

## PRELIMINARY INVESTIGATIONS INTO BUILDING MORTARS USED ON LUNDY

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In 1964 the author sent samples of building mortar obtained during August 1963 from seven sites on Lundy to the laboratories of the Building Research Station at Watford, Hertfordshire.

It was hoped that a comparison of the physical properties of the samples with those used in buildings of known date might help to date hitherto undated buildings.

### The Samples

These were taken from as typical a portion of the building as could be found, and care was taken to avoid such things as obvious more recent repointings.

The samples were from:

- A. The Castle Keep
- B. Beacon Hill Chapel
- C. Hotel (Manor House)
- D. Hut to south side of path down to Battery
- E. Battery buildings
- F. Bensons Cave. Mortar used inside cave near the mouth
- G. Fishermans Hut. The ruinous walls of the structure on the beach.

### Dating Speculation

- A. The Castle was built originally in 1243 but has been extensively repaired since then and may have been completely rebuilt during the Civil War (c. 1640).
- B. The Chapel was built either very early (in the 6th or 7th Century) or else rebuilt by Bushell in the Civil War.
- C. The oldest part of the Hotel was the Manor House and was almost certainly built during the 18th Century.
- D. Battery Path Hut. This may date from the building of the Battery in 1870-1 or may have been a lookout building dating from the Civil War.
- E. Battery. This is Trinity House construction of 1870-1 and was chosen for comparison with sample D.
- F. Bensons Cave. This might date from 13th C. construction of the castle; It might date from Bushells occupation during the Civil War; It might be 19th C. work.
- G. Beach Hut. This almost certainly is early 19th C. but might originally date from the Civil War.

### Conclusions

The conclusions to be drawn from such a small sample must be very guarded. The material taken may not have been truly typical of the building as a whole; that from the Beacon Hill Chapel had only recently been unearthed and had therefore been subject to chemical changes due to contact with the acid soil for many years; The Battery Path Hut had been used at some time as a coal store and however careful the sample was taken it inevitably contained some particles of coal; The Bensons Cave sample was taken from a damp position; and the sample from the Fishermans Hut on the Beach has been subjected to the effects of the salt spray from the sea.

The similarity between samples A, C and E is noticeable and there are certain similarities between samples B, F and G. Sample D differs from all other samples.

**Time Scale.** Samples A, C and E all came from buildings on the plateau subjected to the same exposures. It seems impossible to equate the known date of sample E with samples A and C unless repairs or repointings to the Castle and Hotel were undertaken in the 1870's.

Samples B and F although both subjected to the same conditions of dampness may both date from the period of the Civil War and may both be the work of Thomas Bushell.

**Summary.** A series of seven samples of mortar taken from building on Lundy was examined and compared physically. The condition and the restricted number of samples taken was insufficient for any firm dating of the buildings concerned to be made.

**Table Giving Results of Analysis of Mortars from Lundy**

Sample	Mix proportions; Cementitious material/ Aggregate ratio	Sieve Analysis; Percentage by weight passing B.S. sieve sizes						Comment
		3/16;	No. 7	No. 14	No. 25	No. 52	No. 100	
A	1 : 0.6	95	73	59	45	32	20	A coarse greyish sand containing mica.
B	1 : 0.3	100	95	87	74	51	33	A fine grey-brown sand.
C	1 : 1.4	100	82	65	48	34	22	A coarse greyish sand containing mica.
D	1 : 0.4	98	91	71	40	17	7	Coarser particles black, fine ones white.
E	1 : 2.4	88	67	51	37	27	16	A coarse greyish sand containing mica.
F	1 : 1.1	91	84	76	72	63	43	A fine dirty brown sand.
G	1 : 0.6	97	92	85	74	51	15	A fine grey-white sand containing mica.

# SIEVE ANALYSIS OF LUNBY MORTARS.

