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New Palace Yard, Westminster: Land and Freshwater Mollusca

By J.G. Evans

During the construction of a new car park for M.P.s at Westminster, freshwater deposits rich in shells were revealed. A series of samples collected by Dr. Susan Limbrey was submitted for molluscan analysis. These were as follows.

Sample	Height OD (m)	Description
S 28	+1.2 to +1.3	Coarse sand
S 20	c. +1.1	Pocket of shells in blue clay
S 29	0.0 to +0.5	Blue clay
S 26	c. -0.1 to OD	Peat with sand layers
S 25	c. -0.2 to -0.1	Peat
S 24	-0.3 to c. 0.2	Peat with sand layers

The latter three samples occupy a channel cut into an underlying peat bed.

Two lots of shells already sieved (S 15/1 and S/15/2) were also submitted. These were "probably equivalent to S 26 to S 24". Finally there were two shells of Helix aspersa (S 21) unlisted and unprovenanced.

Approximately 0.25 kg of each sample was analysed for shells using the method described by Evans (1972) and the results presented in tabular form (Table 00) and as a histogram (Fig. 00). In the latter the various species have been grouped on an ecological basis as suggested by Sparks (1961). There are three main groups - freshwater, marsh and land species. The freshwater species have been further subdivided. The moving-water group includes those found in large bodies of water; Theodoxus fluviatilis, Valvata piscinalis and Bithynia spp. are the main species represented here, together with a few Pisidium spp. The catholic species tolerate a wide range

of habitats, the main species being Lymnaea peregra. The species included by Sparks in a separate ditch group have here been put with the catholic species since they are only poorly represented. The slum species are those which can tolerate stagnant water and intermittent drying of the habitat; here are included Planorbis leucostoma, Pisidium casertanum and Pisidium personatum. Lymnaea palustris has been grouped with the marsh species although it could equally have been put with the catholic group.

Results

On the basis of this grouping, three zones can be recognised through the deposits. In zone a (Fig. 00), moving-water, catholic, marsh and land species are almost equally predominant. Here we are seeing the effects of the flooding, by moving water, of terrestrial and marsh habitats. The molluscs were not all living in the same habitat. The basic regime was probably freshwater (moving-water and catholic species) with shells from adjacent marshes and terrestrial situations being swept in during times of flood. The land molluscs - mainly Carychium tridentatum and Discus rotundatus - are indicative of shaded conditions, so that it would seem that the river was encroaching onto woodland or scrub. Open-country species such as Vallonia, Pupilla and Helicella are unrepresented. The presence of Laciniaria biplicata is of interest. This is a fairly rare species although plentiful where it occurs; it is particularly characteristic of habitats in the Lower Thames Valley occurring for example at Chiswick. It is not certainly native to Britain although recorded from a few subfossil contexts from Bronze Age and later times (Castell, 1962). There are several records from Thames flood plain deposits which are of fairly recent date - Battersea, the Festival Hall site and the M.P.s' car park site opposite the Victoria Tower, the latter of Tudor age (Dr. M.P. Kerney, personal communication).

The present record is probably of early third century bc according to the radiocarbon dating evidence (see below).

The deposits of zone a were essentially peats and intercalated sand layers. They filled a channel cut into an underlying peat bed which was not sampled for molluscs. Only the lowest (S 24) of the three samples taken from this XXXX channel contained abundant shells. The one immediately above (S 25) was totally devoid of shells, while the uppermost sample (S 26) contained very few. This probably reflects a trend away from flooding of the habitat, and the XXXXXXXXXX development instead of a reed swamp environment in which conditions for shell preservation were poor.

In zone b the fauna is totally different. Catholic and marsh species predominate (mainly Lymnaea spp.); the moving-water group has greatly diminished in importance (from 22% to 1%) and so too has the land group - effects which are probably not unrelated. The assemblage is purer than that below and probably represents a more or less single habitat. This was probably a reed swamp environment with areas of still, shallow water out of reach of the main river regime - perhaps and ox-bow lake.

Finally in zone c there was a return to open-water conditions, but unlike the situation at the base of the sequence only the moving-water group is at all well represented. Here we are dealing with a fairly pure open-water habitat. The flooding of adjacent marsh and terrestrial habitats seems not to have been taking place, at any rate in the catchment of this particular XX area.

Discussion

The deposits studied are at least 1.6m thick and overlie a peat bed which was not sampled. The radiocarbon dates for the peats with which the shells were associated range from the early third century bc to the early 5th century ad. I have no details of the nature of

the underlying peat but it was presumably fairly calcareous, developing in a reed swamp, fen or carr situation. The overlying sandy peats, clays and sands reflect a change in the habitat to conditions in which the influence of the River Thames was more strongly felt. At first the river flooded adjacent terrestrial areas - possibly fen woodland - incorporating land snails into the deposits (zone a). Later (zone b) the influence of the main river declined, possibly due to a shift in the meander system, and a still-water habitat with reed swamp developed. Then there was a further change in the river regime (zone c), perhaps due to a rise in water level or simply to a further shift in the meander system, but this time there is little suggestion of adjacent terrestrial habitats.

The build up of 1.6 m of freshwater sediments may reflect local changes in the course of the river but it may just as likely reflect a more general rise of the river level, itself perhaps caused by universal sea-level change. There is indeed evidence both from the East Anglian Fens and from the Somerset Levels that such a sea-level rise took place in Iron Age and Romano-British times, the period represented by the New Palace Yard deposits.

Samples S 15/1 and S 15/2

The two sieved samples have a composition intermediate between that of zones a and b. Of the moving-water group, Valvata piscinalis and Bithynia tentaculata are well represented, but not Theodoxus fluviatilis. On the other hand, marsh species are well represented, mainly Lymnaea palustris and Succinea pfeifferi. Theodoxus, the nerite, is perhaps the most demanding of the moving-water group requiring swiftly flowing water. We can logically see these two samples as coming from a horizon intermediate between zones a and b, but they have not been included on the diagram because of the uncertainty of their location.

Sample S 21

The two shells of Helix aspersa are almost certainly from deposits of Roman or later age as this animal is unknown certainly from pre-Roman contexts in Britain.

References

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Ellis, A.E. (1951). Census of the distribution of British non-marine Mollusca. Journal of Conchology, 23, 171-244.

Evans, J.G. (1972). Land Snails in Archaeology. London: Seminar Press.

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Figure caption

Fig. 00. New Palace Yard, Westminster. Molluscan histogram.

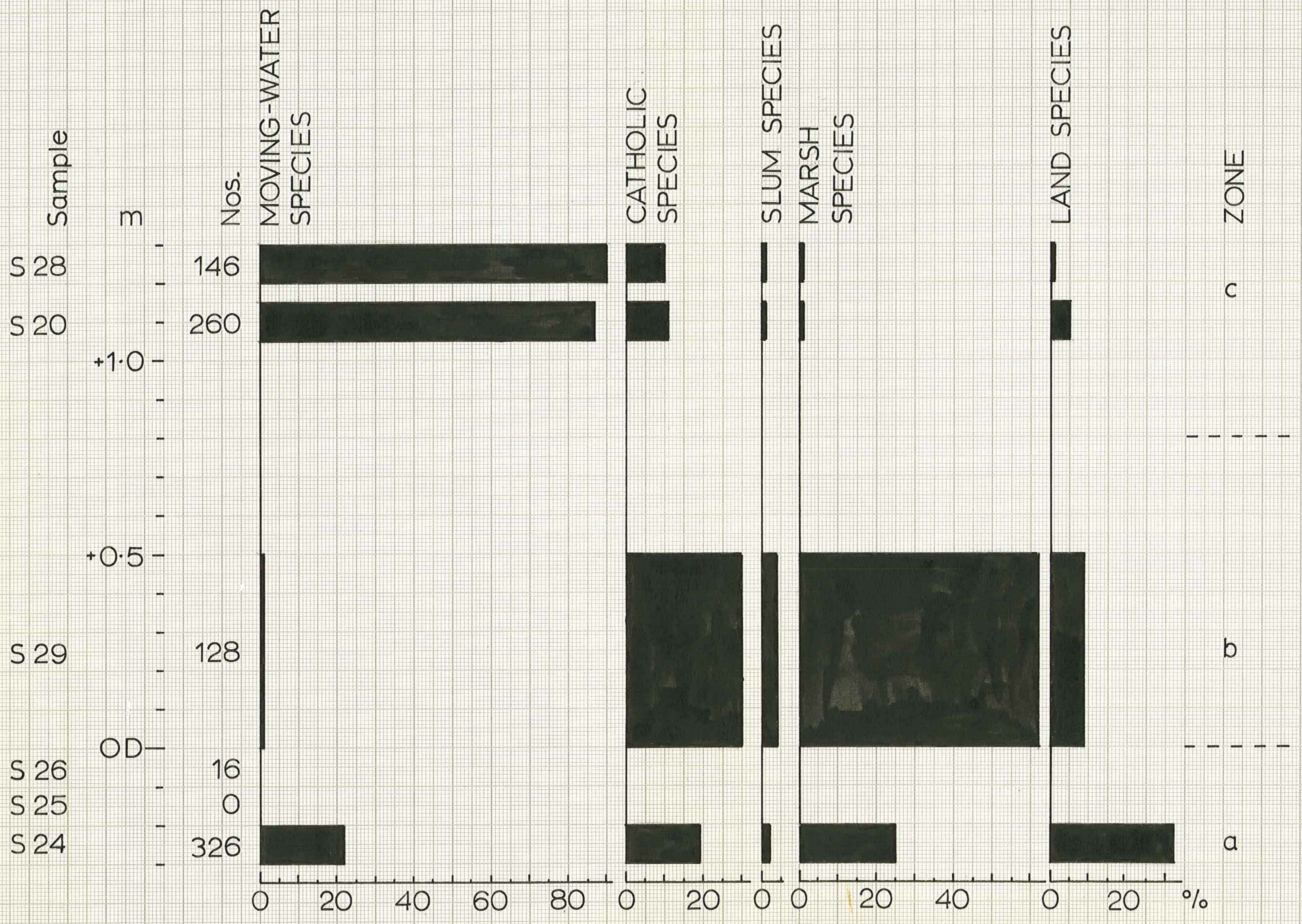

FIG. 00 NEW PALACE YARD, WESTMINSTER.
MOLLUSCAN HISTOGRAM

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		S 24	S 26	S 29	S 20	S 2[illegible]	S 15/1	S 15/2	S 21
FWm	Theodoxus fluviatilis (L.)	-	-	-	45	33	-	-	-
FWc	Valvata cristata Müll.	-	-	-	-	-	-	-	-
FWm	Valvata piscinalis (Müll)	-	-	-	92	56	-	1	-
FWm	Bithynia tentaculata (L.)	60	-	1	72	41	26	7	-
FWm	Bithynia leachi (Sheppard)	14	-	-	6	1	20	4	-
FWm	Bithynia spp.	-	3	-	5	-	-	-	-
L	Carychium tridentatum (Risso)	38	3	2	-	-	-	-	-
M	Lymnaea truncatula (Müll.)	42	-	38	-	-	1	1	-
M	Lymnaea palustris (Müll.)	32	-	29	1	1	8	-	-
FWc	Lymnaea peregra (Müll.)	4	-	35	14	10	58	16	-
	Lymnaea spp.	-	3	-	-	-	2	6	-
FWc	Planorbis carinatus Müll.	-	-	-	1	1	-	-	-
FWs	Planorbis leucostoma Millet	5	-	-	-	-	-	-	-
FWc	Planorbis albus Müll.	-	-	-	2	-	1	-	-
FWc	Planorbis crista (L.)	3	1	-	-	-	-	-	-
FWc	Planorbis contortus (L.)	9	-	1	-	-	-	-	-
FWc	Segmentina complanata (L.)	3	-	-	-	-	-	-	-
	Succinea pfeifferi Rossmässler	10	-	8	-	-	-	-	-
	Cochlicopa lubrica (Müll.)	3	-	-	2	-	16	6	-
	Vertigo antivertigo (Drap.)	1	-	-	-	-	-	-	-
	Vallonia spp.	-	-	1	4	-	-	-	-
	Clausilia bidentata (Ström)	1	-	-	-	-	-	-	-
	Laciniaria biplicata (Montagu)	12	-	-	-	-	-	-	-
	Helix aspersa Müll.	-	-	-	-	-	-	-	-
	Hygromia hispida (L.)	1	-	2	4	1	-	-	2
	Discus rotundatus (Müll.)	34	1	1	-	-	1	1	-
	Euconulus fulvus (Müll.)	1	-	1	-	-	2	-	-
	Vitrea spp.	1	-	-	-	-	-	-	-
	Oxychilus spp.	-	-	1	-	-	-	-	-
	Retinella radiatula (Alder)	1	-	-	-	-	-	-	-
	Retinella pura (Alder)	5	-	-	-	-	1	-	-
	Retinella nitidula (Drap.)	1	-	-	-	-	-	-	-
	Zonitoides nitidus (Müll.)	2	-	1	-	-	-	-	-
	Limacidae	1	1	-	-	-	-	-	-
Wm	Unio spp.	-	-	-	1	-	-	-	-
Wc	Sphaerium corneum (L.)	1	-	-	-	-	-	-	-
Wm	Pisidium amnicum (Müll.)	-	-	-	-	-	-	-	-
Ws	Pisidium casertanum (Poli)	1	2	1	5	1	6	3	-
Ws	Pisidium personatum Malm	-	-	4	-	-	-	-	-
Wc	Pisidium subtruncatum Malm	1	-	-	2	-	[illegible]	-	-
Wm	Pisidium henslowanum (Sheppard)	2	1	-	7	-	-	-	-
Wc	Pisidium nitidum Jenyns	20	4	1	1	2	2	2	-
W	Pisidium spp.	17	-	-	4	-	9	9	-

Editor: Please adhere strictly to presence or absence of brackets after snail names. J.S.E.

able 00. New Palace Yard, Westminster. Land and Freshwater molluscs. Nomen-
lature after Ellis (1951). FW = Freshwater species; FWm = Moving-water
pecies; FWc = Catholic species; FWs = Slum species; L = Land species;
= Marsh species.