

## Scottish Stone Liaison Group

# NEWSLETTER

## Indigenous Materials Project Team

Issue No. 8 Summer 2004

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## Scottish slate

Regular readers may be excused for speculating that the efforts being made to progress this issue are taking virtually as long as it took for nature to lay down this material and, whilst that is a bit of an exaggeration, it is fair to say that whatever has been planned in this respect some “glitches” – one very major, others relatively minor – have inevitably delayed matters.

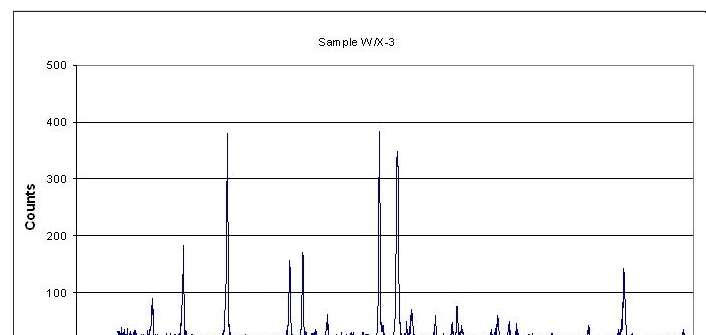
However, the analysis of the materials secured from the quarry, demonstrated that, whilst the material was of good quality, it did not split very well. In an effort to determine if this “splittability” improved with depth, a coring exercise (to a depth of 40m) was planned for the 21st June 04.

That date was then set back to the 1st July when the coring commenced and the material secured will again be analysed by Dr Joan Walsh, University of Paisley and the results will be detailed in future Newsletters. It is understood that Historic Scotland will publish the research findings from both the Khartoum and Hill of Foudland Quarries (with photographs) in due course.

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### Spanish slate –v- Ballachulish

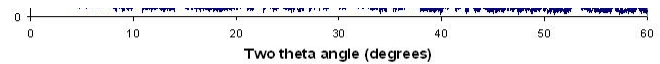
It is often thought that simply by splitting Spanish slate a little thicker, backing it by scientific data (XRD scans & XRF total oxides) and giving it a Scottish sounding name, it can be a suitable replacement for Ballachulish slate. But there is more to the performance of slate than meets the eye and although both are a



dark blue/grey colour, there the similarities end.

Most slate starts life as a mudstone, comprising a range of clay minerals and varying amount of quartz. The clay minerals are gradually altered to chlorite and micas due to increasing pressure and temperature during burial and compression. The durability of the slate depends on the degree to which this process is complete. The position of the main clay peaks coincide with those of the chlorite and white mica making one slate's XRD scan look pretty much like another. One must examine subtle differences in the scans to determine differences in the slate.

Overall chemical composition (using XRF) is also used to demonstrate the similarities in the two materials without looking at the subtle difference in composition. For example small difference in the amount of silicon dioxide translates in to a substantial difference in quartz content. It is these small differences that affect the properties of the slate.



*X-ray diffraction scan of a typical roofing slate*

There are more differences than similarities in the properties of Ballachulish and Spanish slate; one that is actually visible with out resorting to scientific techniques is that of texture. Ballachulish slate is a coarse-grained material with a lot of quartz giving it a rough gritty texture while Spanish slate is fine grained with a smooth satiny feel. Grain size is an important factor in determining durability; the finer grained material being less crystalline and hence more prone to weathering. This is not to say that scientific procedures are superfluous in assessing the properties of slate. XRD and XRF analyses in conjunction with other tests are invaluable in determining the mineral composition of different slates. Superficial comparison of the results means nothing – a careful interpretation of the information is needed to determine the difference in the slates and the impact this has on performance.

*Dr Joan Walsh, [University of Paisley](#)*

## Cullalo Quarry

As reported in Newsletter No. 7 the Cullalo Quarry (note - the spelling is as the material will be marketed) is progressing and, whilst there are matters to be resolved with the Fife Council, it is anticipated that the quarrying will commence in the near future.

## Blairingone

Whilst the story is very good news it is a matter of regret that the Perth & Kinross Council rejected the application from Block Stone Ltd to open a new dimensional stone quarry at Blairingone, near Dollar. The SSLG had lent its support to this application and it is understood that the Company is considering an appeal.

The rejection of the Blairingone Quarry application highlights a major problem for those seeking to secure fresh supplies of indigenous stone to enable the appropriate repair and maintenance of Scotland's built heritage and this will ultimately have to be addressed by the Scottish Executive.

Whilst recognising the concerns that the opening of a quarry generates, the public's misconception generally presents a greater hurdle. Members of the public, having possibly seen open cast quarrying on TV, understandably think that this reflects the operation of a dimensional stone quarry and nothing could be further from the truth!

But the material needs of Scotland's built heritage require to be addressed by decision makers and

require to be addressed by decision makers and this can best be achieved by engaging everyone in an enlightened debate.

## National Planning Policy Guidelines

Following the coverage given to this matter in [Newsletter No.7](#), seeking to determine how Scottish local authorities were addressing their obligations listed under NPPG 18 para 20, three Councils were named not having responded – these were Dumfries & Galloway, North Ayrshire and South Ayrshire. It is a matter of regret that, even after four letters and a public naming, no responses have been received.

However, the other council named as having provided a partial response – North Lanarkshire – has now provided a detailed document entitled "*Conservation Area Appraisals*" indicating that it is now approaching the second phase of appraisals. Whilst the Council has no record of the dimensional stone reserves in its area, the following extract from the above publication is of interest. "*The predominant roofing material found within the conservation area is slate, principally West Highland (Ballachulish). This was extensively used from the late eighteenth century onwards and contributes to the character and appearance of the area. In some instances artificial slates and concrete tiles have been used to recover slate roofs. These detract from the character and appearance of the conservation area and have a significantly shorter life compared with natural West Highland slates.*"

The question arises – **Why was this substitution of materials permitted in a Conservation Area?**

## County Mineral Maps

See [Newsletter No.7](#) for details.

In pursuit of the NPPG issues above, it was confirmed that the planning authorities in England have available to them "County Mineral Maps" (BGS) and these should ensure developments that would restrict access to vital building materials are not permitted. In Scotland no such modern digital maps are available with Scottish planning authorities having to depend upon non-digital maps, compiled in the 1980s, which are woefully inadequate given the passage of time.

Highlighting this problem, the SSLG pursued this matter with the Scottish Executive - Planning Department which appears, by all accounts, to be perfectly content with this ageing data which, as far as can be established, does NOT include dimensional stone reserves. Fire clay, hard stone, sand/gravel etc are all covered BUT NOT DIMENSIONAL STONE!

How can local authority planning officers safeguard mineral reserves that are vital for the repair and maintenance of Scotland's built heritage when there is no modern reference point to assist them?

**CHALLENGE** - In an effort to advance this issue the SSLG has issued the following challenge to the Planning Department. Finance the undertaking of a Scottish County Mineral Map for only ONE Scottish county and then let us all compare the results with the old and rapidly ageing data.

## BEFS

Having recently joined Built Environment Forum Scotland, the Scottish Stone Liaison Group is looking to forward to playing its a full and active part.

## And finally

The office received an extract from "*Scottish Life*" in which the re-opening of Cullaloe was mentioned. No great surprise? Well, perhaps. It is published in Hull, Massachusetts, USA!

**Room 133, Pentlandfield Business Park, The Bush, Roslin EH25 9RE**  
**Tel: 0131 448 0313 Fax: 0131 440 4032**