rolled and their affinities have been unknown until recently.

Finally the fauna of the Sands of Marksem agrees with that of the Waltonian, and was probably deposited in somewhat shallower seas than the earlier beds. One may infer from this that following the deposition of the Coralline Crag, beds of Upper Pliocene age were also deposited in East Anglia and subsequently destroyed. After deposition of marine beds ceased in Holland and Belgium, a continuous series of fairly shallow water marine sediments were accumulated in East Anglia. At some time prior to the Red Crag transgression, the Coralline Crag was partially decalcified and leached to form the Rock Bed, typical pieces of which are sometimes found in the Red Crag.

P.G. Cambridge.

FOSSILS 'DOWN UNDER'.

It was my good fortune two years ago to visit N.S.W. Australia, where I have a brother, Stan, an established "New Australian" of some 25 years residence. In the course of correspondence immediately prior to our trip Stan asked me to take out a representative collection of fossil shells from the Red Crag cliffs at Walton-on-Naze, which I duly prepared and packed with loving care, and also looked out a number of slides of the cliffs and strata not only of Walton but of other Red Crag sites in S.E. Suffolk as well. I assumed that Stan's request was a 'bona fide' desire to possess a collection maybe only for nostalgic reasons, as a former 'fossicker' at Walton in his youth.

In due course we landed in a southern suburb of Sydney on Saturday 2nd. June, unpacked our luggage and handed over the parcel intact. Whereupon, Stan grins and says his piece "Well," he says. "I must confess all, I did not want them for myself. Earlier this year I entered some paintings at Paramatta City Annual Show, and while there I made contact with some 'odd bods' presiding over the local Lapidary Society's stand, and revealed that while I was personally not particularly interested, I had a brother in Scotland who was and he was coming over on holiday." One thing led to another and ere long I found myself committed to getting Brother John to give a talk to the Society, so if you don't mind you are due to appear on Saturday evening 23rd June to do your stuff." And so at a distance of 12,000 miles and no official agreement, an appointment was virtually settled, with no simple way out! Secretly, of course, I was flattered by the "offer" which appealed to my vanity, and in less than 3 weeks I had to prepare my plan of campaign.

And so on a fine clear winter's evening, Stan and I were on our way across the 26 miles of mixed scrub and bushland to Paramatta City to rendezvous with Gwen the Society's Meetings Convenor in the playground (used as a car park for the occasion) of a primary school quite unknown to Stan, and in the night lights somewhat bewildering to find. Paramatta is quite a large "city" of 100,000 population, once the centre of government for New South Wales, some 175 years ago, and now surrounded by a maze of suburbs. Once having met Gwen, a cheerful chattering school ma' am, we crossed the street and up a narrow steep staircase to the first floor of the Postal Union Meeting Hall. . . . Surprise and consternation! The hall was full!! I had expected the usual desultory 30 or so people, and instead there were over 250 of them. I nearly turned and out drawn the stairs again, but the members still arriving were in my way! There were still 10minutes left before 8.0p.m. so we looked round. On one side of the hall was a row of trestle tables containing in order 1) a lady recorder, who issued us with name tabs, 2) another who sold us raffle tickets 3) exhibitions of various classes of cut and polished stones and made-up jewellery entered by members for allocation of merit points towards annual awards, and 4) specimens of minerals, raw and slabbed for sale at reasonable prices. On the other side library books and notice boards, at the rear activity in the kitchen, and at the front, a row of tables for Club Officials in correct order, a blackboard and a portable screen brought by Gwen.

This club is a very live Society, and the conduction of the meeting, if somewhat formal, was in itself an experience President's remarks, welcome to visitors (stand up please), confirmation of new members (stand up please), proposed new members (ditto), last minutes, matters arising, reports of a) records and membership (397), b) club competitions, c) financial, d) journal, e) meetings, f) field outings, etc. each with its proposer, seconder, and "those against" followed by suggestions and comments from the floor. This took 40 minutes, followed by a break to clear the front for the speaker, to arrange his exhibits, to put slides into cassettes. A frantic search for a pointer, finding a 4foot x 5/8ins diameter white plastic rod (curtain rod ?) which when held at one end developed a 12inch sway at the free end, not entirely due to nerves. Finally, a call to order by the President and formal announcement of the speaker. "Mr .John Rayner all the way from Scotland" to give an illustrated talk on SCOTTISH fossils, and that was it! - all on my own against 250 or more!

(continued on next page).

(Continued - 'FOSSILS DOWN UNDER')

Actually I got off to a promising start by a) expressing my dismay at the sea of faces (very subtle) but b) congratulating the President on such a flourishing and well conducted club ('buttering up!) except for getting the title wrong, c) disclaiming to being Scottish and d) claiming to be an expatriated Pom (the humorous touch).

Starting with a map of Great Britain showing where I live in Glasgow, where I was born in Ilford and where Essex and Suffolk were, and then a hand-made map of the latter area showing the Crag extent and locations, going on to describe the Walton-on-Naze cliff settings and strata, erosion with slides of these and other areas, the nature and types of the fossil shells, fish remains etc., finishing off with a flourish by showing the left-handed *Neptunea contraria* and the normal right-handed equivalent. Total time of about 30 minutes and well received, especially the wobbly plastic rod! Questions were few and mostly general, but many personal thanks from members during and after the meeting, with emphasis on nostalgic memories of those parts by earlier emigrants. The fossils exhibited aroused much interest and members produced their own local treasures for identification or as gifts!

The meeting closed with the presentation of a fine pair of cuff links with black opal chips set in clear plastic cabochons, which I value very highly. Altogether a very gratifying and memorable evening.

J.E. Rayner.

FINANCIAL STATEMENT: GEOLOGICAL GROUP 1974.

EXPENDITURE

	£.	P.
Postage - Newsletters 43-47	14.21	
Postage - Bulletins 14-15	6.64	
Envelopes - Newsletters 43-47	93	
Envelopes - Bulletins 14-15	24	
Stencils - Newsletters 43-47	49	
Stencils - Bulletins 14-15	1.12	
Duplicating Paper	<u>5.37</u>	
	29.00	

INCOME

	£.	P.
Carried forward from 1973	15.46	
Interest on Bank Account	3.72	
Subscriptions	<u>42.25</u>	
	61.43	

Carried forward to 1975: £32. 43p.

R.A.D.M.