The Character of a Wall.
The changing construction of agricultural walls on the island of Gozo

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SUMMARY

The current paper describes the changing construction of agricultural walls on the island of Gozo, part of the Maltese islands in the Mediterranean Sea. The described changes represent physical artifactual evidence of the changing culture of a nation that gained its independence only forty years ago yet maintains a history over five thousand years old. In this regard, the analysis provides an ethnoarchaeological portrayal of a wall and its construction; the form of the wall displays its character throughout its life yet is the product of the times at the event of its construction. The wall therefore displays the culture held at that event and a comparison of different walls will show a sequence of cultural change. In Gozo, hundreds of years of dry rubble wall construction terraced the island into viable farmlands. However, changing farming and economical practices have changed the value of old walls and supported the construction of a new wall design using cut limestone blocks cemented together. This paper attempts to describe these changes, their causes, their eventual effects, and the role of tourism in the preservation of history.

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Introduction

"In summer, the scorching equatorial Mediterranean sun burns the Maltese landscape 'bone dry'. Yet, it is amazing how the first September rains resuscitate this lifeless desert-like setting into a palpitation of growing vegetation. This led some of the island's early historians to conclude that Malta was another Emerald Isle."

(Malta: a collection of tales and narratives)

The living sea floor pushes through the ocean blue surface, not in an eruption, but in a clean rinse washing the bedstone. The torpid heat dries it leaving a rough scorched rock; soil collects in crevices like fingernails. A grey white rock dropped into the sea like a pebble in a puddle. "The Jewel of the Mediterranean," it is called, perforce its radiant shine that blinds eyes and skin and mind's feeling of its burning body.

Figure 1: A quarry for globigerina limestone.

Figure 2: A wall of the Gigantija temple, the oldest standing structure in the world, built under the same principles as the terrace walls.

The island rose while the seas were low. Corals began to grow in the sun-bathed shallows as the landmass approached the water's surface. The progression of the coral's life cycle left an accumulation of its dead remnants on the sea floor forming a surface decaying from living to stone. Rising sea levels drowned these corals in darkness and ended the accretion of coral burials. Replacing it was a sediment of dead globigerina plankton, made unique by the existence of their shell that would constitute the atoms of the future rock. The plankton grew abundantly in the deep cold water's rich oxygen supply and thus the layer of globigerina shells grew very thick. Later the sea level returned to its lower levels and corals again began to grow.

The result of this changing sea level over vast expanses of geologic time is three layers of stone of which the land is collected. First, a dense rock hardened by compression – grey. It breaks into natural stones producing a high-pitched 'tink' when the hammer makes contact and does not splinter when it falls. It is the product of the dead corals. The second is a soft thick coating to cut into blocks that form a hardened shell in open air. The quarries leave high walls as their floors are removed in grids a single sheet at a time.

It is the dead globigerina plankton. The third is the same as the first, sandwiching the middle, keeping it from eroding forces. The border between the layers is a diffuse boundary where the two deposits intermingle to share their properties producing thick dense blocks of deep brown rock.

As the island raised out of the sea erosion carved away areas of the softer limestone. Rolling surf left concave etchings in the cliffs now raised over the shore fifty feet above. Crashing waves carved out caves that would later collapse into harbors. Drainage from the annual episodes of rain between September and December slowly cleared away the land in its path to bare coralline bedrock. As the seas lowered and the island raised out of the water it wore away under its own weight. Underwater the deposits collected; above, the dried and hardened rock burned to dust and blew back to the maternal seas.

Ancestral man came upon this island in the midst of its contingency crossed between the forces, of the natural reclamation of a natural creation. Man would stop the flow of the soil into the sea by building walls of rubble of the ruined mountains. These hills that lay like fat ladies on a monolith in the sea had their sagging weight bound up. The transformation owes itself to the understanding of the magnitude of erosion by the earliest known inhabitants. It was, in fact, a technological requirement for permanent settlement; the realization that denser rock ordered in such a way to support itself could prevent the loss of precious soils. The completion of the terrace wall landscape allowed for the importation of soils from Sicily increasing farming production. Along with this most unusual of trade good's came the grapes from which homemade wine would sustain the people for thousands of years. The degree of enlightenment supported by this leap in technology is proven in the dynamic culture of the earliest inhabitants, five thousand years ago, whose temples are built on the same concept of design as the terrace walls: a large base supporting a heap of stones falling against a wall of earth. If you travel to Gozo presently you will see the remnants of this grand project, the terracing of an island. At places the walls have gone unmaintained and nature is slowly reclaiming the soils to be buried in the valleys and eventually beneath the sea. Though they once sustained an island, they have been abandoned for more plentiful sustenance. The old walls have depreciated in economic value. They are now artifacts of the past, like an "old tool...who no one takes anymore seriously than an old paraffin lamppost on the ancient quay or a mule and cart lumbering down from the valley loaded with pumpkins" (Ebejer, 107, Leap).

But, in Gozo there still are horse drawn carts, and traditional horse races up the inclined city streets of Victoria during the saint's festival. There are also walls whose foundation predate these rituals. Gozo, though, is part of the newly independent nation of Malta and at only forty years of age knows the confusions of a blossoming child. Though their initiation into the European Union was decided two years ago, their bipartisan government is still seized in its debate. The focus of the nation is to get more tourists, the majority of such clientele coming from EU countries. Yet Malta is already the most densely populated nation of all its EU brethren.

Before forty years ago the walls were well maintained by those who used the farmlands they enclosed. Each and every parcel was owned by a member of a family who farmed that land to provide a little something for his expanded family as a whole. As the population has increased parcels diminished in size to the current state of land fragmentation. It has now been deemed necessary to reparcel the lands to create more viable farms. This process, one farmer told, was very difficult considering the amount of legal paperwork required, in addition to EU certification. Yet, more people now choose to lease their lands to other farmers rather than work themselves. The result is that though the government requires that each person maintain the walls on his or her land due to their cultural value,

Figure 3: Terrace walls that have gone unmaintained allowing the hill to erode back to its natural state.

Figure 4: A street sign allowing access for farmers but not for tourists, thus dividing the social geographic space between the two.

it is unable to enforce the required maintenance, and the walls erode into the hill. At the dawn of independence the citizens of Malta felt themselves freed from a life burdened by labor. The catharsis of the change in social hierarchy inflicted a disdain for the rural lifestyle and an embracing of the new tourist industry. Development focused on the construction of the urban village around the church and the commodification of sea- side property for tourist income. The division between these industries, farming and tourism, manifested itself in a social geographic boundary whereby tourists are expected to remain near the coast and farmers are limited to the inlands.

The 'countryside', the terraced hillsides that are no longer farmed, were taken over by bird trappers. These hunters enforce their ownership each year during the birding season when they act upon their adoration to place their specimen upon their wall nicely stuffed. Birding is very popular in Gozo reflected in the synonymous usage of the word 'hobby' with 'guns' on the sign of one particular store. The author has found that island peoples exhibit a common fondness for birds due to the migration patterns that annually drive this resource to their enclosed landmass. One will encounter bird blinds made of stone on casual hikes that appear to be hundreds of years old. This traditional practice, though, creates yet another social geographic boundary limiting the space on an otherwise small island further straining the tourist and farming industries.

Therefore, in the modern world, farming is focused on the flat lands atop the hills and in the valleys. Irrigation is provided by pumps connected to deep wells that can nourish a variety of plants throughout the year. Ancient methods moved the water manually using a bucket and well, and packing hard a furrow for the water to stream down. Carved U- shaped blocks could also be used as irrigation channels to feed the packed furrows. The practice can be observed today in use successfully. The potential energy of slope to provide assistance in this irrigation practice would have made hillsides more valuable to the ancient technology than to the mechanical modes of today. An overview from one of Gozo's tall hilltops will, in fact, show that terraced fields are of two types: narrow fields that step quickly down a hillside, and large spacious fields lying on the flats.6 It is the latter that are typically cultivated today and are therefore green, while the former remain brown. The remnants of the hillside terraces, ancient monuments on the now soil-barren and abandoned hills, are left to be only captivating representations of history.
To build a rubble wall in the ancient method, as these hillside terraces are constructed, requires only a few simple rules. Begin with a solid, level foundation and large square stones. Build two walls leaning in on each other with a force counter to each other with rubble fill cushioning the opposing forces. Compensate for slope. Lay the stones with their length perpendicular to the direction of the wall so that they point inward. If lain so the weight of the rubble fill will act as leverage on one end of the stone causing the other end to push towards the center and stabilize the structure. If, however, the stones are laid horizontally the fill will push the wall apart. Build the wall in individual sections rather than one continuous structure. Built in this way the wall will not collapse altogether, only in small sections that can be easily repaired.

Though the method is simple the skill achievable is of a vast artistic degree, the ability of which can only be learned by the fingers not by engineering computations; a sensual attention to the forces of the physical world indescribable in the terms of the physics laboratory.

Presently the transcriptions of modern construction designs have led to the increased use of cut globigerina blocks, once reserved for the building of houses to now construct walls that line roads. The construction process is simple and efficient when provided with a sufficient supply of quarried stone. Modern mechanical technologies have made the cutting of globigerina easier than the once manual hammering of coralline rubble. These modern walls consist of blocks with water and limestone dust between them to act as a cement.

Over this bare and crumbling surface a façade of small rubble stones is cemented to the side facing the road with concrete, a false wall. The covering holds no structural value. Its purpose is to imitate the aesthetic value of the rubble wall. In some places this façade was seen peeling away from the vertical base wall.8

The older rubble walls lay at an angle to counter opposing gravitational forces rather than relying on the strength of cement. Its structural achievement, independent of mortar, provided its aesthetic value. Water drained through the loose-lying stones with ease relieving the weight of collected rain water. Drainage pipes have had to be added to modern walls to perform the same effect. The crevices between the loose lying stones also provided homes for all sorts of animals. Vines grew through its spaces. The value of the wall's niche as a micro-environment was discovered by the author on a walk when it became the haven for a crippled bird. 'Helpless on the coarse ground, dust-blown by the bombarding vehicles, I lifted with ginger fingers, the

Figure 5: Contrasting modes of irrigation, to the left, modern irrigation using pumps and hoses, to the right, ancient irrigation using carved U-shaped blocks and packed furrows.

soft-grey mound with twisted limb to the triangular nook within the rubble wall, where sheltered, it peered out upon the world it was leaving.' These nooks, however, also become havens for snakes, which the locals fear, despite their being nonvenomous.

The contrasting modes of wall construction, ancient and modern, are reflections of the values supported by the people of the times. A study of the different designs of walls throughout Gozo provides a survey of the values maintained. Some old walls remain; some are replaced by new models. Nonetheless, each wall marks the character of its builder at the moment it was built. So far two ideal types of walls have been described. The ancient rubble wall that provides a strong structural blockade against erosion, and the modern wall that seeks to achieve efficiency with aesthetic credibility. No wall is created strictly favoring one ideal set of values over another. Rather, each wall is a complex of these contrasting values and their designs.

Two men against a blinding solar background of white wash their hands and scooter preparing to seek respite in their cellar-like homes. Hoping to spare little time they talk little and grab buckets from each other without asking. They argue with rough hands and brief curses in Maltese. Their answers to my questions about the walls are shortened by haste. Their parting words are of their credentials, "the walls with concrete on top are ours."

Many older walls still in use have been modestly repaired with concrete filling the topmost layer ensuring its ability to last despite a poor arrangement of its stones.10 Workers repairing a boundary wall to a large farm used this technique to easily fix a low wall. The wall's purpose was utilitarian and therefore required little else. Under the mid- afternoon sun's thought-obliterating power the use of concrete is readily acceptable; its practicality cannot be criticized.

The author also observed the use of concrete in a most thoughtful manner. Two metal poles were to be secured within a pile of rubble that lay like an island on a hillside. They would support a windscreen to protect the garden. Large heavy stones with jagged shapes were pushed apart to form an opening a meter deep through which the posts were to be grounded. Small, hard, grey stones were chosen for later. A mixture was prepared in a bucket of coralline limestone powder, concrete, and water and mixed by hand. The cement would fill the gaps in the rocks like the arms of a star, in subterranean space. The selected stones were placed within the concrete immersed in the conglomerate, while supporting each other. The resulting structure utilized the weight of the rock in conjunction with the strength of the concrete, combining the benefits of practices both ancient and modern. It would protect the garden for many years of plentiful oranges, figs, and prickly pear.

More invested projects use a greater amount of concrete to create a brickwork design. Layers of concrete are lathered between each row of stones making the wall impenetrable to soil, water, plants, and animals. The great quantities of concrete are costly, but less demanding than faith in one's artisanship. These projects that use concrete tend to be public works that measure engineering progress in terms of money. It is difficult to equate the skill of an artisan with a monetary value. Such is the cause to the impoverishment of artist. If I ask someone to build a wall for a certain amount of money how will I know what the quality of that wall will be? How will the quality change if more or less money is offered? If I am upset with the result how will I negotiate? To quell these difficulties in public works skill is removed and the cost of concrete is added to equate the cost of a given project. In order to quantify the needed supplies, the quality, which by its essence is immeasurable, must be lost.

Supporting this analysis is the fact that private works, walls built by people on their own property, used far less concrete. My attention was first brought to this fact by a single man whistling as he slowly finished a single tier of his garden wall. The man took his time as he chopped carefully at a globigerina block with a fresh ax that shined silver with the sun.

He sculpted the sides, edges, and corners of the block to fit tightly into its determined place. The large flakes the ax released, he fit snuggly in the loose crevices. And he gave little care to stopping early when I had sat and watched for too long. A record of the elapsed time showed that he gave over a week to finish a section that would have taken any other crew only a single day. His wall was as solid as any could ever be built and looked beautiful. No value could be expressed for the care this man gave. But under the time constraints and budget of a public project this type of wall is impossible.

The author was fortunate, though, to spend a work week with a crew building a dry rubble wall without concrete. The public project proceeded only because the wall was being built in an area of preservation. The workers were paid by the distance in meters they completed. Consequently, they often rushed to make more money. One section of

Figure 6: A panorama showing two types of fields.

Figure 7: Left, a dry rubble wall under construction. Right, a false wall eroding away.

Figure 8: Drainage pipes in a modern wall.

their wall was so pitiful that a person could see through its loose structure. Older local men criticized the wall and brought it to the attention of the caretaker. He commented to the workers that "a person could not even pee behind it without getting arrested." Overall, though, the wall was well constructed, and the author's debt to the builders must be stated. For it was them who could best explain how a dry rubble wall was constructed, and it is their description that was transcribed earlier in this paper. Victor, the leader of the builders, reported that he had learned the craft from his father; that the knowledge had been passed through the generations. Indeed in their daily work the builders related to each other as a family. Victor's most willing assistant was his nephew, Jason, who went about the novel tasks with careful attention for his uncle's approval. Many of the tasks he appeared to be learning for the first time. Work was more leisurely on this day and Jason's future schooling and the sex life of their mutual friends were discussed amiably.

The three other builders I was able to work with were of equally vibrant character. An older man who spoke no English was addressed as the 'thin one'. He looked as though he had worked everyday of his life and gave the greater part of his earnings to his family to the detriment of his own physical strength. He had a horse he liked to race, an interest he shared with another builder who I labeled the strong man. This title was due to his tendency to choose the largest stone to place upon the wall, a practice that contrasted with the concern shown for myself, whom everyone expected to be hurt under the strain of the stones. The third of the workers was tall, wore a cowboy hat that read 'wild west' repeatedly around its band, and had a tribal tattoo on his arm. It is these characters that define how the wall was to be built on any particular day depending on who would be working. Each day there was a new combination of workers as each person maintained several small jobs that he would rotate between. If the old thin one worked, the wall was built quickly and efficiently, spurred by his many years of experience. If the strong man worked it was built quickly, but haphazardly, due to his great pride and unwillingness to listen to the thoughts of others. And if the uncle and nephew worked together, it was slow and careful with great thought and attention.

It was on the final day, though, that the author came to realize why rubble walls are not so plentifully made. I had become frustrated at not being allowed to participate as much as I wished. What I really wanted was not simply to observe, but to place stones and actually build part of the wall. In my frustration I just started picking up stones and placing them how I thought they should go, without anyone's approval, testing them with a little shake as I had seen the others do. I believed that my small section was built quite well as it was very sturdy. However, I was soon corrected.

The problem was not that my stones lacked stability, but that their face was not flush with the side of the wall. Superceding the value of a wall that could stand for ages was the necessity that the wall appear to be flat. The stone I had chosen had a face that lay at a very bad angle. To fix the problem the stone was maneuvered to an angle to compensate for its face. Though structurally it was very poor and would cause a weak spot in the wall, the face was flush and would appear to be proper once the wall was finished. The requirement that all the stone's faces be flush thus makes it difficult to create a structurally sound wall. These structural difficulties, however, are easily overcome with the use of concrete. Because aesthetic value favors flat-sided walls, it is thereby easier to build a wall using modern methods than ancient.

Most amazing was the discovery of walls exhibiting multiple periods of construction layered upon each other. Indelibly, the bottom tier would consist of a very yellow crumbling globigerina whose face weathered by wind looked like the very landscape of the island in miniature, a collection of small anthills. It was the predetermined fate sentenced by the pressure forced down upon it. Statues of men and saints that populate the island would succumb to the same fate, humbling the figures by their grotesque distorted feet.

Above this lowest tier, a layer of rubble attests to the efforts to repair the wall in the past. The stones are of a uniform size, medium, round like large spherical cobbles. Concrete has been added in later periods when the top layer was constructed, a layer of new globigerina blocks, unworn, as perfect as fresh bricks. These are bound by a cement of water and limestone dust and pushed solidly together with a layer of concrete on top. Their strength will hold the wall together even when the bottom tier has eroded completely away, an amazing phenomenon observed by the author. Still, other times a layer of rubble stones was observed topping the freshly built wall, the older methods tapped to add another half meter in height. This method added no stability, only character.

The multiple layers of development are most easily noted in the contrasting colors. Yellow represents old worn stones. Grey are the stones that have maintained their strength. The concrete is a pale grey. White are the new globigerina blocks.

Figure 9: A layer of concrete at op a wall to quickly repair it.

Figure 10: A repaired wall with its older layers falling away.

Figure 11: A wall with multiple layers of construction.

All the island's structures can in fact be aged by the color of their material. A palette of stone quarried from the island itself that ranges in distinction along the most minute of tints. It is only the imported goods, beach towels and cheap trinkets, that display the gaudily bright reds, blues, and every other color unnatural to the environment; the perversion of the neural impulses developed in our species to decipher the ripeness of fruit for the sale of cheap goods to tourists.

The examples of layered walls are invaluable displays of the sequence of changes that have altered the shape of an existing wall. Like the layers of geology, they inscribe years of history into a single moment, and order technological change by the law of superposition. Yet, what conclusions is one to gleam from this timeline in construction and the many building styles that have thus been described?

Francis Ebejer is perhaps the most popular Maltese author. To answer the preceding question I would like to first include a lengthy quote from his novel In the Eye of the Sun. "The walls of the cistern once had many cracks in their mortar; now they were all cemented and smooth except where moss spread like old monastic scrolls. He was not particularly disappointed to find these changes. What really mattered was that this place had contained all the things he had once known and smelled and touched. These places were the old places. What mattered a few square feet of cemented surface, or tomatoes and long marrow in place of broad beans, or the absence of the yellow-eyed medlar under which he used to cast off his clothes to dive naked into the green, warm water of the big cistern...?

It is true that the terrace walls built and maintained over hundreds of years in the past are falling down. They are disappearing. But what is tragic is not that they go unused. Current modes of farming are able to provide food for the island without the use of these walls with less importation than other islands the author has studied. What is tragic is that the old stories of these terrace walls and the people who built them may be lost.

It matters little that new types of walls are being developed based on the emerging technologies that make cement and cut blocks more affordable. What matters is that the ancient ways of building walls may be forgotten. For each wall represents the character of the builder and the influence of the culture of that period of time, and the artistry of that event once forgotten passes away into an oblivious void. Such is the nature of time that renders great achievement but transitory. Yet, it is the nature of man to record the stories, so that though the physical nature of a place may change, it may still remain the old place filled with the spirit of the past. For the people who inhabit these islands are descendants, whose "first ancestors clambered out of their rough boats... [who] labored hard to carry the precious soil up to the top of this hill, where soon enough they built this temple, not simply as an expression of their sentiments to their gods, but, too, as an indelible mark of their patrimony over this countryside" (Ebejer, 28, Leap). Those rubble terrace walls, like the temples, claim patrimony over the island. They have altered its surface in order that man may live there, on up to today.

Currently, the Ager Foundation, led by Victor Galea, is helping to preserve the memory of traditional methods through agrotourism. For a small price, tourists can spend a day with either a shepherd making cheese from goat's milk, with a fisherman on the sea in a luzzu boat, or making homemade wine like the locals. Though the program is only in its tenth month it has received fantastic reviews and is popular among people of the main island who do not know these traditional ways. Victor further reported that the farmers he worked with showed an increased sense of pride in their work that was once scorned as primitive.

The great benefit of agrotourism is that it attempts to connect the tourist with the local people and thereby transverses the boundary that otherwise exists between the two. Seaside tourism, as was said earlier, creates a social geographic boundary. Local behavior, once inside this tourist space, becomes performance catering to the highest dollar. Cultural tourism, the visiting of archaeological and historical sites, focuses on foreign invaders and people far removed in history from the citizens of modern Gozo. Agrotourism, however, addresses modern Gozitans as unique and intriguing people. Tourist are allowed to escape from their normal lives and live for a day in the exotic lifestyle of these people.

I asked Victor if he thought wall-building could be incorporated into his program. He was excited at the possibility but unsure of how to promote it. Nevertheless, presentations on the ancient craft may one day help to re-instill pride in the now crumbling walls. I encourage those reading to support his program and its cause, for the work of the Ager Foundation provides a model for the preservation of culture that may be emulated throughout the world. I must now end this paper with a point given to me by my friend Mario, a very smart fellow who provided me with lodging for part of my stay. That point is, that though the use of concrete may be replacing traditional methods of wall construction, it is not inherently ugly. Though the

mixture of concrete commonly results in a coarse, scratchy grey substance, a better mixture may provide a smoother finish. Such a concoction was achieved by the Romans whose Parthenon is constructed completely of concrete. If more attention were given to the quality of the mixture, perhaps with a greater proportion of the soft, pale globigerina dust, then the current style of wall building could become something of great beauty worthy of preservation on into the future.