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The Measure of Stone
Elizabeth Shotton



Inishmor Stone Gate (Shotton, 2009)

When first approached to join the Erasmus IP on Tectonics in 2007 I had great visions of running a workshop on concrete block – not traditional concrete block assemblies but an investigation into dry methods of construction, which could facilitate the reuse of material in an effort to develop a more sustainable use of concrete in Ireland. Concrete block is as ubiquitous a building material in Ireland as one can find, and seemed deserving of a re-consideration relative to the multiple agendas represented by the term sustainability. Equally apparent was its historic lineage in Irish culture, from dry stone to mortared stone to reconstituted stone in the form of concrete block – all techniques based on stacking, arranging and stabilizing small units together to form a larger whole. Thus concrete block represented the modern equivalent of more traditional, and currently romanticized, techniques found in stone masonry. Romanticized because stonework, most especially dry stonework, found in Ireland is valued for its charm rather than the pragmatism inherent to the tradition. For it was

pragmatism that drove the building of those walls, in large measure as an effort to clear the stone riddled landscape of western Ireland sufficiently to establish arable land for cultivation – a process identified by archaeologists who describe those scenic walls as ‘stone dumps’ with the size of fields they border defined by how far a man could carry a rock.

The pragmatic attitude which gave rise to these walls, and walled landscapes, and the obvious lineage between dry stone construction and concrete block assemblies is no where more apparent than on the island of Inishmor, the largest of a trio of islands referred to as the Aran Islands off the west coast of County Galway. Though much visited by tourists, including our Erasmus group in the summer of 2009, very few people spend sufficient time there to travel to its northern most settlements, beyond the major tourist attractions, to discover a landscape still under the influence of that pragmatic spirit. The island that most tourists see is a historic set piece, maintained for the curiosity of tourists and the value of their money. But beyond Dun Angus, the largest of the island’s forts, lies a terrain where concrete block is used to repair walls and construct new housing in as unaffected manner as those early stone constructions on the island.

Having stacked and re-stacked thousands of bricks in the Netherlands in 2008 it seemed fruitless to look at another rectangular unit of construction. So we went back to the historic root of it all, past the mortaring of walls, to some of the earliest forms of tectonics in stone – dry stone construction – to see what we might learn that could be new, at least to our little collaborative. Beyond all else it was the meditative nature of building in stone, without the aid of mortar, which was to prove the greatest revelation, surfacing in several guises.

There are a number of issues surrounding dry stone construction that are not apparent to the outsider of the tradition, and perhaps unique to this method of building. First is the variability of the material itself. Now this may seem a simple-minded thing to state, as any cursory examination of a dry stonewall reveals the eccentricity of the material. But this is not what I refer to. What is not clear, until one goes to find material to build with, is that the source of material has a tremendous impact on how one will ultimately build, and this in turn is reflective of the region in which one builds. The extraordinary walls of Aran, often referred to as lacework both for how they knit across the larger landscape and for the tenuous filigree character of these single wythe

walls, are possible only because of the shattered form of rectilinear limestone rock found on the very surface of the islands.

In contrast the walls found in the Connemara landscape in which we intended to work were anything but rectilinear. By in large what can be found here in historic constructions are rounded field stones, likely cleared from the surface of the earth for much the same pragmatic reasons as was done on the islands. But rounded stone does not lend itself well to filigree patterns or single wall construction – there is a far more complex balancing act to perform when the base material has an inherent tendency to roll – resulting in more ambiguously figured thick walls in both field and house.

In the case of our workshop time did not permit the excavation of boulders from the earth and demanded a more expedient, and as it happens contemporary, solution to our material needs. Off to the quarry we went in search of ready made, previously unearthed material – which was to have profound implications on the resulting projects. Connemara is a terrain of metamorphic stone, meaning that layers of the famous Connemara marbles are intertwined with small amounts of granite and rather larger quantities of quartzite, all of which are liable to surface when blasted out of the ground. In our case we were after the golden hued quartzite, which surfaced as irregular slabs of fractured stone, neither round nor neatly rectangular. And though attempts were made early on by students to fashion Aran-like walls from the stuff, there was no getting around the implacable character of the material. To every stone a peculiar and singular solution must apply, as we were to discover during our studies.

Architects, and by implication architecture students, being impossibly confident in their less than complete knowledge of the world, were at first loath to abandon their traditional design methods and accept that the answer lay not in their minds eye but within the collection of stones before them. Some drew carefully dimensioned sketches of delicately figured forms, only to find these images corrupted and simplified during the construction process, while others, when foiled by the absence of appropriately shaped and sized material resorted to ordering specified stone from the quarry to replace that which failed to match their preconceived design intentions. Strategies indicative of our professional tendency to overwhelm the inherent nature of materials rather than working within their potential. Not an option available to the authors of those original dry stone constructions, compelled to use their wits in concert with the given material, rather than against it.

Learning to work with the material was a lengthy and exhausting process. Tremendous energy was expelled in the first few days of building as people could be seen hurriedly scurrying across the site, carrying stones back to their construction only to immediately cast them aside and look for a better. Nearing the close of building however it became rather more common to see people standing still amongst the stones – meditating on the shape they held in their mind of the vacant space to be filled and measuring this mental image against the material that lay scattered at their feet. As our trustworthy teacher, Justin Money, had tried in vain to explain to us, but which only came home after many hours of misspent energy, dry stonewalling is most expediently undertaken slowly. One could pick up and test every stone on site that might fit – or one could pick up the one stone that would fit through a calm study of the material available.

This careful measure of the stones at ones feet, though perhaps the most fundamental meditative act in the process, is not the only exercise in patient deliberation required. Having once settled on the stone to be added to the construction one must then settle the stone into the construction, a careful balancing act which appropriates that fundamental force of nature – gravity – as an aid to building. Particularly troubling to some was the idea that one placed the roughest side of the stone downward, to ensure that one had a predominantly level surface upon which to place the next layer. Troubling because it results in an unstable stone, which then necessitates the careful insertion of small leveling stones to balance the larger stone in place – a painstaking process of trial and error, which if done incorrectly would surface as instability further up the wall. There were those among us who had a natural aptitude for such patient work – ultimately leading to a division of labour between those who could heave large rocks and those with the patience to carefully stabilize them in place, which involved not simply balancing skills but, yet again, the sourcing of particularly shaped small stones with which to work. Having all been mesmerized by the larger stones at first glance it was only much later in the process, as the store of smaller stones began to evaporate, that we realized these were equally crucial to the success of the construction.

The third division of labour that surfaced, a group to which I belonged, were those with neither the strength to heave, nor the particular wit required to balance. We were left to centering – a crucial part in stabilizing the wall. It is a process inherent to

the nature of double walled construction, though not to the single wythe walls of Aran, where voids necessarily form in the centre of the wall between the larger stones.

Though some would simply fill these voids with gravel for the sake of expedience, this can cause future instability as the gravel settles. So this task, though lacking any form of glory, is imperative to the longevity of the construction and, similar to the other tasks, also required the careful assessment of void to stones available to do the filling. There was a certain delight to be had when centering those final voids on the finished surface as it became not simply about adding the required friction between the larger stones but also developing a pattern of infill.

There were of course many other lessons learned during the workshop, all of which demanded the same level of thoughtfulness and foresight. For instance the strategic laying aside of good stone, whether due to its size, surface or corner features – a lesson that was only fully comprehended near the end of the process, when we were to realize that every stone had its appropriate place in the sequence and if one used all those lovely large flat stones in the foundation there would be little left to bear down on the smaller assemblage of stones at the top to secure them in place and form a final surface. But underlying it all, was the revelation that dry stone walling is not about brute strength, as it first appears, but about careful deliberation combined with an intimate knowledge of the very particular material one has to hand. Unlike contemporary forms of construction, where material has been rendered into a system of equal units and form-making is often seen as liberated from the particulars of the material, dry stone construction forces one to acknowledge the inherent properties of the material and allow it to shape both the form and texture of the final construction.