

## The Quaternary Deposits of the Mendip, Bath and Bristol Areas; including a reprinting of Donovan's 1954 and 1964 Bibliographies

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This paper summarises what is known of the Quaternary deposits in the Mendip, Bath and Bristol areas. As the literature covering the area is very extensive and Donovan (1954 and 1964) has published a bibliography of Quaternary literature on the area, it is not necessary in this paper to repeat the references referred to in Donovan; attention will be drawn however, to the appropriate heading in Donovan's Site Index. In the 1954 paper Donovan gave references 1-178 while the 1964 paper included references 179-284; with each reference Donovan provided a brief note. Because Donovan's Bibliographies (1954, 1964) are now out of print, these are reproduced here so that all the main Quaternary references are available in one paper. References later than 1964 are given in full. This list includes the principal papers; through lack of space, however, it is not possible to include reference to all the literature that mentions the Quaternary of the area, even in the briefest manner.

There was no abrupt climatic change to mark the transition from the Devensian to the Flandrian (Holocene); at a minimum the climatic amelioration would have taken several hundred years. Internationally however, it has been agreed to make the boundary at 10,000 BP (Mitchell *et al.* 1973). In this paper the Quaternary stages as given in Mitchell *et al.* (1973) have been followed (Table I), although the evidence available now suggests that the Wolstonian and Anglian were parts of the same glaciation (Bristowe and Cox, 1973).

In this paper all radiocarbon dates are given as BP—Before Present (1950). Laboratories submit their dates in a standard form of radiocarbon years b.c. in order to distinguish them from calendrical years B.C. The dates given here are based on a half life of 5568 years. No correction has been made for the revised half life of 5730 years, nor has any adjustment been made for the known discrepancy between the radiocarbon years and the dates obtained by dendrochronology. Most of the dates in this paper are beyond the range of dendrochronology. To obtain the radiocarbon years b.c. deduct 1950 from the BP date.

Table II summarises the important Quaternary sites and deposits in the Mendip, Bath and Bristol areas, and attempts to place them in their

appropriate Quaternary stage. The Location of those sites which have a limited special spatial extent are shown in Fig. 53; where the site is mentioned more than once in Table II it is only indicated by the first number. It is realised, however, that many of the deposits and occupations occurred simultaneously or overlapped in the time sequence; hence the numbering is for convenience and it should not be assumed that the number of any site or deposit automatically means it is younger or older than another site or deposit with a higher or lower number.

#### Acknowledgements

The authors wish to thank Messrs. A. M. ApSimon, T. C. Atkinson, R. S. Harmon, P. L. Smart and G. W. Green for allowing them to include unpublished information and to Messrs. D. D. Gilbertson, C. A. Kellaway and R. J. G. Savage for commenting on Table II. Jean Bees prepared figure 53 and Table I.

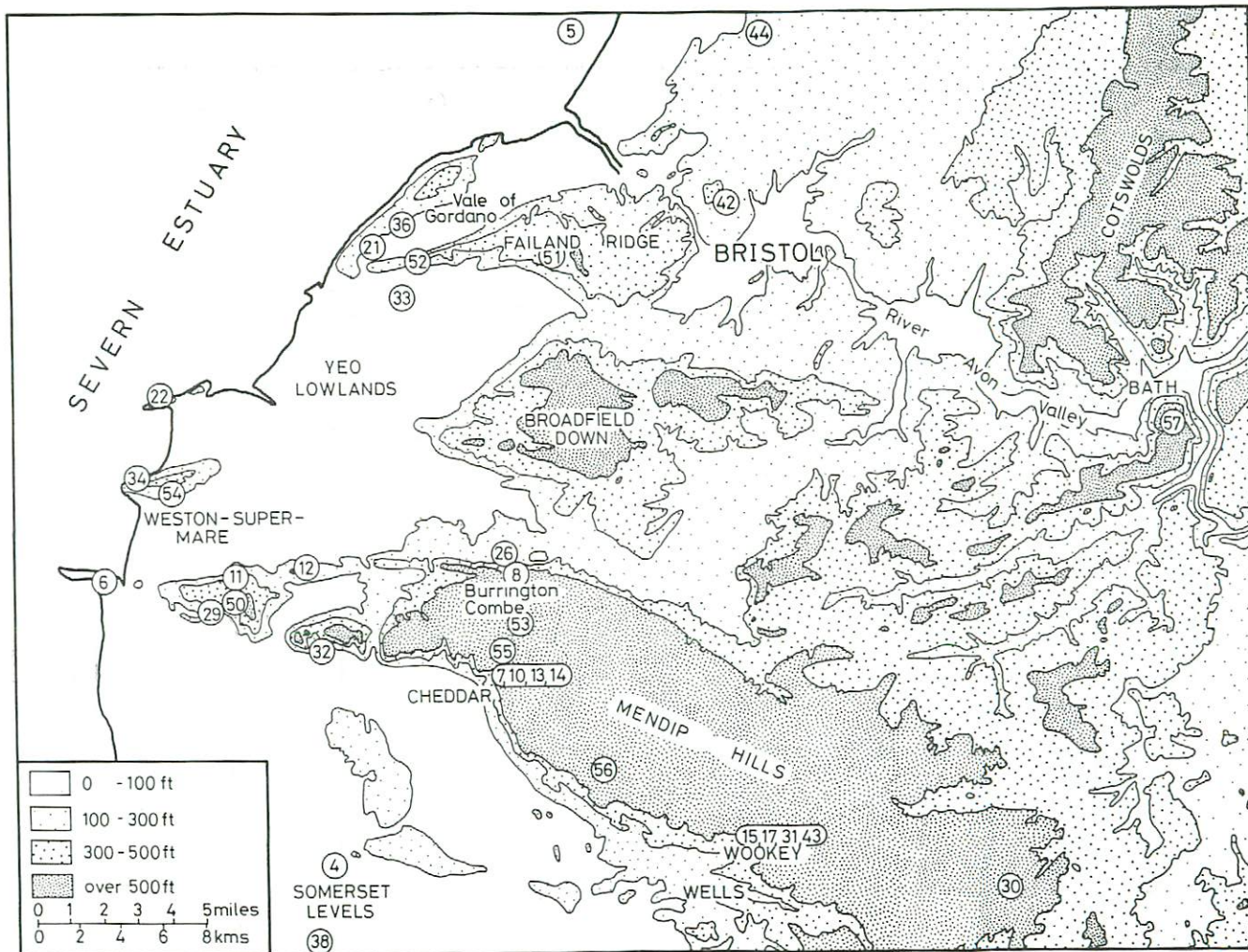


Fig. 53. Area Map to show the location of the main sites. Numbers relate only to their first mention in Table II.  
Based on Ordnance Survey, Crown Copyright reserved.



Table I

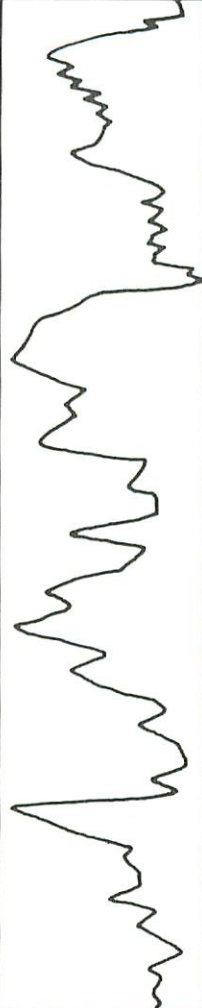
BRITISH TERMINOLOGY	Oxygen Isotope curve		N.W. EUROPEAN TERMINOLOGY
	COLD	WARM	
Flandrian			Holocene
Devensian			Weichselian
Ipswichian			Eemian
Wolstonian			Saalian
Hoxnian			Holsteinian
Anglian			Elsterian
Cromerian			Uncertain sequence
Beestonian			

Fig. 54. Relevant British and N.W. European Quaternary Terminology. The Oxygen Isotope curve is taken from Shackleton and Opdyke, 1973. *Quaternary Res.* 3, 39-55.



QUATERNARY  
DIVISION  
FLANDRIAN  
(HOLOCENE)

UNIT	SITE	AUTHORS	NOTES
1	Sea level Depth/ Age Curve— Severn Estuary	Godwin (1943) Cunliffe (1966) Hawkins (1971a) Hawkins (1971b)	Indicates a smooth curve from period that the sea entered the Somerset Levels area about 8250 BP. Hawkins (1971b) shows there is no evidence to support the Romano-British Transgression proposed by Godwin (1943), see also Cunliffe (1966) who discusses the influence of this "transgression" on the Roman habitation of the Somerset Levels.
2	Late Flandrian Estuarine Alluvium	Murray & Hawkins (1976)	Contains results of microfauna studies in the estuarine alluvium. Discusses the difficulty of correlation between areas, and even boreholes on same site. Analysis of vertical closely-spaced samples overlying dated peat horizons give further evidence that the Romano-British Transgression, as proposed by Godwin (1943), did not take place.
3	Stolford Submerged Forest (ST 2246)	Horner (1816) Callow & Hassall (1968) Buckley & Willis (1969) Kidson & Heyworth (1973)	Contains stratigraphic sections, pollen diagrams and sea level curve for Bridgwater Bay.
4	Raised Bog Peats — Neolithic Trackways Shapwick Heath (ST 4240) Tealham Moor (ST 3945)	Godwin (1943, 1948, 1955, 1956, 1960) Coles <i>et al.</i> (1975, 1976)	Inland low-level peat accumulations. Neolithic and later trackways are preserved in peat. "Taken as a whole the radiocarbon dates are remarkably consistent and show that prehistoric man was active in the levels from 5150 BP for about three millenium" (Coles <i>et al.</i> 1975, p. 54).
5	Severn Beach Submerged Forest (ST 518 834)	Hawkins (1971b)	Tree stumps at —5.5 m OD dated 7030±140 BP (I-4903). Only visible at low water spring tides. Publication expected 1978. (Dangerous site to visit for persons not familiar with the tides in this part of the estuary).
6	Brean Down (Sand Cliff Site) Layers 1-8B (ST 295 588)	See Donovan; Brean Down. ApSimon <i>et al.</i> (1961, Table p. 102); (D-189)	Series of layers, mainly silty sands, from present day until Layer 8B. Contains variety of archaeological remains Layer 8B suggested as Pre-Boreal. No Bone. (ApSimon <i>in lit</i> 1977 places 8B in Late Devensian).

QUATERNARY DIVISION	UNIT	SITE	AUTHORS	NOTES
FLANDRIAN (HOLOCENE) <i>cont.</i>	7	Gough's Cave — Cheddar Man Burial (ST 4670 5391)	See Donovan; Cheddar, Gough's Cave Campbell (1970, p. 11) Tratman (1975)	Cheddar man, bone radiocarbon dated $9080 \pm 150$ BP (BM-525) (Campbell 1970). Post dates Late Upper Palaeolithic occupation in cave (Tratman 1975): See also 9.
	8	Aveline's Hole (ST 4761 5867)	See Donovan; Burrington, Aveline's Hole. Savage (1969) Oakley <i>et al.</i> (1971) Tratman (1977)	Tratman, publication expected 1978, will suggest main living phase Creswellian (Late Upper Palaeolithic). Later used for multiple burials, which stalagmite variably covered, partially or completely, (Mesolithic). Two faunas (Savage 1969). Three radiocarbon dates. Two on human bones partially coated with stalagmite: (1) $9144 \pm 110$ BP (BM-471), (Oakley <i>et al.</i> 1971); (2) $9090 \pm 95$ BP (Q-1485) (Tratman 1977) and on stalagmite from inside human skull (Mesolithic level), $8100 \pm 50$ BP (GrN-5393) Oakley <i>et al.</i> 1971).
DEVENSIAN	9	Gough's Cave (Upper Palaeolithic Occupation) (ST 4670 5391)	See Donovan; Cheddar, Gough's Cave. Hawkes <i>et al.</i> (1970) Campbell (1970, p. 11) Tratman (1975, 1976, 1977)	Parry (1929 & 1931) covers specialist reports. Animal bones of these excavations were treated with preservative hence as yet no radiocarbon dating. Reindeer antler of 1957 and marked layer 8, which post-dates main occupation, has a provisional radiocarbon date of 9950 BP (Jacobi <i>in lit.</i> ). Flint industry Creswellian (Late Upper Palaeolithic). Extensive bone industry includes so-called batons and carved bone. See also 7.
	10	Soldiers' Hole, Cheddar Upper Levels (ST 4687 5400)	See Donovan; Cheddar, Soldiers' Hole. Campbell (1970)	Bones treated with preservative. No radiocarbon dating possible. Flint industry Creswellian. See also 16.
	11	Hutton Bone Caves (ST 3610 5814)	See Donovan; Hutton Cave. Richards (1972) Shaw (1972)	There are two bone caves close together. Discovered by miners c. 1756. From one of them came flints (Davies 1926), indicating Upper Palaeolithic occupation. Main Hutton fauna (Sanford 1869) equates with cold climate. See also 41.

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| 12 | Banwell Bone Cave<br>(ST 3822 5881)                         | See Donovan;<br>Banwell Bone Cave  | Upper of two connected caves. Large bone accumulation, suggests natural pitfall. Records with Beard's collection in Taunton Museum do not carefully distinguish original location of finds. Davies (1926) has recorded implements of late Upper Palaeolithic type, suggesting man occupied the cave much later than main bone deposit. See also 48. |
| 13 | Sun Hole, Cheddar<br>Creswellian Horizon<br>(ST 4673 5408)  | See Donovan; Cheddar<br>Sun Hole.<br>Tratman (1955, 1964)<br>Campbell (1970) | Creswellian Horizon is 1.5-2m below the top of the Pleistocene succession. Add <i>Crocota crocuta</i> to faunal list in Tratman (1964). Bone from Creswellian horizon 12,378±150 BP (BM-524) (Campbell 1970).   |
| 14 | Flint Jack's Cave<br>(ST 4632 5381)                         | See Donovan; Cheddar,<br>Flint Jack's Cave.                                  | Creswellian flint implements (Late Upper Palaeolithic). Human skulls not necessarily contemporary with main deposit and flints.   |
| 15 | Badger Hole<br>(Wookey Hole)<br>(ST 5324 4795)              | See Donovan; Wookey<br>Hole, Badger Hole.<br>Campbell (1970)                 | Early Upper Palaeolithic (Proto-Solutrean). Bulked bone >18,000 BP (BM-479). (Campbell 1970).   |
| 16 | Soldiers' Hole, Cheddar<br>(Lower Levels)<br>(ST 4687 5400) | See Donovan; Cheddar,<br>Soldiers' Hole.<br>Campbell (1970)                  | Early Upper Palaeolithic (Proto-Solutrean). No radiocarbon date — see also 10.  |
| 17 | Hyaena Den (Wookey<br>Hole) Upper Levels<br>(ST 5322 4795)  | See Donovan; Wookey<br>Hole, Hyaena Den.<br>Tratman <i>et al.</i> (1971)     | There are two unifacial leaf points of Early Upper Palaeolithic type and several blades in Wells Museum, perhaps belonging to the same period. Stratigraphy uncertain. See also 27.   |



QUATERNARY DIVISION	UNIT	SITE	AUTHORS	NOTES
DEVENSIAN <i>cont.</i>	18	Uphill Caves (ST 315 585)	See Donovan; Uphill Caves. Harrison (1977)	There were 13 caves in Uphill Quarry, Weston-super-Mare. Nos. 7 & 8 (in Harrison 1977) produced bones and teeth of Pleistocene animals. The caves were close together and perhaps connected. Reynolds (in Wilson and Reynolds 1901, D-173) combined the faunas into a single list. This fauna is essentially a cold climate one. <i>Crocota crocuta</i> , <i>F. leo spelaea</i> , <i>Coelodonta antiquitatis</i> , <i>Mammuthus primigenius</i> , <i>Ursus</i> sp., <i>Equus</i> sp., <i>Lemmus lemmus</i> and <i>R. tarandus</i> . In addition there were <i>Bison priscus</i> (Wisent), <i>Megaloceros</i> , <i>Vulpes vulpes</i> and perhaps <i>C. elaphus</i> , indicating more temperate conditions with forest. All remains in 8 came from a bed of red cave earth 2m thick, which also produced stone tools. These fall into two groups:— Early Upper Palaeolithic and Middle Palaeolithic (Mousterian). See also 28.
	19	Aeolian Soils	See Donovan; Clevedon. Vink (1949) Findlay (1965) Gilbertson & Hawkins (1974) Gilbertson & Hawkins (1977a)	Now considered to be coversands, which veneer most of the pre-Flandrian deposits in the coastal zone. Near rock slopes these may occur within or interbedded with breccia (as at Holly Lane).
	20	Brean Down (Sand Cliff Site). (Layers 8B—13) (ST 295 588)	See Donovan; Brean Down. ApSimon <i>et al.</i> (1961; D-189)	Layers 8B—13 supposed Late Devensian. Layers 11A—12C Allerod 11A contains mammalian bones, some humanly Worked. Bone submitted for radiocarbon dating contained no collagen. Underlying rock platform at 0 m OD probably of terminal Ipswichian age. (ApSimon <i>pers. com.</i> 1976). See also 6.
	21	Head at Holly Lane (ST 417 726)	See Donovan; Walton Bone Cave. Kennard & Woodward (1934) Gilbertson & Hawkins (1974)	No palaeontological dating evidence from present exposure, but rich fauna from nearby cave deposit (Davies 1907, Palmer & Hinton 1929, Kennard & Woodward 1934). See also 45.

- 22 Head over Swallow Cliff  
5 m Beach  
(ST 325 661) See Donovan; Woodspring,  
Gilbertson & Hawkins (1977b) Sub-angular and angular head overlies the impressive shell  
rich beach. See also 35.
- 23 Buried Channel of  
Bristol Avon Hawkins (1962) Records buried valley 5.5 m deep (15 m OD) at Bathampton,  
10 m deep (10 m OD) at Bath, 10 m deep (1 m OD) at Keyn-  
sham, 20 m deep (-12 m OD) at Bristol and 25 m deep  
(-17 m OD) at Avonmouth. It is possible that the boreholes,  
providing the data, may not have penetrated the deepest parts  
of the buried valleys. 1:10560 Geological Map (ST 57 NW) and  
Hawkins (1962) record incorrect level of the base of buried  
valley at Avonmouth.
- 24 Doniford Deposits  
(ST 0843) Wedlake & Wedlake (1963)  
Gilbertson & Mottershead  
(1975) Gilbertson and Mottershead suggest that the Lower Palaeo-  
lithic implements from gravels were derived. The gravels  
are highly cryoturbated. Periglacial solifluction and fluvial  
deposits.
- 25 Avon 3 m (10ft.) Terrace  
(Keynsham to  
Bathampton) See Donovan; Bath,  
Bristol, Keynsham,  
Portbury.  
Hawkins (1968) Terrace above riverine alluvium upstream from Keynsham;  
downstream it drops beneath alluvium. On the Bristol Special  
Geological Map it is indicated as No. 1 Terrace in the  
Keynsham area. At Sheepway the same map incorrectly  
indicates gravelly material up to 7 m above alluvial level  
as the No. 1 Terrace (Hawkins 1968). Hawkins, publication  
expected 1978, will record new exposures. See also 46, 49.
- 26 Mendip Fan Gravels Findlay (1965) A gravelly head of sandstone and limestone clasts occurs  
extensively as gently sloping fans and sheets extending  
from coombs and gorges. In some areas cryoturbated and  
frost wedged.
- 27 Hyaena Den (Wookey  
Hole) Basal layers  
(ST 5322 4795) See Donovan; Wookey  
Hole, Hyaena Den.  
Tratman *et al.* (1971) Tratman *et al.* (1971) summarises previous literature. Middle  
Palaeolithic (Mousterian) stone tools. See also 17.

QUATERNARY DIVISION	UNIT	SITE	AUTHORS	NOTES
	28	Uphill Caves (ST 315 585)	See Donovan; Uphill Caves. Harrison (1977)	The Middle Palaeolithic tools include typical Mousterian forms. The majority made from flint. The remainder are of chert. See also 18.
	29	Bleadon Bone Cave (ST 341 567)	See Donovan; Bleadon Bone Cave	The fauna is essentially temperate to cold, including <i>Mammuthus primigenius</i> and <i>Rangifer tarandus</i> ; but <i>Palaeoloxodon antiquus</i> is also recorded, suggesting an earlier warm fauna (Ipswichian).
	30	Whatley Bone Fissure (ST 730 482)	See Donovan; Whatley	Natural pitfall exposed and destroyed by quarrying. <i>Mammuthus primigenius</i> , <i>Equus</i> sp. and <i>Gulo gulo</i> .
	31	Rhinoceros Hole (Wookey Hole) — Upper Levels (ST 532 479)	Tratman <i>et al.</i>	Excavations completed 1976, publication expected 1978. Contains cold fauna, <i>Mammuthus primigenius</i> and <i>Coelodonta antiquitatis</i> . Crude bone implements. See also 40.
	32	Picken's Hole (ST 3969 5500)	See Donovan; Compton Bishop. Tratman (1964; D-269) Oakley <i>et al.</i> (1971)	Preliminary account and stratigraphy prepared by Tratman and ApSimon (1963). ApSimon, <i>pers. com.</i> (1976) suggests that stone industry in Layer 3 may be Middle Palaeolithic Bone from Layer 3 Radiocarbon dated $34,365 \pm 2600/1950$ BP (BM-65). Layer 4 shows frost shattering. In Layer 5 the bone is chemically weathered; it has been radiocarbon dated 27,000-26,000 BP (BM-655A and 655). These dates probably reflect contamination of collagen carbon content. Further samples contained no collagen. Probable age of Layer 5 and underlying layers is 40,000-70,000 BP, Early Devensian. ApSimon, <i>pers. com.</i> (1976) suggests contemporary with Hengelow Interstadial.
IPSWICHIAN	33	Kenn Freshwater Deposits (ST 427 698)	Hawkins & Kellaway (1971) Gilbertson & Hawkins (1977a)	Deposits within channels cut into estuarine sands and glaciogenic deposits. Mollusca include <i>Corbicula fluminalis</i> and <i>Pisidium amnicum</i> indicating original presence of moving water in the cooling interglacial climate. See also 37, 47.



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| 34 | Birnbeck Cove<br>Abandoned Beach<br>(ST 310 626) | See Donovan;<br>Weston-super-Mare,<br>Birnbeck Cove.  | Now poorly exposed. G. W. Green ( <i>pers com.</i> ) reports base of beach material about 13.5m OD.   |
| 35 | Swallow Cliff 5 m Beach<br>(ST 325 661)          | See Donovan; Woodspring.<br>Callow & Hassall (1969)<br>Gilbertson & Hawkins (1977b)                             | Excellent shell-rich beach with rounded gravel to boulder sized clasts. Shell radiocarbon dates 33,240±760/700 BP (NPL-126A) and 38,990±1690/1390 BP (NPL-126B) (Callow & Hassall (1969) disregarded as dates probably exceed range of reliable dating). Beach overlies layers of angular gravel and sandy silt, indicating cold climate accumulation. See also 22.       |
| 36 | Weston in Gordano<br>(ST 450 794)                | ApSimon & Donovan<br>(1956; D-188)  | Layers 1 & 2, 4 & 5 of their pit description represents marine beach deposits between about 11 m and 14 m OD. Layer 3 suggested as terrestrial horizon. Overlying head, Layer 6, presumed Devensian.  |
| 37 | Kenn Marine Sands<br>(ST 415 689)                | Welch (1956)<br>Hawkins & Kellaway (1971)<br>Gilbertson & Hawkins (1977a)                                       | Marine gravelly sands mantle much of the western side of the glaciogenic deposits. Fauna indicates marine transgression from brackish/freshwater to fully estuarine environment with <i>Vallonia enniensis</i> and <i>Corbicula fluminalis</i> . Shell date of 33,750±1750 BP (I-4850) is considered to exceed the range of reliable radiocarbon dating. See also 33, 47. |
| 38 | Burtle Beds                                      | Billeid & Jackson (1937,<br>1941)<br>Kidson (1970, 1971)<br>Kidson & Haynes (1972)<br>Hawkins & Kellaway (1973) | Collective term for a complex accumulation of sands and gravels, varying in character from locality to locality. The deposit contains temperate and cool climate, saline and freshwater fauna and mammals. These were, in part at least lacustrine and rest on glacial deposits.  |
| 39 | River Cary Terrace,<br>Somerton                  | Gilbertson & Beck (1975)  | Studies of the mollusca indicate interglacial riverine fauna.   |
| 40 | Rhinoceros Hole — Base<br>Levels<br>(ST 532 479) | Tratman <i>et al.</i>   | Contains warm fauna <i>Hippopotamus amphibius</i> , <i>D. hemitoechus</i> and <i>Palaeoloscodon antiquus</i> . Middle Palaeolithic (Mousterian) implement. See also 31.   |

QUATERNARY DIVISION	UNIT	AUTHORS	SITE	NOTES
IPSWICHIAN <i>cont.</i>	41	Hutton Bone Caves (ST 3610 5814)	See Donovan; Hutton Cave. Richards (1972) Shaw (1972)	Davies (1926) reported <i>Hippopotamus amphibius</i> from caves; the specimen destroyed in war damage. If this identification was correct, then beneath the cold fauna (see 11) was a warmer fauna; alternatively the fauna could have come from two separate caves.
	42	Durdham Down Bone Fissure (ST 567 752)	See Donovan; Durdham Down Fissure	Amongst mammals represented were <i>Hippopotamus amphibius</i> , <i>Palaeoloxodon antiquus</i> and <i>Dicerorhinus hemitoechus</i> .
	43	Milton Hill (ST 539 468)	See Donovan; Milton Hill. Balch (1948 p. 143; D-22)	Fauna includes <i>Palaeoloxodon antiquus</i> , <i>Hippopotamus amphibius</i> . Cut, broken and burnt bone indicates presence of <i>Homo</i> sp.
	44	Alveston Bone Fissure (ST 6144 8503)	See Donovan; Almondsbury Bone Fissure. Taylor (1973) Shackley (1973)	Exposed in quarry in Carboniferous Limestone, now back-filled. Fauna of Ipswichian Interglacial including <i>Dama dama</i> , <i>Palaeoloxodon antiquus</i> and <i>Dicerorhinus hemitoechus</i> . Sediments include cold type, tentatively correlated with cold spell Camp Century Greenland Ice cap at 89,000 years. Fill truncated at top by an erosion phase. Followed by deposition of thermoclastic scree, ending with Holocene deposits.
	45	Notch at Holly Lane (ST 417 726)	See Donovan; Walton Bone Cave. Gilbertson & Hawkins (1974)	Marine eroded notch. Probably same age as the marine cave in which a rich fauna was found. See also 21.
WOLSTONIAN AND OLDER	46	Avon 12 m (40ft.) Terrace	See Donovan; Bath, Bristol etc. Hawkins (1968) Roe (1974) Hawkins	Many of deposits upstream from Keynsham (indicated as the No. 2 Terrace on Bristol Special Geological Sheet) are about 12 m above the present alluvium. No confirmation that the deposits mapped as No. 2 Terrace downstream of Bristol are of the same age. Hawkins, publication expected 1978, will record new exposures. See also 25, 49.

- 47 Kenn Glaciogenic Deposits (ST 4169) Hawkins & Kellaway (1971) Hawkins (1972) Gilbertson & Hawkins (1977a) First two references gives brief summary, third reference describes in detail the sequence of outwash gravels, tills etc. See also 33, 37.
- 48 Banwell Bone Cave (ST 3822 5881) See Donovan; Banwell Bone Cave Discrepancies with faunal list important. Balch (1937 and 1948) lists *Equus caballus*, refuted by other authors. Sutcliffe (*in lit* 1975) suggests anomalies in fauna indicates bone cave fauna probably dates to penultimate (Wolstonian) glaciation. See also 12.
- 49 Avon 30 m (100ft.) Terrace See Donovan; Bath, Bristol etc. ApSimon & Boon (1960: D187) Roe (1974) The "terraces" downstream of the Clifton Gorge are really gravel spreads, covering all heights from 35 m to present alluvium. These deposits may be estuarine degraded terraces or remainé glaciogenic deposits. See also 25, 46.
- 50 Bleadon Hill Gravels (ST 350 573) Findlay *et al.* (1972) Gravel and cobble deposits at 82 m OD. Either beach or fluvio-glacial origin.
- 51 Failand Ridge — Relic Glacial Deposits Hawkins & Kellaway (1971) Hawkins (1972) Colborne *et al.* (1974) Deposits recorded from Moat House Farm (ST 491 729) at 122 m OD, Leigh Woods (ST 558 730) at 104 m OD and Providence (ST 535 714) at 140 m OD.
- 52 Court Hill Glaciogenic Deposits Trimmer (1853, D-163) Hawkins & Kellaway (1971) Hawkins (1972) Gilbertson & Hawkins Glaciogenic sediments comprised of fluvio-glacial and till deposits overlain by aeolian silts and sands. Deposits occupy a channel eroded through the Clevedon-Failand Ridge with a base at 50 m OD. Detailed publication (Gilbertson & Hawkins) expected 1978.
- 53 G.B. Cave (ST 4759 5623) Atkinson, Harmon & Smart *In lit* (1976). Dating by Uranium/Thorium Disequilibrium Method has indicated active stalagmite deposition in the cave occurred as early as  $390,000 \pm 70,000$ .
- 54 Minor Quarry, Milton, Weston-super-Mare (ST 3400 6268) See Donovan; Weston-super-Mare, Milton Upper and lower molar teeth of *Dicerorhinus kirchbergensis* recovered from fissure. Teeth in museum, Weston-super-Mare. Quarry backfilled (1976). British records in Hoxnian; in Europe, survived into Eemian (= Ipswichian). No other fauna to provide complimentary dates. Publication expected 1978.



QUATERNARY DIVISION	UNIT	SITE	AUTHORS	NOTES
WOLSTONIAN AND OLDER <i>cont.</i>	55	Batscombe Quarry, Cheddar (ST 462 556)		Deposits first exposed August 1976, are very similar to gravels at Westbury-sub-Mendip.
	56	Westbury-sub-Mendip (ST 507 504)	Heal (1970) Bishop (1974, 1975)	The conclusions of the early contribution are superseded by those of Bishop (1974, 1975). Middle Pleistocene mammals, many species. Crude flint implements = <i>Homo</i> sp.
	57	High Level Drifts, Bathampton Down, Bath (ST 774 650)	See Donovan; Bath plateau gravels etc. Hawkins & Kellaway (1971) Kellaway <i>et al.</i> (1971) Hawkins	Unconsolidated gravels, generally with a silty clay matrix, found in hollows, gulls etc., in Great Oolite Limestone. Hawkins, publication expected 1978, will record new exposures.

Proc. Univ. Bristol Spelaeol. Soc., 1954, 7 (1).

## A Bibliography of the Palæolithic and Pleistocene Sites of the Mendip, Bath and Bristol Area

BY DESMOND T. DONOVAN, Ph.D., F.G.S.

This bibliography includes references to sites in the Mendip Hills, from Frome, in the east, to Weston-super-Mare, in the west, and the country northwards to and including the city and county of Bristol, the Avon valley between Bristol and Bath, and the city of Bath. The western boundary is the Bristol Channel, the eastern the outcrop of the Oolites of the Middle Jurassic. One or two sites outside these limits, which have affinity with those within, are also included.

Every effort has been made to make the bibliography complete, but a few minor references, especially newspaper articles, may have escaped me. Casual mentions of sites in text-books and general works are not included. Geomorphological papers are, in general, omitted. Physical descriptions of caves, except where Pleistocene contents are mentioned, are excluded, and I have had to omit reference to the Rev. W. D. Conybeare's observation on the discovery of Cox's Cave at Cheddar, that "it is really the only graceful cave fit for ladies to visit which we have" (quoted by Jamieson, *Geol. Mag.*, Vol. 1, p. 157). Successive editions of books are not usually treated as separate items except when relevant new matter was added to later editions.

*Explanation of Conventions Used.*—Dates within square brackets are not stated explicitly in the publications concerned, and have been supplied from indirect evidence. Titles within square brackets are supplied for untitled references. The compiler's annotations in parentheses follow the reference. Abbreviations of titles of periodicals should be self-explanatory except for the following :

*M.N.R.C.*—Mendip Nature Research Committee of the Wells Natural History and Archæological Society.

*P. Bath F.C.*—Proceedings of the Bath Natural History and Antiquarian Field Club.

*P.B.N.S.*—Proceedings of the Bristol Naturalists' Society.

*P.S.A.S.*—Proceedings of the Somerset Archæological and Natural History Society.

*Q.J.G.S.*—Quarterly Journal of the Geological Society of London.

*Rep. Wells Soc.*—Reports of the Wells Natural History and Archæological Society.

*U.B.S.S.*—University of Bristol Spelæological Society.

The references are arranged alphabetically and numbered consecutively. In order to preserve the sequence a few items which were inserted after the site index had been commenced have been allotted the numbers of the preceding items with suffixes "A", "B", etc. The letters have no other significance.

## BIBLIOGRAPHY

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- 123A. PARRY, R. F., 1928, "Recent Excavations at the Cheddar Caves," *Rep. Wells Soc. for 1928*, 32-6. (Gough's Cave. Includes details not in later reports, items 124, 125.)
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Proc. Univ. Bristol Spelaeol. Soc. 1964, 10 (2).

## A Bibliography of the Palæolithic and Pleistocene Sites of the Mendip, Bath and Bristol Area First Supplement

By

DESMOND T. DONOVAN

The present contribution is a continuation of the bibliography compiled by the writer and published in these *Proceedings* in 1954. About 45 of the 106 additional items are references, mostly very minor ones, which were omitted from the 1954 bibliography and have come to my notice since. The remaining 61 are new and mark a welcome renewal of interest in the Pleistocene of our area. Among the landmarks are the publication of new maps of the area by both the Geological Survey (item 221) and the Soil Survey (items 200, 201). In addition to papers by local workers, many of them members of our Society, there are a number by experts from elsewhere, notably the first reports of a timely re-examination of some of our late Palæolithic sites by Dr. McBurney of Cambridge (items 240, 241). New sites for excavation, although not as easy to come by as formerly, are happily still forthcoming, and a full report on Picken's Hole (item 269) will be eagerly awaited.

The scope of the bibliography and the area which it covers are the same as for its predecessor of 1954. The items are numbered consecutively with those of the 1954 list, and a new site index is included, incorporating the one previously published and also the new references.

Abbreviations of titles of periodicals are generally according to the *World List of Scientific Periodicals* except for the following:

*P. Bath F.C.*—Proceedings of the Bath Natural History and Antiquarian Field Club.

*P.B.N.S.*—Proceedings of the Bristol Naturalists' Society.

*P.S.A.S.*—Proceedings of the Somersetshire Archæological and Natural History Society.

*Q. J. G. S.*—Quarterly Journal of the Geological Society of London.

*Proc.*—U.B.S.S.—Proceedings of the University of Bristol Spelæological Society.

Annotations in parentheses after a reference are by the compiler.

I am grateful to our President for supplying me with details of a number of papers which were inaccessible to me.

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## SITE INDEX

The numbers following the names of the sites refer to the items in the Bibliography. With a few exceptions only sources of original information about each site are listed, including monographs in which material from the site is described or identified.

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## NOTES

1. *Blagdon Bone Fissure*. Item 5A is the only source of information on this site. The locality is lost, and Professor E. K. Tratman informs me that he has made an extensive search for it, without result.
2. *Foxes' Hole, Burrington Combe*. Earlier records of this cave, starting with item 60 (1865), refer to it as "Plumley's Den." More recently that name has become associated with a natural shaft, now closed, lower down the Combe, where one Plumley was killed; according to Knight (item 104B, p. 252) this happened in January, 1874. The name "Foxes' Hole," used by the Society (item 41) and by Balch (items 19, 22) is adopted here for the original "Plumley's Den." The shaft now known by the latter name has not yielded any archaeological remains.
3. *Hinton*. A fauna from "Hinton, Somerset," said to be from a river deposit and to be preserved in the Museum of the Royal College of Surgeons, is mentioned in item 65. This may be Hinton Charterhouse, south of Bath; I know of no other reference to the find, nor any other Hinton in Somerset.
4. *Uphill Caves*. A number of caves or fissures, bearing Pleistocene or post-Pleistocene remains, have been found from time to time at Uphill. There seem to be at least three occurrences: the original cave which yielded Pleistocene remains to the Rev. David Williams and William Beard, and of which a section was given by Rutter (item 140, p. 78); an occurrence of post-Pleistocene bones investigated by James Parker (*see* item 63, p. xii), which appears to be the cave whose discovery was reported in 1863 by Pooley (item 128); and the two fissures discovered during quarrying in 1898 (*see* items 172, 173), which yielded Pleistocene bones. A historical account is given in item 173.

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