The Quaternary Deposits at Hoxne, Suffolk: Appendix 1. Records of Boreholes and Sections

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43

QUATERNARY DEPOSITS AT HOXNE, SUFFOLK

I am indebted to the Nature Conservancy for the Research Studentship which enabled me to carry out this work, and to Clare College, Cambridge, for the Research Fellowship which allowed me to continue the investigations.

I tender my thanks to Dr H. Godwin, F.R.S., for his unfailing encouragement and guidance throughout the work, to Professor W. B. R. King, F.R.S., and to the members of the University Sub-department of Quaternary Research for their willingly given advice and assistance, and to the many other friends whose help has facilitated the research.

For assistance in the field, my especial thanks are due to the Banham family of Hoxne, who gave me complete access to their Brick Works and helped in very many other ways, to Mr C. J. West, to Mr J. Mulvaney and the other students of archaeology who assisted in the excavations, to East Suffolk County Council for access to their property, to the Suffolk Naturalist's Society for a grant towards the cost of the excavations, and to the Royal Society of London for financing, through a grant to Dr H. Godwin, the sinking of the borehole from which came the series of cores for the main pollen sequence.

APPENDIX 1. RECORDS OF BOREHOLES AND SECTIONS

The relation of the numbers of Clement Reid's and Reid Moir's boreholes and sections referred to in this paper to those used in the original papers are as follows:

- (a) Reid. Nos. 1–20 are the boreholes and section so numbered in Reid (1896). No. 21 is the section described on p. 405 of that paper.
- (b) Moir. Nos. 1-7 are the sections so numbered in Moir (1926). Nos. 8 and 9 are the sections described by Moir (1935), the former the section in the old pit and the latter the one in the Oakley Park pit.

The details of a selection of boreholes and sections made during the investigations described here are given below. The records of all borings and sections made have been deposited with the Nature Conservancy, London.

The capitals on the left of the descriptions relate the different deposits to the strata described. All heights are given in metres o.d. The grid references give the positions of the boreholes and sections on the map, figure 2. Abbreviations used in the descriptions are as follows:

- NC No visible reaction with 10% HCl (non-calcareous).
- C Reaction with 10% HCl (calcareous).
- G.R. Grid reference on the map, figure 2.
- 'Made' means that the deposit has been disturbed in recent times.
- 11. Height 31·26 m. G.R. 747675. Borehole and section.
 - A1 0-100 cm NC. Soil, then grey fine sand with small flints.

A2 and E 100-210 cm NC. Mottled blue clay with flints, with pockets of red sand with flints, and with race and a layer of purple clay at the base.

- E 210-350 cm C. Mottled blue clay-mud with shells.
- F 350-365 cm C. Mottled grey-brown clay-mud with shells.
- G 365-380 cm C. Blue sandy clay with chalk pebbles and flints.

Vol. 239. B.

345

346

R. G. WEST ON THE

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15.	Hei	ght 35·00 m.	G.R. 744663. Borehole and section.
	1	0-75	
		75–195	cm NC. Red-brown sand with wisps of grey clay and a few small flints.
A	.2	195–225	cm NC. Reddish sandy unsorted hoggin with stones up to 20 cm. across.
Γ.	. 4)225-275	cm NC. Red-brown sand mixed with grey clay and a few flints.
		275–295	• •
		$\begin{array}{c} \widehat{g}_{1} = \widehat{g}_{1} \\ \widehat{g}_{2} = \widehat{g}_{3} \\ \widehat{g}_{3} = \widehat{g}$	· · · · · · · · · · · · · · · · · · ·
В	ء کا رو _ا	gg 350-395	, , , , ,
			· · · · · · · · · · · · · · · · · · ·
			, , ,
			cm C. Grey sandy clay with shell fragments.
В		465-475	· · · · · · · · · · · · · · · · · · ·
		1 175 540	chalk pebbles.
		475–540	cm C. Grey sandy clay with shell fragments, small chalk pebbles and pockets of brown sand.
		(540-575	cm C. Brown sand with clayey patches, small chalk pebbles, flints and lumps of
			brecciated clay-mud.
C		575-610	, , , , , , , , , , , , , , , , , , ,
		610–635	
		635–660	, 9
-		\660-693	0,,,
D		693–725	,
E		725–750	cm C. Brown-green clay-mud, with hard bits at the top and shell fragments.
16.	-		G.R. 729663. Borehole.
	A1	0 – $60 \mathrm{~cm}$	NC. Soil, then grey fine sand with flints.
	($60-85~\mathrm{cm}$	NC. Grey and yellow-brown sand, slightly clayey.
	A2	85–130 cm	
	,	130–230 cm	NC. Yellow -brown clayey sand with occasional flints.
	ъ (230–250 cm	NC. Transition, then grey stiff sandy clay with dark brown inclusions, and mottled
	E {	250 255 252	brown in places. C. Mottled blue-brown clay-mud, slightly sandy.
	F	250–355 cm 355–365 cm	C. Brown-grey clay-mud with shells.
		365–375 cm	C. Brown-grey clay-mud with organic inclusions and small chalk pebbles.
I	$\mathbf{F}\mathbf{-G}$	375–400 cm	C. Grey-brown stiff sandy clay with organic inclusions, chalk pebbles and flints.
	`		
17. Height 32·34 m. G.R. 750667. Borehole and section.			
	4.0	0–40 cm	Made ground.
	A2	40–170 cm 170–240 cm	NC. Mottled red-grey sandy clay. NC. Mottled grey brecciated clay with partings of red-brown sand.
	1	240–245 cm	NC. Purple sandy clay.
		245–255 cm	NC. Mottled grey-brown brecciated sandy clay.
		255–265 cm	C. Similar.
	C	$265-305~\mathrm{cm}$	C. Mottled brown brecciated clay-mud with chalk grains, sand partings and wood.
		305– 310 cm	C. Brown sandy clay with wood.
		310– $315 cm$	C. Grey chalky sand.
	1	315–320 cm	C. Brown-grey sandy clay with transition to next.
	D	$320330~\mathrm{cm}$	NC. Black coarse detritus mud.
	\mathbf{E}	$330340~\mathrm{cm}$	C. Brown-green crumbly clay-mud.
18. Height 30·77 m. G.R. 751661. Borehole and section. 0-15 cm Made.			
	A2	15–45 cm	NC. Red-grey clayey sand with small flints, becoming calcareous at base.
	В	45-150 cm	C. Sand, clay and sandy chalky gravel with rough bedding (shown in figure 34,
	-		plate 4).
	\mathbf{C}	$150480\;\mathrm{cm}$	C. Grey-brown brecciated clay-mud and grey sandy silt, becoming more organic

below.

QUATERNARY DEPOSITS AT HOXNE, SUFFOLK

- D 480-525 cm NC. Running slush with traces of brown detritus mud.
- E 525-550 cm C. Brown-green clay-mud.
- 24. Height 31.94 m. G.R. 758679. Section.
 - A1 0-40 cm NC. Brown fine sand with a few small flints, made at the top.
 - 40-50 cm NC. Yellow sand, slightly clayey.
 - (50-55 cm NC. Mottled grey-brown sandy clay, with large flints.
 - G 55-70 cm C. Mottled grey-brown sandy clay with large flints and chalk pebbles, and with pockets of red sand 10 to 15 cm deep.
- 36. Height 30·77 m. G.R. 751661. Borehole (with 4 in. core). For detailed stratigraphy see pollen diagrams IA-G.
 - A2 0-75 cm NC. Red-grey sandy clay with small flints, becoming calcareous at base.
 - B 75-260 cm C. Sandy gravel with many chalk pebbles.
 - 260-305 cm C. Transition.
 - C 305-518 cm C. Brecciated clay-mud with interbedded silt and drift mud.
 - D 518-550 cm NC. Brown detritus mud, coarse at the top, finer at the base.
 - E 550-1080 cm C. Brown-green clay-mud, becoming darker at the base, with very calcareous and yellower horizons at 1014 to 1024 cm and 1074 to 1077 cm.
 - F 1080-1124 cm C. Grey slightly sandy clay-mud with a layer containing chalk pebbles at 1101 to 1106 cm, and with irregular black laminations in the top 20 cm.
 - G 1124-1159 cm C. Blue-grey sandy clay with striated chalk pebbles and flints.
- 37. Height 29·33 m. G.R. 748667. Section.
 - D 0-8 cm NC. Medium fine detritus mud.
 - 8-23 cm Transition, becoming calcareous at 20 cm.
 - E 23-41 cm C. Brown-green clay-mud.
- 41. Height 31·28 m. G.R. 744676. Section.
 - A 1 \ 0-30 cm NC. Soil, then grey fine sand with small angular flints.
 - 30-106 cm NC. Yellow fine sand with small angular flints.
 - 106-122 cm NC. Yellow clayey sand, mottled grey, with small flints.
 - G {122–127 cm NC. Grey sandy clay with flints, becoming calcareous at base. 127–140 cm C. Mottled grey-blue sandy clay with chalk pebbles.
- 49. Height 30.05 m. G.R. 761656. Borehole and section.
 - 0-10 cm Made.
 - 10-115 cm C. Reddish sand, slightly calcareous, with small flints.
 - 115-125 cm C. Reddish sand, becoming more clayey and calcareous at base.
 - 11. 125–130 cm C. Grey-red clayey sand.
 - 130-145 cm C. Red-grey sandy clay.
 - C [145-150 cm C. Grey clayey sand with chalk pebbles and flints.
 - 150-190 cm C. Grey-brown sandy clay full of chalk pebbles and flints.
- 50. Height 29.48 m. G.R. 761657. Borehole and section.
 - 0-75 cm Made.
 - H? 75-120 cm C. Brown sand with flints, slightly calcareous, becoming mixed with brown clay below,
 - [120-200 cm C. Brown slightly sandy clay with shell fragments, becoming darker in last 25 cm.
 - 200-230 cm C. Brown-green clay-mud with shell fragments.
 - F 230-275 cm C. Grey-brown clay-mud with shell fragments.
 - 275-280 cm C. Transition.
 - 280-300 cm C. Grey sand.
 - G 300-360 cm C. Grey sand with chalk pebbles and flints mixed with grey clay containing chalk pebbles and flints in the last 30 cm.
- 59. Height 23.97 m. G.R. 767661. Borehole.
 - A1 0-125 cm NC. Soil, the brown fine sand with flints, becoming coarser at base and clayey in last 10 cm.
 - E-F 125-180 cm C. Mottled grey-red slightly sandy clay-mud with shell fragments.
 - G 180-200 cm C. Mottled grey-red sandy clay with chalk pebbles and flints.

347

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Height 25.84 m. G.R. 766671. Borehole.
 61.
             0-50~\mathrm{cm}
                         Made.
            50-100 cm NC. Mottled grey-red sandy clay.
           100-125 cm Transition.
           125-150 cm C. Mottled grey-red slightly sandy clay-mud.
   \mathbf{E}
           150-230 cm C. Similar, but more crumbly.
           230-300 cm C. Brown clay-mud.
           300-330 cm C. Transition.
          330-600 cm C. Brown-green clay-mud, becoming darker at base, with shells.
     F
           600-625 cm C. Grey clay-mud with shells.
     G
           625-650 cm C. Grey sandy clay with chalk pebbles and flints.
77. Height 23.97 m. G.R. 735689. Borehole.
             0 - 90 \text{ cm}
                        NC. Soil, then brown fine sand.
            90-150 cm NC. Brown coarser sand.
          150-225 cm NC. Yellow coarse sand with flints.
                        Boring stopped by stones.
79. Height 23·01 m. G.R. 732695. Borehole.
            0-75 cm
                        NC. Dark brown sandy and clayey coarse detritus mud, with roots, twigs and
                          flints (recent river mud).
     Η
           75-125 cm NC. Similar, but yellower.
                        Boring stopped by sandy gravel.
    Height 32.89 m. G.R. 743666. Borehole and section.
            0-80~\mathrm{cm}
                        NC. Brown and grey gravelly sand, clayey in places, with flints up to 7 cm across.
           80–180 cm
                        NC. Grey-brown sandy clay with a few small flints, becoming sandier below.
          180-190 cm
                        Transition with chalk pebbles.
     \mathbf{C}
          190-380 \text{ cm}
                        C. Dark grey sandy brecciated clay-mud with wood.
     \mathbf{E}
          380-415 \text{ cm}
                        C. Brown-green clay-mud.
    Height 30.95 m. G.R. 751671. Borehole and section.
            0-175 cm. NC. Made at top, then red sand and mottled red-grey clay with a few small flints.
          175–190 cm NC. Mottled grey-blue clay.
          190-195 \text{ cm}
                       NC. Mottled purplish clay.
                       NC. Mottled blue-grey clay with race.
         195–205 cm
    \mathbf{E}
                        C. Mottled blue-red clay-mud with shells.
         205-240 \text{ cm}
                        C. Transition.
         240-290 \text{ cm}
         290-320 \; \text{cm}
                        C. Brown-green clay-mud.
    F
         320–345 cm
                       C. Grey clay-mud.
    \mathbf{G}
         345 - 350 \text{ cm}
                       C. Grey clay with chalk pebbles.
100. Height 33·44 m. G.R. 742669. Section. This section is on the west wall of the excavation made in
                          1953. Figure 33, plate 4, is a photograph of the section.
    A1
            0-50~\mathrm{cm}
                       NC. Soil, then brown fine sand with a few small angular flints.
          50-120 cm NC. Reddish sandy unsorted hoggin, with rounded and angular stones up to
   A 2
                         20 cm across.
         120–210 cm
                       NC. Reddish sand mixed with grey clay, with stones up to 20 cm across.
                       NC. Transition to blue-grey clay, with stones forced into the clay.
         220-267 cm
                       NC. Mottled brown-grey sandy clay, brecciated in places, and with sandy
    \mathbf{C}
                         laminations.
         .267-270 cm NC. Grey purplish sandy clay with peaty laminations.
        (270-280 \text{ cm})
                       NC. Grey clay.
                       C. Mottled red-grey clay-mud with shells; artifacts and broken bones at 300 cm.
        280-350 \text{ cm}
   E
         350-410 cm
                       C. Transition to next through weathered polygonal nodules.
        410–440 cm C. Brown-green clay-mud.
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QUATERNARY DEPOSITS AT HOXNE, SUFFOLK

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440-460 cm C. Grey clay-mud with shells.
    F
                       C. Light grey marl with shells.
         460–469 cm
         .469–470 cm
                       NC. Brown sandy laminated drift mud with wood fragments.
         470-480 cm
                       C. Grey-blue sandy clay with chalk pebbles and flints.
101. Height 37·10 m. G.R. 740653. Borehole and section.
    A1
            0 - 20
                       NC. Soil, then grey fine sand with a few small flints.
                       NC. Red-brown coarse sand with many rounded and angular stones up to 15 cm
    A2
           20-90 \text{ cm}
           90-290 cm NC. Red-brown sand with a few stones.
         290-300 \text{ cm}
                       NC. Red-grey sand with red streaks.
          300-430 cm
                       NC. Red-brown sand becoming more clayey at base, with laminated sandy grey
                          clay from 330 to 350 cm.
    B?
          430–450 cm
                       NC. Red-brown clayey sand with a few flints at base.
         450-510 \text{ cm}
                       NC. Grey-brown sandy clay.
         510-520~{
m cm}
                       C. Grey-brown sandy clay with chalk pebbles.
    \mathbf{C}
          520-580 \text{ cm}
                       C. Brecciated clay-mud, becoming more organic at base.
    D
          580-590 \text{ cm}
                       NC. Brown medium fine detritus mud.
          590-625~\mathrm{cm}
                       C. Brown-green clay-mud.
105. Height 32.62 m. G.R. 744662. Section.
    A2
                       NC. Brown-grey sandy clay.
           70-200 cm NC. Roughly stratified grey sand and red sandy clay.
         200-220 cm C. Similar, but with chalk pebbles.
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Appendix 2. Glacial erratics from the upper glacial bed at Hoxne

By D. F. W. BADEN-POWELL

Department of Geology and Mineralogy, University of Oxford

The erratics collected by Dr R. West from the glacial gravel which overlies the interglacial beds at Hoxne have been sent to me for examination, and are identified as shown in the following list. Earlier finds of erratics by Mr R. Moir and by me are included in the list, so that the record may be complete to date. The help of Dr J. V. Harrison and Dr W. S. Kerrow in identifying some of these rocks is gratefully acknowledged.

Cretaceous

Black flint (from the local Chalk). Glauconitic sandstone (? from Greensand). Brown chert (? from Greensand of Thames basin).

Trias

Bunter quartzites.

Carboniferous

Red sandstone (? Upper Carboniferous of north England). Felspathic grits (probably Millstone Grit). White sandstone (? Carboniferous of Northern Britain). Fossiliferous Carboniferous sandstone with *Camarophoria*.

Unknown age

Micaceous felspathic sandstone with ferruginous patches. Grey sandstone full of tourmaline grains. 349