Report 1067

SOIL

SAMSON 1970

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Excavator's xxxxx		
700407	SS 1	Site C. F7 Mixture of black (10YR2.5/1) organic sand and very pale brown (10YR7/4) clay containing granite fragments. The latter becomes reddish-yellow (5YR6/8) on ignition. The pale brown clay is similar in composition to "rab" in Slag samples SL2 SL3 and SL4, the only difference being that SL2 and 3 have been heated intensely and SL4 less intensely, resulting in differences in colour.
700408	SS 2	Site A "Natural" B horizon (rab) of soil on granite varying in colour from 10YR8/1 to 7.5YR6/6 when dry and 7.5YR5/5 to 5/6 when moist. Silty loam, fairly hard, friable, non-swelling, non-sticky, plastic structure massive, numerous pores possibly caused by soil fauna. No clay migration but pores have smoothed and slightly iron-stained walls. Sand is predominantly quartz and mica.
700409	SS 3	Filling of depression in floor - ? Charcoal Site A Dark red-brown (10YR3/2) in colour when dry. Highly humic. Predominantly sand with smaller quantities of silt and clay, rather less ferruginous than the subsoil (SS 2). Charcoal present in small quantities - small fragements some very finely divided. Most of dark colour due to humus.
700410	SS 8	Site A Surface of Stokehole. Dry colour dark red-brown (10YR3/2). Humic, but not so highly as SS3. More sand than 3, but smaller proportion of silt and clay than SS 3. Similar to SS 3 after ignition. Some charcoal present, very finely divided, but colour mostly due to humus. Much less humus than in SS 3. Not appear to be markedly ferruginous and no marked evidence of burning.

Excavator's xxxxx		
700411	SS 4	Site B Soil from below ? fill wall at top of beach. Brown (10YR5/3) dry sandy loam containing small granite fragments.
700412	SS 5	Site B "Natural" from below SS 4. Yellow-brown (dry 10YR5/4) sandy loan containing granite fragments. Coarser textured than SS 4.
700413	SS 6	Flats "Sand" from beside possible field wall. Sand consisting mainly of quartz of varying grain size and some mica - result of weathering of granite. Also containing small shells and fragments of larger shells.
700414	SS 7	Flats Soil from below SS 6. Pale brown (dry 10YR6/3) clay loan containing many granite fragments and some shell fragments.
700415	SS 9	Site C. Clay from F1 to compare with slag samples SL1 and SL3. Yellowish-red in (5YR5/6) colour. No comparison with SL1 (ie totally different). Different colour and finer textured than SL3.
700416	SS 10	Site C Clay from layer (3) - ? Soil below Building C. Sample has dark sand as well as pale brown silt. Slightly hard, friable, non-swelling, plastic, not sticky and possibly slightly siltier than SS2.

NB Site A is an undated cellar with a furnace, filled with blown sand.

Site C

increasing age ↓

Dune
Timber building - 2 period graves

Stone building with stone bowl. Pot →
Early Chr Co-7 ↑
Timber building with 2 hearths
Sand - sea sand
Marine scouring
Grave with buried and 2 cremations

Excavator's

008 51 Site C. Question: Are these fragments of bone?

On examination the sample appears to consist of very small charcoal fragments (too small to identify) in brown soil matrix. No bone could be seen. The absence of bone was confirmed by testing for phosphate, which was found to be present only in trace amounts.

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My	Depth in Section		pH	PO4
		Photo No 23 Baulk between Area A and B (Trenches)		
25	HK 91	0-4" (about 6" below the present surface)	Layer 7	7.65	posi tive
924	HK 90	4-4½"	Black occupation layer	7.9	weak
923	HK 89	4-15"	Layer 6. Black layer containing Limpets, bone and pottery (only stains were left by bones and limpets rather than whole pieces). This would appear to be seaborne rather than wind-borne sand	7.15	posi tive
922	HK 88	Below 15"	Layer 38	7.1	trac
		Photo No 24 Layer 7 beneath wall 9 about 1' below the present surface			
2926	HK 92	0-1" (below stone)	Black pan (10YR3/1) on top of layer 7. This appears to be the result of compaction - it is not an iron pan	5.5	
2927	HK 93	1-4"	Layer 7 (10YR4/2) dark brown	6.15	
2928	HK 94	Below 8"	Layer 6. Lighter colour (10YR5/4) than layer 7	6.2	
		Site 18 in Area C Photo No 25			
[illegible]	HK 99	0-½"	8" below present surface. Pan resulting from compaction	6.9	weak
[illegible]	HK 98	½-5"	Below the pan. Dark grey sand containing iron remains	6.81	weak
[illegible]	HK 97		Charcoal from layer 7.		
[illegible]	HK 96	5-12"	Black layer 7. This layer is not the same as in the sites previously described. It contains a lot of charcoal and consists of pitfill overlying layer 6. The present of slag is evidence of metallurgy, as is the high phosphate content	6.85	very strong
[illegible]	[illegible]	Below 12"	Layer 6	7.05	weak

Samson

Question: Why was bone preservation in Layer 7 so poor in view of the present high pH of samples of soil from this layer?

1. Layer 7 is not the same all over the site, therefore which Layer 7 are we talking about? Layer 7 in baulk between Areas A and B(Trenches) has a pH of 7.65, beneath wall 9 it has a pH of 6.15; these appear to be similar, differing from Layer 7 at Site 18 in Arae C which has pH 6.85 and evidence of metallurgy (slag, iron, high phosphate, etc.).

2. Ther are two possiblities A. pH was low at the time of bone deposition and for some time subsequently, during which time the bones disintegrated. Later the pH changed because Layer 7 was covered by calcareous (shells) wind-blown sand. However, sand samples collected in 1972 from the dune and on site above layer 7 are not calcareous. B. Breakdown of the bones may have resukted from microbiological and physical activity due to exposure - continuos wetting and drying. There may have been some effect of the chloride ion on phosphate.