Headon Hill, Isle of Wight

[SZ 305 856]–[SZ 319 865]

Introduction

The locality of Headon Hill displays a section of sediments spanning all of Late Eocene (Priabonian) time (Figure 3.13) and (Figure 3.14). The mammal fossils preserved at Headon Hill are distributed through several fades, each characterized by a different fossil assemblage. Six major faunas have been identified, two from the Totland Bay Member and one each from the Linstone Chine Member, the Hatherwood Limestone Member, the Lacey's Farm Limestone Member and the Bembridge Limestone Formation. These six horizons are included in the GCR locality. Some of them (e.g. that from the Bembridge Limestone Formation) are composed of several closely spaced horizons (Hooker *et al.*, 1995), and in addition there are minor intermediate horizons recorded (Cray, 1973; Hooker, 1987). That from the Lacey's Farm Limestone Member is represented better faunally in the Lacey's Farm Quarry GCR site, but there the stratigraphical relationships are less clear than at Headon Hill.

Headon Hill has been studied extensively, initially during the 19th century, with the first report of mammal specimens from the site in a stratigraphical account by Prestwich (1846) and a description of one of the artiodactyls by Owen (1857a).Further new records from the Bembridge Limestone Formation were announced by Lydekker (1884a) and Stehlin (1910), but without mention of the locality; the specimens concerned, however, are almost all from Headon Hill. Franzen (1968) listed the species of *Palaeotherium* from the site. New taxa were described from Headon Hill by Cray (1973), Bosma (1974), Gingerich (1977), Sig *et al.* (1977), Bosma and de Bruijn (1979, 1982), Hooker (1991a), and Hooker and Thomas (2001) and the mammalian faunas were reviewed by Hooker (1992) and Hooker *et al.* (1995). The stratigraphy and history were reviewed by White (1921), and further sedimentological and stratigraphical work has been completed more recently, for example by Edwards (1966), Daley and Edwards (1974), Bosma (1974), Daley and Insole (1984), Insole and Daley (1985), Insole *et al.* (1998) and Daley (1999b).

Description

At Headon Hill Late Eocene sediments are exposed in the cliff, although vegetation and landslips obscure parts of the succession (Figure 3.14). The sequence is the most complete representation of the Headon Hill Formation, and it has been designated as the stratotype of that unit (Insole and Daley, 1985).

The following simplified sedimentary log (Table 3.3) is based on a composite of the exposure seen in the south-western and north-eastern corners of Headon Hill and is simplified from Cray (1973) and Insole and Daley (1985), for the Headon Hill Formation, and Hooker *et al.* (1995), for the Bembridge Limestone Formation.

The exact provenance of most of the older Headon Hill specimens is not recorded in detail. Cray (1973, pp. 19–27) analysed existing records, and he himself discovered some relatively productive horizons.

1. Tolland Bay Member, green clay at base of section, 2.1 m above the Becton Sand Formation (Headon Hill Sands'): a fragmentary lower jaw of *Dichodon cuspidatus* (Wright, 1852; Owen, 1857a). Bosma (1974) described six species of rodents from the green silty clay with shell fragments that occurs approximately 2.5 m above the base of the Tolland Bay Member, her locality HI-11. Two of these were named as new species by Hooker (1991a) and a seventh species was added by Bosma and de Bruijn (1979). The fauna totals 18 species and belongs to the *stehlini–depereti* Zone (Hooker, 1987) and Mammal Paleogene Reference Level MP17A (Legendre and Hartenberger, 1992).
2. Tolland Bay Member, green marl immediately below the How Ledge Limestone: a partial skeleton, as yet undescribed (Cray, 1973). Bosma (1974), Bosma and de Bruijn (1979, 1982) and Hooker (1991a) described 11 species of rodents from grey-green marls below the How Ledge Limestone, from Bosma's locality HH2. The fauna totals 29 species and belongs to the *vectisensis–nanus* Zone (Hooker, 1987) and Mammal Paleogene Reference Level MP17B (Legendre and Hartenberger, 1992).

3. Linstone Chine Member, *Microchoerus* Bed, a small lenticular horizon of buff clay-rich sand containing wood debris at the base of the unit, some 100 m in lateral extent and located at the south-west corner of Headon Hill: 16 species, generally small in size (Hooker, 1987), site found in 1962 (Cray, 1973).
4. Hatherwood Limestone Member, Lignite Bed, a 0.4–0.7 m thick unit of carbonaceous clay and lignitic shell marl, filling an eroded surface, located about a third of the way up the vertical cliff formed by the limestone on the south-west seaward face of Headon Hill: 33 species, the most extensive fauna from the Headon Hill Formation, found since 1961 (earlier isolated finds, including that noted by Prestwich (1846) also probably came from this member). Bosma's (1974, p. 26) localities HH3 and HH4, respectively below and above a 0.5 m lignite bed, produced rodent remains from brown silty marls. A few larger mammals have also been found in the upper limestone unit of the member (Franzen, 1968; Hooker and Thomas, 2001)
5. Lacey's Farm Limestone Member, lower part of the unit, exposed near the top of the cliff [SZ 3065 8595], a succession of grey-green and brown marls with thin shelly sand seams passing up into green marls with calcareous concretions. The marls are transitional upwards into a rubbly arenaceous limestone, the main unit of the member, which is overlain by laminated grey-green clays of the Fishbourne Member. Mammal remains were found at two levels, University of Bristol sites 7103 and 7106, the latter being equivalent to University of Utrecht site HH5. Teeth of the rodent *Isoptychus pseudosiderolithicus* were found (Bosma and Insole, 1972; Bosma, 1974). Subsequent collecting has yielded eight other taxa too (Hooker, 1987; 1992) but preservation is poor.
6. Bembridge Limestone Formation. Bosma and Schmidt-Kittler (1972, p. 182) and Bosma (1974, pp. 26–7) noted fossil mammals from her localities HH6 and HH7 [SZ 317 863], located on the north-eastern slope of Headon Hill, near the top of the cliff. The fossils came from a 1 m-thick unit above the main lower limestone succession of the Bembridge Limestone Formation. The unit is composed of marls and black muds, and it is overlain by a fine pale-yellow sand of probable Quaternary age. The fossils were found in the black muds with shell fragments in the upper part of the unit. Specimens included isolated teeth of the rodent *Ectropomys exiguus* Bosma and Schmidt-Kittler, 1972, a species founded on specimens from Whitecliff Bay (see GCR site report). More extensive collecting, summarized by Hooker *et al.* (1995, 2004), indicated a large fauna of 51 small and large mammals, found both in the main lower limestone unit and in nine separate horizons in the overlying muds and marls. The fauna belongs to the *medium–curtum* Zone (Hooker (1987) and Mammal Paleogene Reference Level MP19 (Schmidt-Kittler, 1987).

(Table 3.3) Simplified sedimentary log for Headon Hill (based on Cray, 1973, Insole and Daley (1985) and personal observations by the present author, J.J.H., for the Headon Hill Formation, and Hooker *et al.* (1995), for the Bembridge Limestone Formation)

	Thickness (m)
Bembridge Limestone Formation	
Marl, grey with intercalated brown to back shelly and non-shelly muds	1.0
Shelly mud, grey, blue or green	1.4
Many limestone and limestone units, white and pale-brown	c. 5.0
Headon Hill Formation	
Osborne Member (part of 'Osborne Beds') Mud, red-green, mottled (partly obscured)	6.8
Fishbourne Member (part of 'Osborne Beds')	
Mud, grey-green, shaly	4.0
Sandstone, brown, with thin pale-green marl at base	0.7
Lacey's Farm Limestone Member (part of 'Osborne Beds')	
Arenaceous limestone, rubbly	3.7
Sandy marl and sand, green; calcareous concretions	0.5
Marl, pale-green	2.5
Cliff End Member (part of 'Osborne Beds' and part of 'Upper Headon Beds') Clays and marls	9.0
Hatherwood Limestone Member (part of 'Upper Headon Beds')	

Limestones	2.8
Lignite (Lignite Bed)	0.7
Limestones	3.5
Linstone Chine Member (part of 'Upper Headon Beds')	
White and grey sands (*Microchoerus* Bed at base)	0–2.0
Colwell Bay Member ('Middle Headon Beds')	
Blue-green clays and sands	2.0
Lymnaea Limestone	0.2
Blue, green and brown sandy clays (*Venus* Bed)	4.4
Sands,clays and lignites (*Neritina* Bed)	3.0
Tolland Bay Member ('Lower Headon Beds')	
Lymnaea limestone (How Ledge Limestone)	2.6
Mans, clays, sands and lignites	3.7
Lymnaea limestone	0.4
Green clays and pale sands	3.0
Lymnaea limestone	1.8
Blue and green clays	1.9
Lymnaea limestone	0.3
Green clays and intercalating very fine-grained sands	3.5

Fauna

The fossil mammals are found in horizons that also contain plant remains, as well as fishes (Dineley and Metcalf, 1999) and reptiles (turtles, crocodiles, lizards, snakes; Benton and Spencer, 1995). The combined faunal list for all six major units is compiled from Cray (1973), Bosma (1974), Hooker (1992) and Hooker *et al.* (1995, 2004). Records from individual units are indicated by the initials of the units in brackets following the taxonomic name: lower Tolland Bay Member (LTB), upper Tolland Bay Member (UTB), Linstone Chine Member (LC), Hatherwood Limestone Member (HL), Lacey's Farm Limestone Member (LF) and Bembridge Limestone Formation (BL).

MAMMALIA

Marsupialia

Herpetotheriidae

Amphiperatherium spp. (LTB, UTB, LC, HL, LF, BL)

Peratherium cuvieri (Fischer, 1829) (UTB, HL, BL)

Peratherium perrierense Crochet, 1979 (BL)

Peratherium lavergnense Crochet, 1980 (BL)

Rodentia

Paramyidae

Plesiarctomys curranti Hooker, 1986 (LTB)

Pseudosciuridae

Sciuroides ehrensteinensis Schmidt-Kittler, 1971 (LTB, UTB)

Treposciurus mutabilis Schmidt-Kittler, 1970 (LTB, UTB, HL, LF)

Treposciurus gardneri Hooker, 1991a (LTB, UTB, HL, BL)

Suevosciurus bosmae Hooker, 1991a (LTB, UTB, LC, HL)

Suevosciurus minimus (Major, 1873) (BL)

Suevosciurus fraasi (Major, 1873) (BL)

Suevosciurus ehingensis Dehm, 1937 (BL)

Tarnomys quercyi vectisensis Bosma, 1974 (UTB)

Tarnomys 'quercyi quercyi' (Schlosser, 1884) (LC, HL, LF)

Tarnomys schmidtkittleri Hooker and Weidmann, 2000 (BL)

Theridomyidae

Isoptychus euzetensis (Depéret, 1917) (UTB)

Isoptychus pseudosiderolithicus de Boris, 1964 (HL, LF)

Isoptychus sp. (LC, BL)

Thalerimys hedonensis (Bosma, 1974) (LTB)

Thalerimys fordi (Bosma and Insole, 1972) (UTB, LC, HL, LF, BL)

Ectropomys exiguus Bosma and Schmidt-Kittler, 1972 (BL)

Gliridae

Glamys priscus (Stehlin and Schaub, 1951) (LTB, UTB, LC, HL, LF)

Glamys devoogdi (Bosma and de Bruijn, 1979) (BL)

Miniglis minor (Bosma and de Bruijn, 1982) (LTB, UTB, HL)

Gliravus daamsi Bosma and de Bruijn, 1982 (LTB, UTB, HL, BL)

Bransatoglis bahloi Bosma and de Bruijn, 1982 (UTB, LC, HL, BL)

Lipotyphla

Talpidae

Eotalpa anglica Sigé, Crochet and Insole, 1977 (LTB, UTB, LC, HL, BL)

Amphilemuridae

Gesneropithex grisollensis (Louis and Sudre, 1975) (LTB, UTB)

Chiroptera

Hipposideridae

Pseudorhinolophus sp. (BL)

Vespertilionidae

Stehlinia gracilis Revilliod, 1919 (BL)

Stehlinia minor (Revilliod, 1922) (BL)

Archonta undiff.

Nyctitheriidae

Saturninia gracilis Stehlin, 1941 (UTB, LC, HL, BL)

Euronyctia grisollensis (Sigé, 1976) (UTB, BL)

Scraeva hatherwoodensis Cray, 1973 (LC, HL)

Cryptotopos woodi (Cray, 1973) (UTB, LC, HL)

Cryptotopos sp. (BL)

Paradoxonycteris tobieni (Sigé, 1976) (BL)

Paradoxonycteris aff. tobieni (Sigé, 1976) (UTB, LC, HL)

Amphidozotherium cayluxi Filhol, 1877 (BL)

Primates

Omomyidae

Microchoerus erinaceus Wood, 1844 (LTB, UTB, LC, HL)

Microchoerus edwardsi (Filhol, 1880) (BL)

Pseudoloris parvulus (Filhol, 1890b) (UTB)

Adapidae

Leptadapis stintoni (Gingerich, 1977) (UTB, HL)

Leptadapis magnus (Filhol, 1874) (LTB, UTB, HL)

Protoadapis ulmensis (Schmidt-Kittler, 1971) (UTB, HL, BL)

Apatotheria

Apatemyidae

Heterohyus nanus Teilhard, 1922 (UTB, LC, HL, BL)

Pantolesta

Pantolestidae

Opsiclaenodon major (Lydekker, 1887) (LTB, UTB)

Dyspterna hopwoodi Cray, 1973 (HL)

Cryptopithecus sp. (BL)

Creodonta

Hyaenodontidae

Hyaenodon brachyrhynchus Blainville, 1841 (I-IL)

Pterodon dasyuroides Blainville, 1839 (BL)

Carnivora

Amphicyonidae

Cynodictis lacustris Gervais, 1852 (BL)

Cynodictis sp. (LC)

Artiodactyla

Cebochoeridae

Acotherulum saturninum Gervais, 1850 (HL)

Acotherulum quercyi (Stehlin, 1908) (BL)

Choeropotamidae

Rhagatherium cf. *valdense* Pictet, 1857 (LTB, BL)

Arvhirhagatherium edwardsi Hooker and Thomas, 2001 (HL)

Amphirhagatherium fronstettense (Kovalevskii, 1874) (BL)

Choeropotamus parisiensis Cuvier, 1821 (BL)

Cainotheriidae

Paroxacron sp. (BL)

Anoplotheriidae

Dacrytherium ovinum (Owen, 1857b) (HL)

Anoplotherium commune? Cuvier, 1804 (BL)

Anoplotherium latipes (Gervais, 1852) (BL)

Anoplotherium laurillardi? Pomel, 1851 (BL)

Diplobune sp. (BL)

Xiphodontidae

Xiphodon gracilis Cuvier, 1822 (BL)

Dichodon cuspidatus Owen, 1848b (LTB, HL)

Dichodon cervinus (Owen, 1841a) (BL)

Dichobunidae

Dichobune leporina Cuvier, 1822 (BL)

Amphimerycidae

Pseudamphimeryx hantonensis Cooper, 1928 (LTB, HL, LE)

Perissodactyla

Palaeotheriidae

Plagiolophus annectens (Owen, 1848b) (UTB, HL, LF, BL)

Plagiolophus minor (Cuvier, 1804) (BL)

Palaeotherium magnum Cuvier, 1804 (BL)

Palaeotherium muehlbergi Stehlin, 1904 (UTB, LC, HL, BL)

Palaeotherium duvali Pomel, 1853 (BL)

Palaeotherium curtum Cuvier, 1812 (HL, BL)

Palaeotherium medium Cuvier, 1804 (BL)

Pachynolophidae

Anchilophus radegondensis radegondensis (Gervais, 1852) (BL)

The mammal faunas from Headon Hill are comparable in the relative abundance of the different mammalian taxa with the fauna of equivalent age from Hordle Cliff, although the material generally is less completely preserved. The pantolestid *Dyspterna hopwoodi* was named from a lower jaw specimen ((Figure 3.15)a,b) and two isolated teeth from the Lignite Bed in the Hatherwood Member (Cray, 1973). It was a medium-sized carnivore that may have been aquatic. The nyctithere *Scraeva hatherwoodensis* is based on a tiny lower jaw from the *Microchoerus* Bed ((Figure 3.15)c,d) and is smaller than the related species *Cryptotopos woodi* from Hordle Cliff (Cray, 1973). The adapid primate *Leptadapis stintoni* also was founded on fragmentary jaws from the Lignite Bed and was identified at first as *Adapis parisiensis* (Cray, 1973) but was named as a new species by Gingerich (1977) and recombined by Hooker (1986). It may alternatively be conspecific with *L. assolicus* (see Godinot, 1984). It was a modest-sized arboreal browsing herbivore. The omomyid primate *Microchoerus erinaceus* is best known from Hordle Cliff but teeth from the Tolland Bay Member, *Microchoerus* Bed and Lignite Bed have been identified to this species (Cray, 1973; Hooker, 1987). The apatemyid *Heterohyus* was not recorded from Headon Hill by Cray (1973; Hooker, 1987), but was listed subsequently by Collinson and Hooker (1987). The creodont *Hyaenodon* also is recorded on the basis of a fragment of a left maxilla (Cray, 1973) from the Lignite Bed.

The rodents from Headon Hill are more diverse than those from Hordle Cliff, and most of the glirid species recorded have their type specimens from the locality. The species *Suevosciurus bosmae* was established by Hooker (1991a) on teeth (Figure 3.15)e from the green clay in the How Ledge Limestone (including Bosma's locality HH2) and from Bosma's (1974) localities HH3 and HH4 (Hatherwood Limestone) that Bosma (1974) had included in *S. palustris.* The perlssodactyls and artiodactyls from Headon Hill are similar to those from Hordle Cliff, but of lower diversity. Five species of *Palaeotherium* have been identified (Collinson and Hooker, 1987), all of them relatively large terrestrial browsing animals. Four of these, *P. curtum, P. medium, P. muehlbergi* and *P. magnum* show microevolutionary changes through the sequence. The stages have been given stratigraphical subspecies names and are important in correlation (Franzen,

1968).

Eleven mammal species and one subspecies have their type specimens from Headon Hill, namely the pantolestid *Dyspterna hopwoodi* Cray, 1973, the mole *Eotalpa anglica* Sigh, Crochet and Insole, 1977 (the oldest recognized from anywhere in the world), the nyctithere *Scraeva hatherwoodensis* Cray, 1973, the adapid primate *Leptadapis stintoni* (Gingerich, 1977), the rodents *Suevosciurus bosmae* Hooker, 1991a, *Thalerimys headonensis* (Bosma, 1974), *Miniglis minor* (Bosma and de Bruijn, 1982), *Gliravus daamsi* Bosma and de Bruijn, 1982, *Glamys devoogdi* (Bosma and de Bruijn, 1979), *Bransatoglis bahloi* Bosma and de Bruijn, 1982, and *Tarnomys quercyi vectisensis* (Bosma, 1974), and the artiodactyl *Amphirhagatherium edwardsi* Hooker and Thomas, 2001.

Interpretation

The sedimentary environments displayed by the succession on Headon Hill are similar to those at Hordle Cliff (see GCR site report). The succession also is dated by the same criteria as used at Hordle Cliff, although only the lower mammal-bearing units within the Tolland Bay Member are directly comparable in age, based on the succession of restricted-range rodents (Bosma, 1974; Hooker, 1987) and to some extent by lithostratigraphical and mapping considerations.

Two mammal assemblages from Headon Hill, those from the How Ledge Limestone green clay (upper Tolland Bay Member) and from the Lignite Bed (Hatherwood Limestone Member), are dominated by small mammals with body weights of less than 1 kg (Hooker, 1992). This bias to small size may be partly the result of selective preservation and of collecting, mainly by sediment sieving, during which larger specimens are rarely encountered. Arboreal mammals make up about 20% of the fauna, the rest being ground-dwellers: roughly the same proportions as at Hordle Cliff. There are more frugivores than at Hordle Cliff, and the How Ledge Limestone green clay has yielded more insectivores.

The depositional environments of the Headon Hill Formation range from coastal flood-plain to low-salinity lagoon and freshwater lakes and marshes, with one interval of more marine conditions (Colwell Bay Member). The mammal types indicate a forest habitat that was slightly more closed than at Hordle Cliff (and less tropical than in the Bartonian Stage of Creechbarrow Hill), but of similar complexity and structure. The Hatherwood Limestone Member fauna might represent a local forest patch, partly because of the limited lateral extent of the unit. The How Ledge Limestone green clay, however, extends apparently unchanged for at least 4 km, and it appears to be directly laterally equivalent to the Hordle Cliff Rodent Bed, some 7 km distant, so this may be a less local assemblage (Hooker, 1992).

The Bembridge Limestone Formation has the most diverse fauna and is interpreted as representing a range of environments from open wooded to dense forest (Hooker, 1994b; Hooker *et al.,* 1995). The oldest assemblage (from the lower limestone) indicates open wooded habitats, and the higher assemblages (from the marls and black mud bands) suggest more-closed wooded conditions.

Comparison with other localities

The Totland Bay Member at Headon Hill shares many taxa with the contemporaneous Hordle Cliff although there are differences, especially in the composition of the rodent faunas. The overall fauna from this member is somewhat smaller than that from Hordle Cliff, although the complete faunal list for the locality is much larger (over 73 species). The Headon Hill Totland Bay Member faunas also can be compared with the same ones attributed to Mammal Paleogene Reference Level MP17 in continental Europe as for Hordle Cliff (see GCR site report).

Higher faunas at Headon Hill have no or insignificant representation at other British localities (except at Lacey's Farm Quarry — see GCR site report). They can, however, be compared with faunas in continental Europe. Thus the Hatherwood Limestone Member fauna has its closest links with the fauna of the classic locality La Debruge in the south of France and other sites attributed to Mammal Paleogene Reference Level MP18.

The Bembridge Limestone Formation fauna has long been recognized to be time-equivalent to the top gypsum level at the famous Montmartre locality near Paris (Stehlin, 1910), where Cuvier first described such well-known genera as

Palaeotherium and *Anoplotherium.* It is also age-equivalent to Entreroches in Switzerland (Hooker, 1992; Hooker and Weidmann, 2000). The Bembridge Limestone Formation fauna is often attributed to Mammal Paleogene Reference Level MP19 (Schmidt-Kittler, 1987), although it is slightly younger than Escamps in France (the reference locality for MP19) (Hooker, 1987).

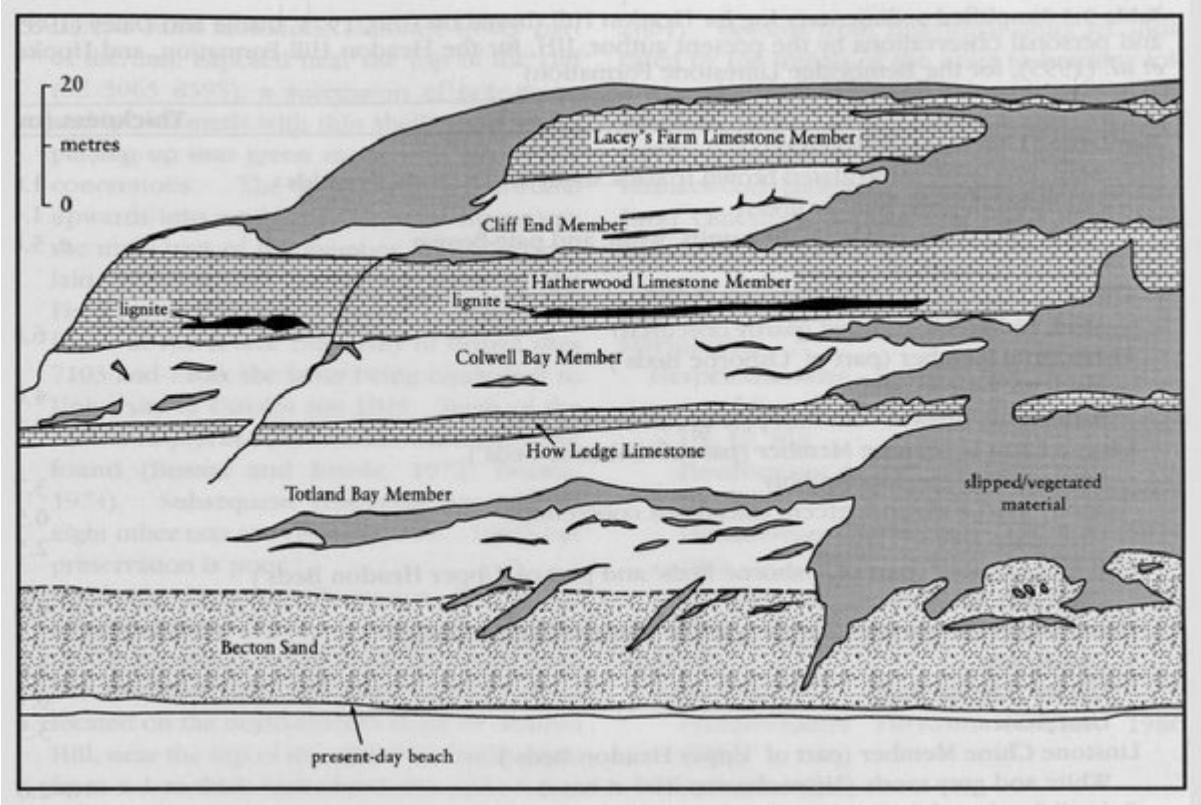
These mammal-bearing localities in continental Europe, although faunally rich, are mostly isolated geographically one from another, often occurring in different basins, and may have no superpositional information at all, such as the fissure fillings of Quercy (France), Mormont (Switzerland) and Bavaria (Germany). Therefore, the long sequence of superposed mammal levels at Headon Hill is unique and vital for demonstrating the time order of most European Late Eocene faunas.

Conclusions

Headon Hill has international importance for its a unique sequence of superposed mammal faunas spanning all of Late Eocene time that can be used to calibrate stratigraphically and geographically isolated faunas in the rest of Europe. It is the stratotype for the Headonian European Land Mammal Age (Bosma, 1974; Fahlbusch, 1976) and is the only site in the Hampshire Basin at which a succession of four European mammalian biozones (*stehlini–depereti, vectisensis–nanus, pseudosiderolithicus–thaleri* and *medium–curtum*) can be observed. Early collections consist almost entirely of a few large mammals found by prospecting. Screenwashing in the 1960s and 1970s and ongoing large-scale sediment processing and sieving, operations (e.g. Hooker *et al.,* 1995) are both enlarging the faunas and increasing the density of the succession. Stratigraphical overlap with Hordle Cliff is restricted to the Totland Bay Member, and even here there are significant faunal differences. Headon Hill is the type locality for 11 species and one subspecies of mammals. One of these, *Eotalpa anglica,* is the oldest known member of the mole family (Talpidae) in the world. Headon Hill is also the stratotype of the British lithostratigraphical unit, the Headon Hill Formation, as well as some of its included members, the Totland Bay, Hatherwood Limestone and Lacey's Farm Limestone members (Insole and Daley, 1985).

References

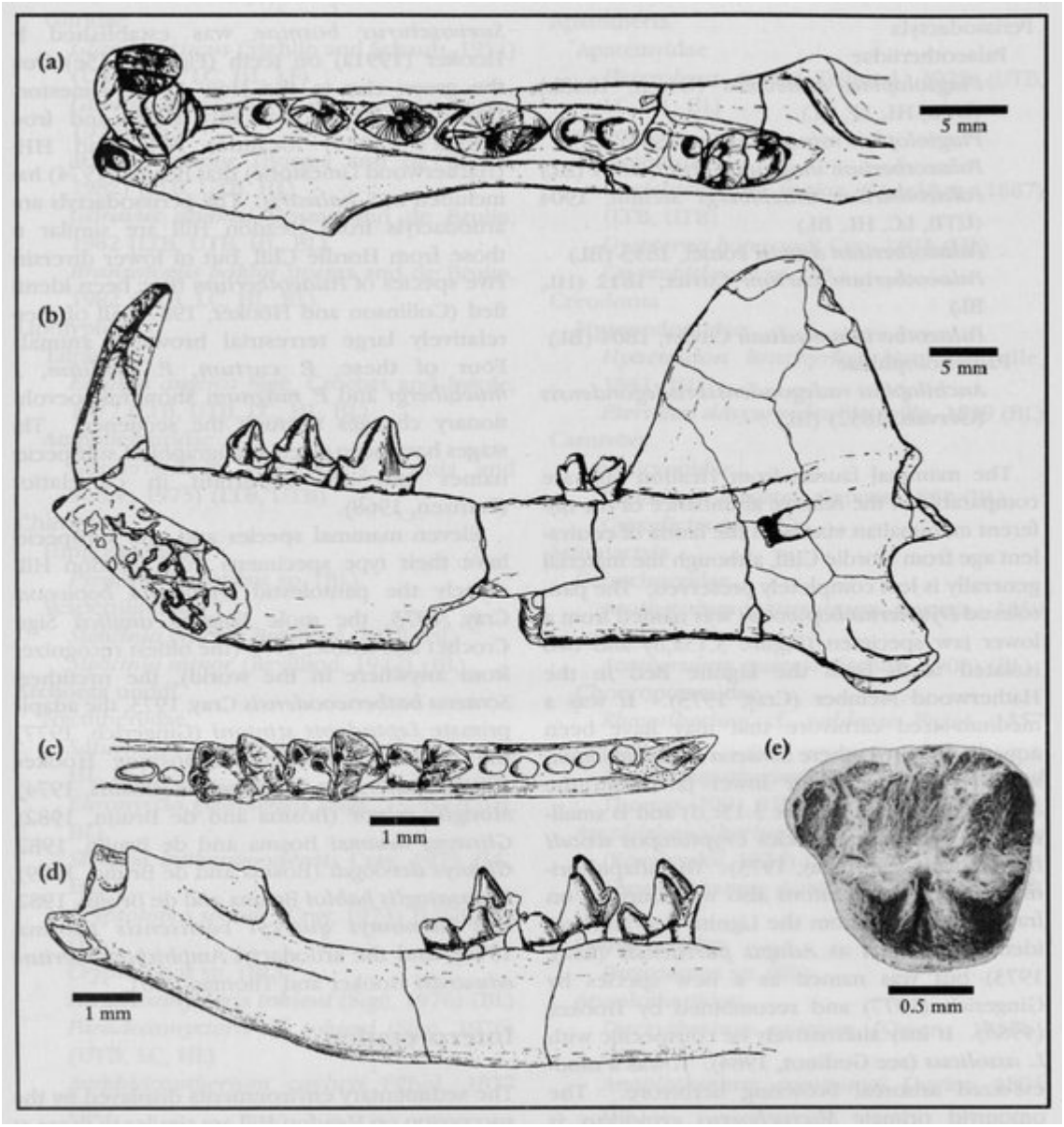
(Figure 3.13) Hatherwood Point, at the south-western end of the Headon Hill Formation outcrop on Headon Hill, Isle of Wight. The Hatherwood Limestone Member with lignite bed is shown (Photo: M.J. Benton.)



(Figure 3.14) Field sketch of the south-western end of Headon Hill, showing the major stratigraphical divisions. (Based on Insole et al., 1998.)

	Thickness (m)
Bembridge Limestone Formation	
Marl, grey with intercalated brown to back shelly and non-shelly muds	1.0
Shelly mud, grey, blue or green	1.4
Marly limestone and limestone units, white and pale-brown	*c.* 5.0
Headon Hill Formation	
Osborne Member (part of 'Osborne Beds')	
Mud, red-green, mottled (partly obscured)	6.8
Fishbourne Member (part of 'Osborne Beds')	
Mud, grey-green, shaly	4.0
Sandstone, brown, with thin pale-green marl at base	0.7
Lacey's Farm Limestone Member (part of 'Osborne Beds')	
Arenaceous limestone, rubbly	3.7
Sandy marl and sand, green; calcareous concretions	0.5
Marl, pale-green	2.5
Cliff End Member (part of 'Osborne Beds' and part of 'Upper Headon Beds')	
Clays and marls	9.0
Hatherwood Limestone Member (part of 'Upper Headon Beds')	
Limestones	2.8
Lignite (Lignite Bed)	0.7
Limestones	3.5
Linstone Chine Member (part of 'Upper Headon Beds')	
White and grey sands (*Microchoerus* Bed at base)	0–2.0
Colwell Bay Member ('Middle Headon Beds')	
Blue-green clays and sands	2.0
Lymnaea Limestone	0.2
Blue, green and brown sandy clays (*Venus* Bed)	4.4
Sands, clays and lignites (*Neritina* Bed)	3.0
Totland Bay Member ('Lower Headon Beds')	
Lymnaea limestone (How Ledge Limestone)	2.6
Marls, clays, sands and lignites	3.7
Lymnaea limestone	0.4
Green clays and pale sands	3.0
Lymnaea limestone	1.8
Blue and green clays	1.9
Lymnaea limestone	0.3
Green clays and intercalating very fine-grained sands	3.5

(Table 3.3) Simplified sedimentary log for Headon Hill (based on Cray, 1973, Insole and Daley (1985) and personal observations by the present author, J.J.H, for the Headon Hill Formation, and Hooker et al. (1995), for the Bembridge Limestone Formation)



(Figure 3.15) Fossil mammal specimens from the Headon Hill Formation of Headon Hill, Isle of Wight. (a,b) Right lower jaw of the pantolestid Dyspterna bopwoodi in crown (a) and internal (b) views. (c,d) Partial left lower jaw of the insectivore Scraeva batherwoodensis in crown (c) and internal (d) views. (e) Fourth upper milk premolar of the rodent Suevosciurus bosmae in crown view. (Based on Cray, 1973; Bosma and de Bruijn, 1979; Hooker, 1991a.)