

DUNADD ARCHIVE

SECTION 3: ANALYSIS AND SPECIALIST REPORTS

3.6 *Report on the soils*

By Ian D. Mate

Complete profile descriptions were made from two profiles within the 1980 excavation trenches and from two 'natural' profiles, for comparison. Those profiles were located at the base of Dunadd and on the neighbouring hill. Further descriptions were made on parts of the trench profiles and of the buried soils under the ramparts where they were revealed.

All profiles were described using Hodgson (1976) and a Munsell colour chart. Notation is after Avery (1980) though where starred, that notation is discussed within the main body of the text. The four profiles are presented below in Tables 1-6.

Site 1

Within Site 1, Craw was supposed to have excavated either to the wall (17) or the wall itself (Lane, pers comm). Within each gap in the wall a singular type of fill seemed to have developed. Toward the top, with a root mat, a dark brown (7.5YR 3/2-3/4) clay was found. Elsewhere the infill of the wall had the following description:-

Dark brown (10YR 3/3) sandy clay. Variable amounts of grits and very small stones. Loose granular structure. Non-sticky.

One further area of wall fill was more distinctly coloured brown to dark brown (7.5YR 4/4) and apparently more consolidated. If Craw is to be believed this material should be interpreted as backfill. The present author prefers the differentiation to be due to pedogenesis, implying that the wall was untouched by Craw. This soil material is similar to that of the second layer of the sub-wall profile, described below in Table 5.

Site 2

Two soil horizons surviving in pockets amid bedrock were described as well as the sub-rampart profile on the north side. The soil pockets profile description is found in Table 6 and that of the sub-rampart profile in Table 7.

The bottom layer at >18cm was interpreted on site as an eluviated horizon: comparison with the modern natural profile suggests that eluviation has occurred because of the burial of the soil material inhibiting physical soil turn-over or the concentrating effect of run-off from the wall above, or the two factors interacting.

Discussion

The soils in comparable situations locally are, where freely drained, acid brown earths (Brown Forest soils of low base status) or brown earths. The dark soils found within the site in all trenches, described as 'Ap' horizons (in Tables 1 and 2) are not related by pedogenesis to the local natural soils (Table 3 & 4).

The 'Ap' horizons have all the characteristics of a freely drained midden, plaggen or anthropic soil (Macphail 1980, Barber 1982, Macphail 1983, Macphail and Courty 1985). At Iona and Fearnas (Barber 1982, 359) the extent of, and the presence of ploughmarks within, necessitates that the dark soil deposits be interpreted as agricultural soils. In other contexts, morphologically similar soils have been taken as indicative of in situ habitation (Macphail and Courty 1985), i.e. as the production sites of anthropic soil material. The Ap horizons at Dunadd are clearly due to intense occupation, rather than due to market garden activities.

The sub-rampart soil profiles are poorly preserved perhaps due to the concentration of water by the rampart. The presence of an eluviated horizon is probably due to post burial pedogenesis (Keeley 1982, 119). The buried profiles, described in Tables 5 and 7, apparently indicate a phase of activity prior to rampart erection, though the upper material may be associated with the ramparts or be formed since.

Table 1: Site 1, south face

Context	Notation	Depth(cm)	Description
	Ah	0-10	Dark reddish brown (5YR 2.5/2) humose clay loam. Few very small stones. Fine and medium granular peds. Loose, wormed. Abundant very fine and common fine fibrous roots. Gradual irregular lower boundary to:-
1	Ap*	10-50	Dark brown (7.YR 3/2) to dark reddish brown (5YR 2.5/2) clay loam. Common very small and abundant large angular micaceous schists becoming fewer downwards. Medium granular structure. Loose, wormed. Abundant very fine fibrous roots. Burnt and unburnt bone and charcoal present (bone rotting). Abrupt wavy lower boundary to:-
4	Ap2	50-56	Dark brown (7.5YR 3/2) a/a but firmer. Abrupt irregular lower boundary to:-
10	2(r)	10-20	Very dark greyish brown (10YR 3/2) sandy clay loam with abundant very small and many small and medium angular schists. Common very fine fibrous and few fine woody roots. Charcoal present. Sharp wavy lower boundary to:-
20	3bAh/E	15	Dark grey (10YR 4/1) coarse sandy clay. Common small angular schists and unstained quartz grits. Loose granular structure. Base not seen.

Table 2: Site 3 context 31.

Notation	Depth cm	Description
Ap	0-10	Black (2.5YR 2.5/0) humose sandy clay. Stone free. Loose granular structure. Many fine fibrous, few fine woody and fleshy roots. Abrupt wavy lower boundary to:-
Ap2	10-32	Black (2.5YR 2.5/0) drying to very dark grey (5YR 3/1) humose sandy clay. Few very small and small angular schists. Many very fine fibrous, few fine medium and coarse woody and few fine medium and medium fleshy roots. Charcoal and bone present.
Ap3	32+	Dark reddish brown (5YR 2.5/2) humose sandy clay. Common to many medium angular and tabular schists and few large quartz cobbles. Poorly developed prismatic structure. Many fine fibrous and few medium woody roots. Quartz grains are unstained.

Table 3: Base slope of Dunadd

Notation	Depth (cm)	Description
Ah	0-9	Very dark grey (5YR 3/1) humose sandy clay. Loose granular structure. Abundant very fine fibrous roots. Worms present. Clear wavy lower boundary to:-
Eg	9-18	Dark grey (5YR 4/1) sandy clay. Few stones. Many very fine fibrous roots. Ferruginous dark reddish brown (2.5YR 2.5/4) hard nodules. Some charcoal. Clear irregular to wavy lower boundary to:-
Bg	18-30	Yellowish brown (10YR 5/4) sandy clay with many to common dark grey (10YR 4/1) mottles. Common medium stones. Many very fine fibrous roots. Abrupt lower boundary to:-
Bf	(0-1)	Soft discontinuous pan.
Cg	30+	Brown to dark brown (7.5YR 4/4) sandy clay with darker humose mottling with diffuse edges. Few medium stones becoming less stony downwards. Base not described due to flooding but:-
Cx		Concreted gravel.

Aspect: South east on 5° slope near foot of 20° slope. Hummocky surface. Cover: Grass and bracken with sedges to the south and east; also potentilla and clover.

Table 4: Soil profile on neighbouring hill (NR 842931)

Notation	Depth	Description
Ah	0-24	Dark greyish brown (10YR 4/2) silty clay with brown to dark brown (7.5YR 4/4) mottles concentrated toward base. Loose granular structure. Abundant very fine and few fine fibrous and woody roots. Bs Yellowish brown (10YR 5/4-5/6) sandy clay, irregularly iron stained. Few very fine fibrous roots. Slightly cemented. B/C discontinuous Soft rotting green schists Sharp irregular contact with:- R Rock.

Aspect: On a flat plateau near summit with open though slightly southerly aspect. Cover: Grass and bracken with clover. Lesser presence of buttercups (*Ranunculus sp*), thistle (*Cirsium*) and sedge (*juncus*). Land use: Sheep grazing with evident mole activity.

Table 5: Site 1, sub-wall profile below (17)

Context	Notation	Depth	Description
11	A	0-2	Dark reddish brown (5YR 2.5/2) and dark brown (7.5YR 3/2) mixed sandy clay. Schists grits. Many very fine fibrous and few fine woody roots. Discontinuous (cut by many large stones). Abrupt irregular lower boundary to:-
	B	2-6	Brown to dark brown (7.5YR 4/4) clay loam. Stone free. Common very fine fibrous and few fine woody roots. Compacted.
	bA	6+	Dark reddish brown (5YR 2.5/2) gritty sandy clay. Few small rounded and angular stones. Loose granular structure. Abundant fine fibrous and few fine woody roots. Abundant charcoal.

Table 6: Site 2, soil profile bedrock hollows.

Depth (cm)	Description
0-27	Brown to dark brown (7.5YR 4/4) sandy clay with abundant very small and small angular schists. Loose, porous. Many very fine fibrous roots. Abrupt lower discontinuous lower boundary to:-
27+	Very dark grey (5YR 3/1) sandy clay. Many to common medium rounded and blocky stones. Ferruginous brown to dark brown (7.5YR 4/4) iron concentrations. Charcoal present.

Table 7: Site 2 the sub-rampart profile

Notation	Depth	Description
bA	0-8	Dark reddish brown (5YR 2.5/2) sandy clay. No stones but few quartz grits. Deformable. Few coarse fleshy roots. Traces of charcoal. Abrupt lower boundary to:-
bA	8-18	Very dark grey (5YR 3/1) clay. Extremely abundant medium angular schists. Common fine fibrous and few coarse fleshy roots. Sharp lower boundary to:-
2bA	18+	Very dark grey (5YR 3/1) sandy clay with many reddish brown (5YR 5/3) mottles. Common very small stones. Common fine fibrous roots. Charcoal common. Base not seen.