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The Gozo Observer

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Editorial:

The Bishop of Gozo and the Gozitan Diaspora

Post-war migration affected both islands of Malta but had a particular dramatic effect on the population of Gozo, with whole villages being decimated as a result of the rush to escape the harsh economic realities of the time and seek greener pastures elsewhere.

Those who left in the 1950s and 60s, young energetic youths or families with young children have now grown to be euphemistically referred to as ‘senior citizens’, but they still consider themselves to be staunchly Maltese, or more accurately Gozitans. They still carry with them the culture they were born in and the dialect they spoke at the time. The highlight for many is to visit the island to meet with old friends and seek what’s left of their extended families.

Visits by Maltese bishops to Australia do not occur too frequently. As a matter of fact, on average, this occurs only once in every nine years or so. Since 1960, there have been three visits by Gozitan bishops, namely by the late Bishop Nikol Cauchi (in 1968 and again in 1995), and a few months ago, in October, by Bishop Mario Grech.

Social life for Gozitans in Australia is centred around established associations, or organisations, which were often set up to celebrate annually the feast of the saint of the village from which they originated. There are associations of Xaghra villagers, Qala, Nadur, Għarb, and others. Throughout the year they organise get-togethers, barbeques, dinner-dances and other activities with the sole aim of socialising and keeping in touch with their friends.

Bishop Grech was welcomed by all of these organisations, and he and members of his family who accompanied him had a busy time visiting them all, in Melbourne, Sydney as well as Adelaide.

During his visit to the Maltese Community Centre in Melbourne he had the occasion of attending

classes for students learning Maltese with whom he had opportunity to chat. He asked one of the mature students why was she learning Maltese and was surprised by her answer. She said: “My mother in Malta is getting old and started forgetting what English she had. I never learned Maltese and always communicated with her in English. I am worried that the time will soon come when we will not be able to communicate any more unless I learn Maltese.” This emphasizes the real risk of forgetting the second language as one grows older. It also characterises the situation current in Australia where second and subsequent generations of Maltese can rarely communicate effectively in Maltese.

At a reception given in his honour by the Maltese Community Council of Victoria, Bishop Grech emphasized the need to maintain one’s Maltese culture and tradition. He stressed the point that culture is an intrinsic heritage which we should do our utmost to transmit to the next generation. And this, he added, includes our religious beliefs which are being threatened everywhere.

In a country where it might take an hour to get to visit one’s friends, the definition of a place not being “too far” needs to be adjusted. It suffices to point out that the distance from one end of Melbourne to the other is more than 60 km. What is considered not ‘too far’ for the average Australian is often considered prohibitively distant for a Maltese coming from Malta.

Apart from this mental adjustment, one is sure that the scenery, the variety, the novelty of flora and fauna, not to mention the warmth of receptions he met with, will continue to be remembered by the Bishop for a long time to come.

Maurice Cauchi

Three Crabs, and a Gozo Connection

PATRICK J. SCHEMBRI

Mediterranean Shore Crabs

The three crabs in question are the three species of shore crab belonging to the genus *Pachygrapsus* that occur in the Mediterranean. Shore crabs are marine crustaceans that are adapted to live on the shore, which is the interface between the terrestrial and the marine environments. Shores are very difficult environments to live in for marine animals because not only is the shore periodically exposed to the atmosphere, but wave action batters the shore and anything that lives there. Key problems that shore animals have to face are the tendency to dry up (desiccate) when they are exposed to the air, the high temperatures especially in summer, the increased salinity as the water around them evaporates, the difficulty in obtaining oxygen using gills that need water to function, and the constant danger from terrestrial predators which forage for food on the shore, in addition to marine predators when submerged. On top of this, the shore is a very dynamic environment, especially in winter, when waves pummel shore dwelling creatures almost constantly. During rough seas, any creature living on

an exposed shore can expect to be impacted by tens of litres of water every few minutes and considering that just one litre of water weighs one kilogramme, there is a very real danger of mechanical damage or of being swept away by the waves.

Pachygrapsus crabs live on rocky shores and are amphibious, being equally at home under the water and walking on land in that zone of the shore only wetted by sea spray. They are superbly adapted for this mode of life. In calm weather, these crabs forage for food along the waterline, both below and above it, and in rock pools. The crabs are omnivorous and browse on algae and any other vegetable matter and will feed on any small animal that they are able to catch; they will also take larger prey, if this prey is moribund. Additionally they feed on detritus (finely divided organic material) and scavenge on bulk organic matter, including the leftovers of shore users. The claws at the tips of their walking legs are strong and enable the crabs to gain a good hold on the rock even during moderately rough seas, however, when the sea gets really rough and there is danger of detachment, the crabs seek refuge



The Marbled Shore Crab *Pachygrapsus marmoratus* – a specimen from Ħx-Xatt l-Ahmar, Gozo. [Photo by Stephen Mifsud © 2009].



Pachygrapsus maurus from Hondoq ir-Rummien, Gozo. The scale is in millimetres. [Photo by Ramon Grech © 2009].

under water in holes or crevices in which they jam their bodies tightly. Compared to other marine crabs that do not live on the shore, shore crabs are flatter and are very agile, being able to move at great speed in all directions. These are adaptations for beating a quick retreat at the least signs of danger, not just predators but also from a rapidly changing environment, and for fitting snugly in even very small crevices.

Three Crabs

The commonest Mediterranean shore crab is the Marbled Shore Crab *Pachygrapsus marmoratus*. This crab is found throughout the Mediterranean wherever there are rocky shores and it is also found on the Atlantic shores of northwest Africa and on the European Atlantic coasts of Spain, Portugal and France as far as the entrance of the English Channel, as well as the Macaronesian islands¹. The second commonest species, which has no common name,

is known as *Pachygrapsus maurus*. This species is found in the Macaronesian region and in the western Mediterranean where it occurs here and there along the Spanish coast, the Balearic Islands, France and the Tyrrhenian shores of Italy. It also occurs in the eastern Mediterranean but here it is much rarer and very patchily distributed in a few localities only that include the Ionian coast of Sicily, Greece close to the Strait of Otranto, Crete, and the southern coast of Turkey. It is not known at all from the Adriatic and the entire southern and eastern shores of the Mediterranean from western Algeria to the Turkish-Syrian border.

The third species is the Mottled Shore Crab *Pachygrapsus transversus* which is mostly a species of the tropical and subtropical Atlantic where it has a wide distribution on both east and west coasts. It occurs also in the Mediterranean where it has an odd distribution being found in Spain, in the central Mediterranean (Tunisia and Sicily) where

¹ The Macaronesian islands are the Azores, Madeira and the Canary islands.



The Mottled Shore Crab *Pachygrapsus transversus* from Ix-Xatt l-Ahmar, Gozo. [Photo by Stephen Mifsud © 2007].

it is a rare species, and then more abundantly in the easternmost part of the east basin (Egypt, Israel, Lebanon, Syria, Cyprus, and a few spots in southern Turkey and the Aegean Sea). It has been suggested that the Mediterranean populations of *Pachygrapsus transversus* owe their origin to entry of this species from the east Atlantic either naturally through range expansion via the Strait of Gibraltar, or through human transport, at least initially; the latter hypothesis seems more likely given the very disjunct distribution and the lack of records from along the North African Mediterranean coasts.

Shore Crabs of the Maltese Islands

Until very recently, it was thought that only the Marbled Shore Crab *Pachygrapsus marmoratus* occurred in the Maltese Islands. All previous works on Maltese crabs or on marine life only ever recorded this species, while in an extensive survey of local crabs that my colleague Edwin Lanfranco and I made in 1984, during which we examined many tens of shore crabs, we only found this

species. All shore crabs that I have seen since were also all *Pachygrapsus marmoratus*. All this changed three years ago when the Italian marine biologist Fabio Crocetta spotted a photograph of a crab posted on an educational internet website by another colleague, Stephen Mifsud, which was clearly not the Marbled Shore Crab but *Pachygrapsus transversus*, and he alerted us to the fact. Checking his records, Stephen Mifsud found that he had photographed the animal at Ix-Xatt l-Ahmar in Gozo in the summer of 2007. An expedition to Gozo was hastily organized in February of 2009 to look for this completely unexpected crab. We did not find any *Pachygrapsus transversus* on that first expedition, but we did find something even more unexpected – amongst the many individuals of the Marbled Shore Crab we examined, there were two from Hondoq ir-Rummien which appeared different. Close study of these specimens revealed them to belong to the third Mediterranean species of shore crab, *Pachygrapsus maurus*. A little after we made this discovery, Stephen Mifsud searched thoroughly the Xatt l-Ahmar site where he had photographed

Pachygrapsus transversus and managed to find two individuals of this species as well as a specimen of *Pachygrapsus maurus*. A little later still, one of my research students, Joseph Piscopo, who was studying the behaviour of the Marbled Shore Crab, brought me specimens of a crab he found that had a different colour pattern from that of the species he was studying, and these too turned out to be *Pachygrapsus maurus*. It seemed that all three Mediterranean species of shore crab were living on Maltese shores.

Given that shore crabs are very familiar and visible animals and that large numbers of naturalists and students have looked closely at the animals of local rocky shores, it seems unlikely that the two newly discovered species had been there all the time but nobody noticed them. To check on this my colleagues and I searched through as many old collections of specimens of shore crabs and photographs of crabs taken in the Maltese Islands as we could find. Although we examined a large number of crabs going back to the 1980s, they were all the common *Pachygrapsus marmoratus*, except

for a single individual of *Pachygrapsus maurus* collected in 1990 from Xghajra by one of my then research students, Adrian Mallia, during his studies of Maltese rocky shore life. In the meantime, Joseph Piscopo embarked on a survey of the rocky shores of all three main islands of the Maltese archipelago with the aim of mapping the distribution of the three shore crabs. After months of painstaking work he had a clear picture of the distribution of these animals.

As we expected, *Pachygrapsus marmoratus* was invariably present on all the rocky shores surveyed and was usually abundant, except on a few very exposed shores, where only a few individuals were encountered. *Pachygrapsus maurus* was much rarer and was found on eight of the 15 Gozitan shores surveyed, on a single shore on Comino, and on seven of 15 shores surveyed on Malta. Overall, this species was present at low to very low abundances on most shores except for two shores on Gozo and one on Malta which are very exposed to wave action. Of the three, the Mottled Shore Crab *Pachygrapsus transversus* was the rarest, being



The shore at Ix-Xatt l-Ahmar, Gozo, which is one of only two shores known to date where the three different species of *Pachygrapsus* co-occur in the Maltese Islands. [Photo by P.J. Schembri © 2009].

found on just three (two shores on Gozo and one on Comino) of the 33 shores investigated during this survey; moreover, on these shores, only one or two individuals were found. While too few individuals of *Pachygrapsus transversus* were found to draw any conclusions about their distribution, it is quite clear that *Pachygrapsus maurus* occurs in the largest abundances on those very exposed shores where the common species, *Pachygrapsus marmoratus*, finds it difficult to live.

The Gozo Connection

Gozo features prominently in this account. Not only were *Pachygrapsus transversus* and *Pachygrapsus maurus* both first discovered on Gozo, but following the survey made by Joseph Piscopo, it resulted that the former only occurs on Gozo and Comino as far as we know at present. The western coast of Gozo is the most exposed in the whole of the Maltese Islands since it is subject to the full force of the prevailing north-westerly wind ('Majjistral' in Maltese) without any close by land to shelter it. Therefore, it is not surprising that of all the places where it occurs, *Pachygrapsus maurus*, which is apparently adapted to live on exposed shores, attains its highest populations on the sloping shores of the Dwejra area (the shores at Il-Port and Il-Qasir). The shores at Ix-Xatt l-Aħmar and at Il-Port have an additional significance. These are the only shores in the whole of the Maltese Islands where all three species of shore crab were found living together along the same stretch of shore. This gives rise to a very biologically interesting situation because where closely related species that exploit the same resources co-occur, there are usually some biological mechanisms operating to reduce competition between the different species. Investigating this phenomenon was one aspect of the research undertaken by Joseph Piscopo. He discovered that where *Pachygrapsus maurus* and *Pachygrapsus marmoratus* co-occurred, they occupied slightly different habitats; the former species stayed in pits mainly in the upper reaches of the shore in that part wetted by breaking waves, while *Pachygrapsus marmoratus* was found closer to the sea at or just below sea level.

There is one additional Gozo connection – Joseph Piscopo is Gozitan.

The work described in this article has been published in the international scientific journal *Mediterranean Marine Science* (see Crocetta et al., 2011 in the Bibliography).

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Managing Gozo's Marine Protected Areas

ALAN DEIDUN

Introduction

The seventh meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) adopted a Programme of Action which aimed to establish and maintain, “comprehensive, effectively managed and ecologically representative systems of protected areas” that, collectively, will significantly reduce the rate of loss of global biodiversity.

Within the marine domain, such an objective has to be reached pretty soon – by 2012. In order to conceptualise better the feat spelt out by such an objective, the WWF (World Wildlife Fund) and TNC (The Nature Conservancy) established that by 2012, ten percent of the extent of each of the world's 232 marine ecoregions¹ had to be protected. In a recent stock-take, it was revealed that such aspirations have been reached for just eighteen percent of all marine ecoregions, whilst for half of these eco-regions, the outlook was even grimmer since less than one percent of their extent was protected.

By 2010, 5,800 MPAs had been designated globally, covering just 1.2% of the global ocean, with just 0.1% of the global ocean lying within no-take reserves. One registers the existence of 74 MPAs in sixteen different countries in Europe in 2010 covering a combined area of 1624 km².

Gozo is endowed with unparalleled underwater assets, mainly in the form of evocative and stunning geomorphological landscapes, ranging from arches and boulders to caves and tunnels, and in the form of sterling water visibility. The island is peppered with superlative diving spots, but Dwejra obviously takes pride of place, attracting most of the 80,000-odd annual divers converging

on Malta and ranking as one of the best dive sites in the Mediterranean where competition for such an amenity is stiff.

The calibre of Gozo's underwater assets has been partly acknowledged in the local designation of Marine Protected Areas (MPAs), with two out of the five local MPAs – Dwejra and Mgarr ix-Xini – being located within Gozo's waters. Dwejra is actually just one of two local MPAs to be endowed with a zoning plan (i.e. a scheme which defines the different uses permissible in different areas of the MPA), the other such local MPA being Rđum Majjiesa off the western coast of Malta.

The PANACEA Project

The aptly-named project, PANACEA, commenced in April 2011, funded under the Italia-Malta 2007-2013 ERDF call, with the Maltese partners on such a project being the International Ocean Institute-Malta Operational Centre (IOI-MOC) of the University of Malta and the San Lawrenz Local Council. The Sicilian partners in the project are the Province of Syracuse as Lead Partner for the project, the Province of Palermo and the Comune of Lampedusa and Linosa. The acronym PANACEA unfurls into Italian parlance which can be translated as: ‘Promotion of Marine Protected Areas through Environmental Education Centres.’

The main objective of the PANACEA project is to promote the sound scientific management of biodiversity assets within Sicilian and Maltese MPAs by drawing on codes of best practice developed within selected MPAs and through the institution of environmental educational centres. These centres can be considered as portals of edutainment, in which visitors (students, divers,

¹ An ecoregion (ecological region), sometimes called a bioregion, is an ecologically and geographically defined area that covers relatively large areas of land or water, and contains characteristic, geographically distinct assemblages of natural communities and species.

tourists, locals) are regaled with a didactic experience through a kaleidoscopic overview of the MPAs' living resources through a number of ad hoc tools, including documentaries, interactive tools, permanent exhibitions and models, ecological laboratories and 'dioramas' (i.e. grouping of figures against a painted background or an arrangement of pictures that create a 3D effect).

Of the four such centres envisaged during the course of the project implementation, one has been slated for Dwejra, more specifically for the interpretation centre on the way down to the Inland Sea. By housing the environmental education centre within the interpretation centre, the rationale behind the development of such a centre – i.e. that of supporting environmental initiatives at Dwejra – will finally be realised.

The Need for Good Management of Gozo's MPAs

The PANACEA concept is intended to address management problems of local MPAs –



The 'blue hole' allows access to a stunning underwater itinerary at Dwejra, Gozo.

particularly the complete lack of promotional platforms and environmental educational spin-offs from such MPAs. Consequently, local MPAs remain obscure, not just to foreign visitors but also to local diving pundits, mainly as a result of the complete lack of facilities such as an ad hoc MPA website and MPA visitors or interpretation centre. Such facilities are the order of the day in MPAs abroad, with the Plemmirio MPA in Syracuse, just 150km to the north of Malta, being even equipped to handle physically-disabled visitors.

Incidentally, the PANACEA project also aims to develop a website tailor-made to promote the living and geomorphological assets within the Dwejra MPA, in addition to a slew of other informative material such as catalogues, leaflets and even underwater documentaries on the Dwejra and Rdum Majjiesa MPAs which will then be projected on screens within the envisaged environmental education centre at Dwejra.

In lock-step with the promotional activities, scientific ones within the Dwejra MPA are also being conducted. These include the deployment of water temperature loggers at depths ranging from 5m to 40m, retrievable every six months, and the development of a prototype 1-d ecological model for the same marine area. Such a model is expected to eventually function as a novel MPA management tool.

In parallel to the implementation of PANACEA, the Malta Environmental and Planning Authority (MEPA) is currently engaged in developing similar amenities for divers within the Rdum Majjiesa MPA, in the form of underwater trails for instance, through its participation in the MedPAN 2 project. MedPAN is an ad hoc network of the managers of MPAs.

Conclusion

The outcomes envisaged from the PANACEA project include ones whose legacy will be immediately perceived, at the end of the project's duration in 2013, such as the opening of the environmental education centre at Dwejra and



The purple seastar (*Ophidianus ophidiaster*) is just one of the many protected marine species one encounters at Dwejra.

the compilation of scientific and promotional material about the Dwejra and Rdum Majjiesa MPA. However, it is augured that the legacy of other project outcomes extend further in time, such as a greater appreciation of the conservation importance of the benthic assemblages to be encountered within our MPAs. This in turn could foster a higher degree of conscientiousness in divers and eventually even the adherence to a code of responsible behaviour.

The island of Gozo should reap the dividends of the PANACEA project in that it will be endowed with the first environmental education centre latched to an MPA developed in the Maltese Islands which, due to its strategic location close to the Inland Sea, should appeal to the thousands of divers who pay the area a visit. Dwejra will also be the crucible for the testing of a novel MPA management tool – an ecological model – which should give managers some foresight in predicting changes occurring

within the water column at Dwejra. Perhaps the most iconic of all Maltese MPAs – Dwejra – will feature prominently in an ad hoc website and underwater documentary which should further bolster Dwejra's emblematic standing abroad. Gozo should finally be placed on the same footing as other sterling diving destinations in close propinquity to our archipelago, such as Lampedusa, Syracuse (Sicily) and Tunisia.

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Geological and Geomorphological Aspects of the Żebbuġ and Marsalforn Region

GEORGE SAID

Abstract

The geological history of the Maltese islands is rather a recent one, with its sedimentary formation processes dating back to the Oligocene period. Such sedimentation occurred in shallow marine environments at different sea levels, thus causing the development of the present five geological strata.

However, although landforms occur on a small scale, they were subject to intense tectonic activity. This activity marked the Maltese archipelago with a complex series of faults, which lead to the development of karst geology and geomorphology.

Such phenomena is registered in the formation of the Żebbuġ mesa and Marsalforn valley in northern Gozo. The development of such a striking topographical contrast is rather a complex one as diverse types of geomorphological processes have occurred in the past and have sculptured the landscape as we know it today. Besides this, the area possesses a complex faulting system part of which is submerged. This also aided in the formation and presentation of this region.

This paper examines a brief review of geological and geomorphological processes discussed by various geologists in the past and also argues various hypothetical conclusions conducted by the author through various fieldwork sessions in the area.

Introduction

The Maltese islands are composed of mid-tertiary sedimentary rocks which were formed in shallow marine water environments. Tectonic movements left an imprint on the face of the landscape as the whole archipelago expresses

super-imposed phases of strike-slip faulting and rifting with associated up-arching and down warping. Geomorphological processes working on this framework resulted in different types of landforms, though on a small scale in these small islands. This can be seen in the various types of stream channel formation and incision, coastal morphology and formation of erosional surfaces. All these processes have acted vigorously on the Maltese islands in the past five million years since their uplift from beneath the sea and have produced diverse geological and geomorphological features. The Żebbuġ and Marsalforn areas exemplify some of them.

Geology

The Żebbuġ mesa and Marsalforn valley are located in the northern middle section of the small island of Gozo, the second largest island of the Maltese archipelago. The region is composed of marine tertiary sedimentary rocks which date their initiate deposition during the Oligo-Miocene epochs (between 30 to 38 million years ago). This northern section of the island exposes all the geological strata however the Blue Clay and the Upper Globigerina limestone outcrops dominate the area.

The Żebbuġ plateau top is composed of the Upper Coralline Limestone. This formation is similar in many ways to the Lower Coralline Limestone formation especially in colour and coralline algal content. It consists of pale and brownish grey coarse lime muds and sands containing different species of coralline algae. It is a durable stratum frequently weathering into steep bounding cliffs and bearing well developed karst topography.

Next in sequence is the Blue Clay layer. This is an extremely soft rock which weathers away

easily. Its composition consists of pelagic marls with pale beds rich in foraminifera resulting in a medium grey colour. Topographically, clays weather back to 45° slopes and taluses that tend to slide further downhill over the underlying Globigerina Limestone formation. However the Blue Clay is non-porous and rain water slides down to the valley systems.

Most of the Globigerina Limestone found in this area exposed at the surface is of the Upper division of the formation. This geological division is a fine grained soft honeycombed weathering limestone which ranges in colour from orange yellow at the top downwards to a pale grey and then to a creamy yellowish at the base. The base exhibits a ubiquitous phosphorite conglomerate bed containing fish teeth and diverse other macro fossils. This hard bed is termed the Xwejni or C2 conglomerate.

Beneath the Upper Globigerina Limestone at a slightly lower topographic level, the Middle Globigerina Limestone member crops out. This consists of a planktonic foraminifera rich sequence of massive white, soft carbonate mudstones locally passing into pale grey marly mudstones. The base of this formation rests upon the Lower Globigerina Limestone member with a pronounced hard phosphatic bed (the C1 conglomerate series) at the boundary.

The Lower Globigerina Limestone member is a white weathering grey marly limestone which contains numerous nodules (Zammit Maemphel, 1977). Erosion transforms this relatively soft sedimentary bed into a gentle rolling landscape, leaving talus of chocolate coloured phosphatic nodules in various stratigraphical levels as they are much harder to erode. These beds are only a few centimetres thick and the nodules vary



The three divisions of the Globigerina Limestone strata at il-Qolla l-Bajda - Xwejni. [Photo by George Said].

from pea size to ten centimetres in diameter and all contain a high amount of phosphate of lime together with considerable quantities of organic remains often mixed up with casts of shells and corals (Hyde P.T., 1955).

The Lower Coralline Limestone formation is exposed in a very small cliff on the coastline just a few metres off the Ghasri valley and in dispersed outcrops embedded in the waterline zone of the Xwejini shore platform. This formation is the hardest limestone on our islands and is composed mainly of shelly debris derived from skeletal remains of calcareous algae, foraminifera and various other shelled organisms which used to live in shallow water. These deposits make up the rocks and beds of large sea urchins, *Scutella subrotunda*, which are exposed on outcrops of Lower Coralline Limestone (Zammit Maemphel, 1977).

The presence of these different geological strata in the region, subject to different erosional processes and the differing resistance of these rocks, controlled the present formation of iż-Żebbuġ as upland and the Marsalforn valley to be eroded down to sea level. In total, these geomorphological processes are quite complex as there are many parameters to be taken into consideration.

Structural and Geomorphological Features

Geomorphological processes in this zone are induced by two main actions, (1) sub-aerial erosion and (2) marine erosion. Sub-aerial erosion includes all those processes which are acting on the land which are directly subject to climatic conditions. Marine erosion consists of all those processes which are triggered by wave action and marine biological activities. However such processes, though different from the previous ones, also depend on climatic actions. Thus climate, and its behavioural patterns, is the principle cause for the triggering of all types of erosion and its rates of processes. The Żebbuġ and Marsalforn regions possess different and distinctive types of erosion and these are depicted in the limestone structures which are unique. The features include:

- Past erosional and depositional features
- Valley formation formed by sequential water

drainage actions

- Various mesas
- Marine caves
- Wave cut platforms
- Sea stacks
- Pebble and shingle presence which rest in Marsalforn and Qbajjar inlets

Past Erosional and Depositional Features

When the islands were uplifted to the surface by tectonic forces about five million years ago, they were subject to sub-aerial erosion. The Upper Coralline Limestone bed covered the top of the geological stratification and so this was the first to be subject to erosion. As this geological band is porous, rain water flowed through this rock to initiate solution erosion. This caused caves to be formed at the base of the Upper Coralline stratification.

Distinct from the largely ulithified sediments, cave deposits are formed by crystal growth, usually of calcite, though many other minerals may also be present. Stalactites and stalagmites are familiar examples, the term speleotherms is common and is given to such deposits.

This type of deposition process tends to occur when waters, with calcium and hydrogen carbonate content which are equilibrated with high values of carbon dioxide from the soil and bedrock fissures, encounter the lower values of carbon dioxide present in the cave atmosphere. A disequilibrium situation occurs when percolation water reaches the cave air with the result that the carbon dioxide content of the water drops reaching equilibrium with that of the cave air. Such a situation causes calcite precipitation to occur.

These type of deposits are termed as Travertine deposits. Such deposits are indicated by a crystal rim around a drop of water, the rim enlarging to form a straw of flow stone. Combinations of flow rate, calcium content and local conditions of topography, climate, trace element composition and flood frequency combine to produce a large variety of speleotherm forms.

Thus, Travertine is a denser, banded deposit especially common in limestone caverns where



Wied l-Infern one of the largest valley drainage systems in Gozo. [Photo by George Said].

it forms the well known flow stone and drip stone, including stalactites and stalagmites. Like tufa, it forms relatively small deposits of no great geologic importance and is primarily Quaternary or Recent in age. (E.J., Pettijohn, 1975).

Valley Systems

This northern section of the island of Gozo has several north running valley systems of which Marsalforn valley and Wied l-Infern are two of the largest. These drainage systems which are controlled by faulting trends in the bedrock have cut down to sea level thus exposing the Lower Globigerina limestone strata. However, due to the island's 4° tilt running in a south west to north east direction, water erosion affected these valleys differently. Wied l-Infern is cut in a more steep and narrowish manner. This is because the water flow travels with much faster speed where the topography is high and rushes down to the lower levels. This is indicated clearly from the topographical map where the 30 metre above sea level contour of Wied l-Infern starts from 1.25km inshore from the coast, while that of Marsalforn valley begins 2.5km inshore. Thus, though there is a distance between the two valleys there is a 1.25km of erosional landscape. The reason why Marsalforn valley is much wider than Wied l-Infern is due to the fact that the catchment area of this valley system is by far much larger than that of Wied l-Infern. Thus the drainage flow is much greater in volume as well as rate of flow. However, the steep gradient erosion in these valleys is expressed at different rates. Wied l-

Infern possesses a wall gradient of 13° while that of Marsalforn valley is 8° . This clearly means that water in Wied l-Infern rushes seaward much faster than water in the Marsalforn valley. This leads to different geomorphological processes. Water rushing through the Wied l-Infern valley erodes less material due to the lower volume of water it is subject to as against the large volume of water which drains through the Marsalforn valley.

So the valley systems which are running on the left side of the Żebbuġ mesa possess different properties though the environment is a micro one. In fact this leads to the formation of isolated roundish mesa limestone features on this particular side of Żebbuġ.

Mesa Limestone Features

Sub-aerial erosional processes have produced several conical shaped hills. These are known as 'Is-Salvatur', 'Il-Qolla s-Safra' and 'Il-Qolla l-Bajda'. These structures are presented in this particular way due to the pattern of the erosive actions which have acted on the island for the past five million years. Such particular shapes are due to the resistance properties of the limestone.

The softest geological material is Blue Clay, followed by Green Sand and the Globigerina Limestone, while the hardest is the Lower Coralline Limestone, seconded by the Upper Coralline Limestone. The Upper Coralline Limestone tops the geological succession of the island. It is a resistant rock which is not so easily

eroded but it is porous. Water infiltrates through this rock mostly through its faulted planes to find its way to the Green Sand and Blue Clay layers. As these are the softest bands of the geological stratification, weathering away of these materials occurs at a much faster rate. This results in the expansion of the Blue Clay layer, as it is a non-porous rock, with the result that it causes structural weakness in the Upper Coralline Limestone band. Such action caused this top geological strata to develop cracks large enough to initiate the toppling of sizable limestone blocks to slide down along the valley systems and end up at sea. In the meantime the three Globigerina limestone bands were also eroded by the water action. They were eroded in a stepped manner depending on the resistance of the bed. In this case the Lower Globigerina limestone member is the most eroded, followed by the Middle and Upper bands. So these rounded cone like structures exhibit all the bands of the geological formation. The difference is the volume of rock. Millions

of years ago they were one whole uniform block but sub-aerial erosion processes have caused the development of pinnacle structures.

Marine Caves and Wave Cut Platforms

Coasts are subject to inputs of both marine and sub-aerial energy and materials which interact with the geological work to produce coastal landforms. The energy inputs are mainly provided by waves. One of these coastal features is the shore platform. These are mostly found in tectonically uplifted coasts where erosion is active and have a topography of prominent cliffs and headlands that jut out into the sea alternating with narrow inlets and irregular bays, some filled with small roundish pebbles and shingle material.

The degree of wave erosion and the hardness of the rock are two features which determine the development of the shore platform along the Xwejni coast and on the western side of



The rugged solution pool surface of the Marsalforn shore platform. [Photo by George Said].



The Xwejni Shore platform exhibiting a 4° dip. [Photo by George Said].

Marsalforn bay. The wind factor is also important as it is the agent which triggers the development of waves far out at sea. The north westerly wind (Majjistral) is the prevailing wind on the islands and thus the rocky shore at this coastal zone is subject to heavy wave forces acting on it. Such vigorous action is the cause of extensive erosion of the Globigerina Limestone, which is the dominant outcrop of this rocky shoreline. As this type of rock is a very soft limestone, erosion rates are quite high. This can be determined from the concave smoothness and the flaky face of the Upper and Middle Globigerina strata, which form the cliff face of the shore platform.

The retreat of the cliff face by marine erosion brought to prominence the seam of phosphatic nodules, chocolate brown in colour that is the separating agent between the Upper and the Middle Globigerina layer. Phosphatic nodules have different geological compositions and are much harder than Globigerina Limestone, thus being less erodable. This caused the area to be

eroded in a stepped form manner as the C1 and C2 Phosphate Conglomerate beds are controlling the marine erosional processes due to their resistance composition features. As the surface of the Lower Globigerina strata is composed of the C2 Phosphate Conglomerate bed which is very hard to erode, it protects the limestone to a certain extent to allow marine erosion to cut this foraminifera bed in a narrow wave cut bench known as a shore platform.

The Middle and Upper Globigerina are much softer bands and their retreat landwards is due to wind, rain, wave and sea spray action eroding above the shore. Where the wave action is constant and regular the vertical face of this shore platform is a concave, smooth slope. This degree of smoothness is also present on the Middle Globigerina wall, where erosion has exposed the phosphate conglomerate bed in a jutting manner thus to form the visor of the concave face section. Had there been the absence of such hard beds, the area would have been eroded in a smooth

concave manner as the limestone texture is a soft one, thus leading to a different development of shore platform.

The rough surfaces present in various sections of the Xwejni and Marsalforn shore platforms are not only due to the presence of phosphatic nodules, but also due to different marine erosional features acting on the platform itself. The erosional processes on the shore platform are in the form of solution pools. These are shallow flat bottomed depressions cut in calcareous rock. Solution pools develop from small pits or holes with diameters ranging from a few millimetres to a few centimetres due essentially to biochemical processes which are characterised by the removal of the disintegrated rock material by waves and grazing organisms. The pools extend laterally in all directions from the original depression keeping rough circular outlines and their depth varies according to the intensity of erosion on the shore platform. As you go towards the shoreline, the deeper and more irregular the solution pools are. However due to the hardness of the phosphatic nodule layers, the development of solution pools is not so abundant. In fact we find that substantial parts of the Marsalforn and Xwejni shore platforms are very rugged, while diverse small sections are not so clustered with nodules and thus it is much smoother than the rest.

However, as the Xwejni coast position is more exposed to the wave forces than the Marsalforn inlet, the shore platform in the area has some distinct features. The western section of this shore platform includes a cave feature cut into the Lower Coralline Limestone. Caves are cut at sea level and along lines of weakness. Adjacent to this cave lies a very small shore platform which drops down to sea level. The floor of this wave cut bench is composed of Lower Coralline Limestone, while the wall is formed of Lower Globigerina Limestone. Such feature is present due to the wave quarrying of the Lower Globigerina Limestone wall, thus exposing the surface of the bottom geological feature, that is Lower Coralline Limestone. A similar but a slightly larger wave cut bench is present a few metres from the first one. This bench is cut across the surface of the Lower Coralline Limestone.

Another small micro shore platform is cut in the Lower Globigerina Limestone. The different surfaces of these shore platforms result from the solution erosion acting on the surface. All three micro shore platforms possess solution pools, but they differ according to the geological texture of the limestone concerned. Solution erosion on the Lower Coralline surface is presented in the form of a pinnacled surface while in Globigerina Limestone we have smooth rounded pans. One common thing between these two aspects is that the pans have a flat base.

Solution pools are presented in an irregular manner at the eastern section of the coastal zone as this tip of the shore platform slopes down to sea level. The depth of the solution pools is greater, though they are partly composed of phosphatic nodule beds. Thus this coastal section shows different types of solution pool erosion. The major differences result from lithological composition and the land elevation. Where the solution pools are present in the Globigerina Limestone and elevated a few metres above sea level, their form is smooth and roundish. But when they are at sea level they develop an irregular form as the circular depressions overlap each other. Solution erosion in Lower Coralline Limestone is different. As the material is much harder to erode, it does not smoothen itself but it is presented in a rough angular form.

Another aspect of marine erosion is that it is more vigorous at the eastern section of this shore platform because it is close to sea level, thus waves are continuously breaking and rolling over this limestone pavement. Such action covers part of the platform with rounded and well polished pebbles of various sizes. This is a high energy zone as the wave power breaking on this section of the shore platform is scouring the pebbles along the submerged part of the platform. This section of the coastline is in a shallow step form manner, slightly lower than the present exposed surface. The area presents various grades of rounded pebbles. In fact there is fine grained sand followed by medium rounded pebbles at the back shore of the area.

Thus the marine action at the eastern end of this platform is presently much more active than that

at the western end due to the lower elevation of the land surface.

Tectonism has a direct contribution to the formation of the Marsalforn and Xwejni coastal sections. This is imprinted in the stratification of the limestone beds as the strata depict a dip of 4° in a west to east direction. This is shown clearly on the Xwejni shore platform, where the western section is higher than the eastern part. In fact the western part is 7.5 metres above sea level and it presents a cave in the face of the Lower Coralline Limestone wall while the eastern section is down to sea level. Faults do not seem to be present on the land surface but from the shape of the coast it might indicate that normal faults may be present in the shallow sea zone of the area but this is only a hypothesis.

The area is undergoing various geomorphological processes. Here such processes are not too complex. Soil creep is moving debris towards

the coast as the agricultural fields are supported by the Blue Clay layer which moves according to the climatic change.

Another geomorphological feature is the toppling of small limestone blocks off the Middle Globigerina Limestone face. This process is in the form of flaking as the rain water slides on the Blue Clay layer, thus rolling across the Globigerina shore platform to end up in the sea. Limestone blocks have also toppled near the circular structure known as il-Qolla l-Bajda. Here we find sizeable limestone boulders scattered on the shore platform in the eastern section of the area. Such processes indicate that the zone is not that active in toppling and creeping action. On the contrary it is affected mostly by marine erosion processes.

On the other hand the Marsalforn inlet expresses an interesting geomorphological feature. This is a sea stack situated at the tip of the eastern part of



Boulder toppling process at il-Qolla l-Bajda. [Photo by George Said].

the inlet. The development of a sea stack evolves through the creation of a sea arch. This happens where waves attack either one or both sides of a promontory and succeed in tunnelling a hollow completely through it. This formation is usually associated with geological weakness and hence a collapse of the vault of the arch occurs due to the action of waves, wind and sea spray which finally leads to the formation of an isolated limestone block labelled as a stack. The degree of such an erosional feature depends on the resistance of the rock. In this case, as this coastal section is composed of the Lower Globigerina band, the rock is soft and thus its erosional rates are high. In fact old photos of this area show that once a sea arch was present and today we are left with an isolated limestone block. This clearly means that geomorphological processes are still active.

Marsalforn is also subject to a high wave energy environment. This is due to the presence of the roundish pebbles which are present in the middle of the inlet. The degree of roundness and smoothness of the pebbles indicates that vigorous abrasion processes are taking place. This results in high erosion rates for this coastal zone.

Conclusions

All these different geomorphological processes which have been acting in such a small region since the late Miocene, have created diverse exposures of various geological structures in the Maltese islands. The presence of such valley systems together with cone structures indicate that past sub-aerial processes were quite dynamic. However, with no exception, this also applies to the marine processes which are also vigorous and lead to the formation of shore platforms exposing solution erosional features in the form of flat rounded depressions. Cave and stack formation also indicate that such erosional processes are continuous and highly effective as they have the power to change landscapes over various time scales.

This calls for environmental concern for the Żebbuġ mesa and Marsalforn Bay so as to preserve their natural environment as it is continuously changing by natural physical processes as explained and also nowadays by diverse actions of mankind.

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Victoria: 125 Years of City Status

1887 – 10 June 2012

GEOFFREY G. ATTARD

Introduction

On the 10th of June 1887, as the British Empire at large was celebrating the Golden Jubilee of Queen Victoria, the ancient town of Rabat at the very heart of Gozo was officially declared a city and its name changed to Victoria (Bezzina, 1988: 13).

Gozo Under The British

As part of the Maltese archipelago, Gozo had become officially part of the British Empire when



Queen Victoria monument in Valletta.

Malta was proclaimed a Crown Colony in 1813 marking a new stage in Britain's Mediterranean policy (Williams, 1988: 37). Gozo has its own particular history during the British period since it was mostly under the British that the people of Gozo came to conclude the proceedings leading to the erection of the diocese of Gozo. The establishment of an independent diocese for Gozo and Comino had been first unsuccessfully requested on the 30th of October 1798 and in December 1836 the Gozitans tried again (Bezzina, 1988: 60). However the bishops of Malta were against such a decision. The wish of the Gozitans could only become true if they had influential people on their side; such people were Sir Adrian Dingli, an eminent Gozitan lawyer and Father Pietro Pace, one of the future bishops of Gozo. After a great amount of work had been done and with the approval of the British authorities in Malta, Gozo was given its own independent diocese when on the 16th of September 1864, Pope Pius IX, now blessed, created Gozo and Comino a separate diocese directly subject to the Holy See (Bezzina, 1988: 61).

Towards Obtaining City-Status

The very same two gentlemen who had struggled to make Gozo a diocese in its own right were also the mind-sets behind the awarding of city-status to the town of Gozo; this was to further enhance the prestige of the second-largest island of the Maltese archipelago which interestingly enough had temporary independence under the short French rule of 1798-1800 (De Bono, 1988: 45). Sir Adrian Dingli, who has been described as 'one of the ablest and worthiest sons of Malta' and was the son of Sir Paul Dingli, President of the Court of Appeal had been elected Member for Gozo in the Council of Government in 1849. He enjoyed the favours of the British so much that in 1863 he went to Turin to negotiate with Count Cavour a Treaty



Queen Victoria of Great Britain.

of Extradition between Malta and the newly-created Kingdom of Italy (Macmillan, 1915: 391). Dingli had influential friends in Rome amongst them Cardinal Antonelli who was Secretary of State to Pope Pius IX and in 1880 he was raised to the highest judicial office by being created Chief Justice of Malta. Father Pietro Pace, who also hailed from Gozo, was noted for his erudition; in 1877 when he was only 46 years of age he was consecrated Bishop of Gozo at Rome by Cardinal Howard (Macmillan, 1915: 394). After the death of Mgr. Scicluna, he became Bishop of Malta. Dingli and Pace were the two distinguished personalities who made negotiations with the Crown in order to have Gozo's town awarded the status of a city.

Queen Victoria's Background

In 1887, the British Empire began to prepare for the celebrations of the Golden Jubilee of Queen Victoria. Princess Victoria Alexandrina was born in Kensington Palace, London on the 24th of May 1819, the daughter of Prince Edward, Duke of Kent and the fourth son of King George III and Princess Victoria Leiningen of Saxe-Coburg.

When her uncle William IV became king, she became the heir presumptive and at his death with legitimate issue on the 20th of June 1837, she became automatically the next Queen of England. She was crowned Queen at Westminster Abbey on the 28th of June 1838 (Strong, 2005: 372). Queen Victoria was the longest-reigning British monarch; at her death on the 22nd of January 1901 she had ruled longer than any previous British monarch and she could also count more people as her subjects than any ruler ever (Ashley, 1998: 687-692). It was therefore a great honour for the ancient Gozitan town of Rabat to have conferred upon it on the 10th of June 1887 the status of a city by such an illustrious monarch who besides being Queen of Great Britain and Ireland as well as Empress of India was also the head of an empire 'on which the sun never set' and which comprised a quarter of the world's population.

A fountain with an inscription in Cathedral Square at the Citadel in Victoria records the event (Gauci, 1969: 25); besides the coat-of-arms of Gozo's town features in its upper part the initials V.R. for 'Victoria Regina'. The people of Gozo presented



Triq ir-Repubblika, the main street in Victoria.

to the British sovereign a piece of Gozitan lace in order to express their appreciation for having their town given city-status (Laferla, 1938: 169). It would be more than timely to have a statue of Queen Victoria erected in a prominent place in Victoria, ideally in Independence Square, in order to duly commemorate this glorious event in the annals of the history of Gozo.

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The Frightening Tremors of January 1693

GODWIN VELLA

Introduction

The opening month of 1693 stands entrenched firmly in the history of early modern Malta. A series of frightening earthquakes shook the Islands forcibly over a span of several days (Ventura and Galea, 1993: 5-6). On Friday 9th at about 10 o'clock at night a first tremor was felt. It was relatively mild and does not seem to have inflicted perceivable damage in these Islands. Barely forty hours later, namely on Sunday 11th during mid-afternoon a second and truly devastating earthquake shook violently the Maltese Islands for a few interminable minutes. No victims were recorded but the population was terror stricken. Worse still, a long list of buildings including most landmark edifices suffered notable or severe damages. Many private properties in the harbour area necessitated *qualche ristoro*, while most churches suffered more extensively. Likewise, several constructions at Mdina and Rabat including the Cathedral sustained significant structural damages (Ellul, 1993: 24-43).

Damage Assessment

All in all, Gozo seems to have fared slightly better, even if Agius De Soldanis makes reference to an unspecified number of churches besides the Matrice and St George's Parish as being affected.¹ He states also that a tract of sheer cut cliffs at Ta' Ċenċ plunged into the sea, whereas the shoreline at Xlendi Bay receded out for a considerable distance and advanced back swiftly with deafening sound. Other frightening aquatic phenomena were registered along the eastern coast of Sicily, where several crafts were engulfed by the agitated waters (Ventura and Galea, 1993). A host of several more minor and innocuous tremors shook the central Mediterranean throughout the following week.

As a means of quantifying the damages sustained and in view of drawing up a plan of action to prevent further spoil and potential casualties from the collapse of destabilized buildings, the Order commissioned a number of technical reports from leading connoisseurs. On Friday 16th a commission was setup to assess and report back on the state of affairs in the fortified towns hugging the Grand Harbour and to enact all necessary precautionary actions. This commission undertook the assigned task with great fervour and succeeded in submitting a detailed survey within six days (Ellul, 1993). Some weeks later a comprehensive reconnaissance of Mdina was carried out also (Ellul, 1993). On the contrary, Gozo had to wait five long months before receiving due attention. As at Mdina, the assignment was delegated to Mederico Blondel,² the then resident chief engineer of the Order of St John, who submitted a revealing report on 20th June bearing the title *Relatione della Visita del Gozo ad occasione de Terremoti*, (NLM, AOM 1016, Fols. 195-200).

Blondel dedicated the first part of his report to the Castello and underlying Rabat. He started by highlighting the overwhelming run-down state of the Castello's urban cluster due to successive decades of abandonment rather than as a direct result of said earthquakes. Blondel then focused on the damage sustained by the Matrice and by St George's Parish. The former, commonly believed to have been founded by Count Roger in 1091, boasted of an extremely interesting construction, albeit still grossly overlooked by modern scholars. Blondel recounts how its lofty bell-tower was dislodged by the January tremors and needed dismantling and reinstatement. With regards St George's Parish, which had just been reconstructed in the form of a Latin-crossed monumental

¹ Gian Pietro Francesco Agius De Soldanis, *Il Gozo Antico e Moderno, Sacro e Profano* (N[ational] L[ibrary] [of] M[alta], Library Manuscript 145, Maltese translation by Mgr. Joseph Farrugia, English Translation by Fr. Tony Mercieca) Vol I, Sec 6.2.

² Mederico Blondel (1628 – 98), who hailed from a French family of architects, succeeded Francesco Buonamici (1596 – 1677) as resident engineer of the Order in 1659, but seems to have worked in Malta at an earlier stage. He was made Knight of Grace of the French Langue and remained in the Order's service until his death in 1698.

building in the baroque idiom (Pisani, 2011: 11-33), he advised for the replacement of the then towering dome with a rather squat superstructure. The ramparts of the Castello, which were dealt with next, required a major refit to make good for the then long overdue maintenance works. He went on to emphasize the need for a well thought out programme to weed systematically all salt-tree shrubs flourishing all over the ramparts,³ which in his learned opinion constituted the main threat to the Castello's fabric. Blondel inspected also four of the then six coast watch towers. No significant damages attributable to same tremors are singled out, but each of the said towers required varying degrees of repairs and/or general maintenance works. Many of the listed works were eventually taken in hand in 1696 as part of a major refit of the Island's defences (NLM, AOM 1016, Fols. 417-419).

An English translation of the full report is being published hereafter for ease of reference:

Eminent Master

I visited Gozo during the past few days as instructed by Your Eminence to assess the structural condition of the Castello of that island, namely the civilian buildings and the ramparts, in view of the alleged damages caused by the recent earthquakes. It must be stated from the onset that, generally speaking, the claimed disastrous effects were nowhere to be seen. Apparently, these unfounded claims were not based on first hand and well-informed judgments but stemmed from excessive preventive reactions as confirmed by this report based on personal and exhaustive on-site reconnaissance. Starting off with the Castello, which I have had the opportunity to visit and examine thoroughly and accurately on several occasions, it is to be noted that the dwellings are either in ruins or in a poor state of repair. Less than a third of the respective habitations are still standing. Of these, the greater part is in imminent danger of collapse. Unless prevented from crumbling, these same unstable constructions will, in due course, trigger inevitably

a deterrent effect on the adjacent and adjoining properties that survive in a slightly better state of conservation.

This pitiful state of affairs is the result of many years of abandonment and decay rather than a direct effect of said earthquakes. The latter exerted simply the last push to tumble the same derelict constructions that stood already on the verge of collapse.

An effective remedy which deserves due consideration is, in my opinion, the obligation of the respective owners to rebuilt said properties within a stipulated period of time as established by Your Eminence. Those owners who are unwilling or unable to fork out the required reconstruction expense should be directed to sell their plots to interested third parties following an architect's estimate based on going rates. In so doing, all available building plots should be taken up, thereby reinstating the original complement of dwelling units. In the eventuality that this plan does not succeed to the full, any remaining derelict dwellings are to be acquired by the Order and developed into stores or turned into a parade ground, both of which are badly needed at the Castello.

One cannot but emphasize the earthquake's detrimental effect on the only belfry of the Collegiate Church of the Castello, which is several centuries old and is believed to have been founded by Count Roger. Its fabric is characterized by good quality and large building blocks of foreign extraction that are so craftily dressed that the joints are hardly visible. Notwithstanding, it did not succeed in resisting the earthquake's terrible shakes. Ironically, the finer buildings seem to have suffered most. The upper section of the bell tower, which abuts onto the choir and rises above the roof of the nave, has to be dismantled and reinstated.

The recently reconstructed church of St George, the parish of Rabat, suffered significant damages

³ The Maltese Salt Tree (species name *Darniella Melitensis*, Maltese name *Xebb*) is endemic to the Maltese Islands and protected by national legislation. Moreover, the site of the Gran Castello is listed by the Malta Environment and Planning Authority as a Special Area of Conservation.



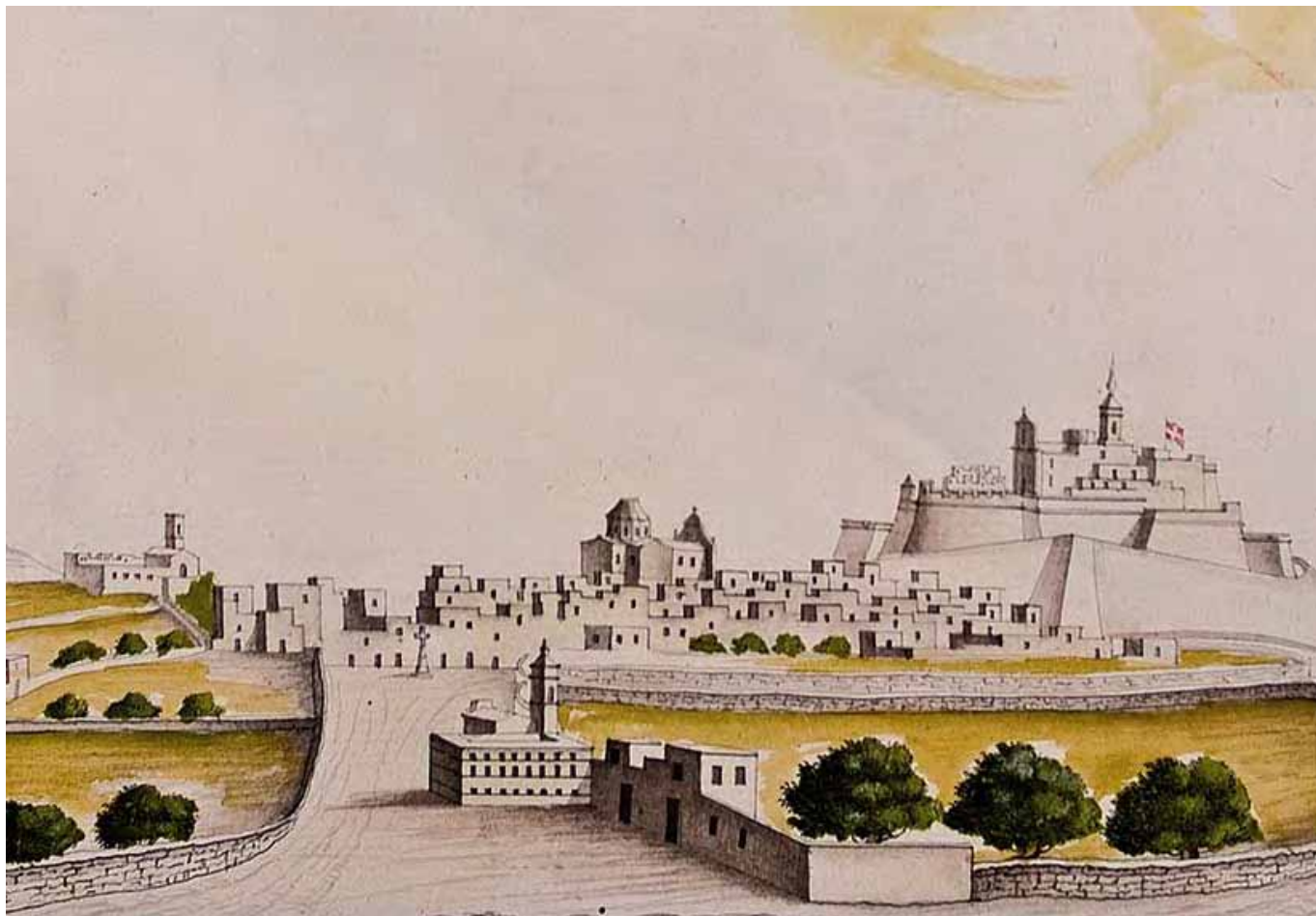
1620's view of the Castello (extract Ta' Savina Church Altarpiece). The bell tower of the Matrice stands at the centre.

also. The four pendentives or triangular panes underneath the cornice which supports the drum have been destabilized consistently to the extent that the stonework of the said drum developed notable fractures throughout its eight facades. To this effect, it is considered necessary to dismantle the dome, the drum and the greater part of the underlying cornice and triangular panes. The ensuing reconstruction needs to be undertaken with greater diligence. Larger and cubic⁴ ashlar blocks are to be employed. Besides reinforcing the cornice, the height of the surmounting drum is to be halved, while the present complement of one window for each of the eight facades is to be reduced to four. These are to follow an oval or bull's eye design and are to be placed symmetrically above the large arches of the crossing. The interior elevation of

the remaining four facades of the same drum, namely the ones on top of the triangular panes, are to be taken up by corresponding oval recesses. More importantly, four prism-shaped and round-headed buttresses that reach up to the crowning cornice of the drum are to be placed on the roof, one at the back of each mock window. In view of being solid enough to sustain effectively the weight of the surmounting dome and lantern the new drum must not exceed an overall height of seven or eight courses. The pillars and arches of the crossing do not manifest any structural defect or damage.

I will now discuss the Castello and the watch towers defending the Gozitan coast, which according to the same unfounded reports are believed to have sustained major damages.

⁴ The traditional and widespread technique of wedge-like blocks anchored firmly into a backfill of processed terrasoil and stone chippings seems to have been resorted to in the original 1670's construction.



1720's view of Rabato (NLM, Treas. B 290) with St George's Church dominating the town's skyline. Apparently Blondel's advice to lower the dome had not been implemented by then.

Starting off with the Castello, it must be stressed that the finger-thick fissure running vertically from top to bottom along the main bastion wall is relatively old. Suffice to note, that I've seen it each time I crossed over to Gozo during the past 34 years. Its formation was triggered by the underlying geological deposits, whereby the inner part of the bastion rests on the perched ledge of (Upper Coralline) bedrock as evidenced by the exposed elevation on the side, while the remaining footprint seems to be lying on a sturdy base placed below the floor of the ditch, but which may not be deep enough to reach the level of the underlying live rock. This notable difference in bedrock levels is undoubtedly the main reason for the formation of such fissure. More importantly it does not pose a threat to the overall stability of the bastion. It must have evolved some time after the renovation of the Castello during the tenure of the most Eminent

D'Homedes⁵ and eventually remained unaltered for many years. Contrary to the persistent claims, the earthquakes in question did not have any tangible bearing.

The counterscarp of the ditch that buffers the two bastioned land fronts, namely the one on the side of the main gate and that overlooking Rabat, is eroded and in a state of disrepair. Having been consumed by the passage of time, several sections crumbled down independently of the recent earthquakes. As a matter of fact, I have brought this issue to the attention of Your Eminence and of the Venerable Congregation of Fortifications on several occasions during the past years. Besides, last year the Jurors of that island submitted a plea in connection with the present poor state of affairs to Your Eminence. Your Magisterial Decree of 11th October 1692 directed the Venerable Congregation

⁵The bastioned land front along the south and southeast flanks was crafted mostly during the tenure of Grand Master Aloff de Wignacourt (1601-22). No identifiable remnants of the enhancement works undertaken during the tenure of Grand Master Juan D'Homedes (1536-53) seem to have survived by then.

of Fortifications to entertain this request, but the necessary repairs were never taken in hand. Inevitably, the situation is destined to decay further, and unless mitigated in the immediate future the resultant costs of reinstatement will increase exponentially.

That is all I had to report vis-à-vis the exterior side of the ramparts. As regards the inner side it must be noted that:

The west and south facing facades of the Cavalier that lie next to the Clock Tower and to the grain stores of the University respectively need minor repair and maintenance works. Such works should be carried out with a modest budget, which, provided that my memory serves me well, are to be borne by the same University. Some three years ago the terrace of the gunpowder magazine caved in under the weight of falling debris from overlooking



1850's view of part of the Castello's land front (extract Kerçem Parish Altarpiece). St Martin's Cavallier, part of which collapsed in 1861, occupies the left extremity.

old structures during a heavy storm. Worst still the same terrace and adjoining gunpowder magazine became flooded. As the door is kept constantly shut and since said magazine lacks adequate windows or ventilation openings as in analogous stores to ensure maximum protection from fire, its internal ambience remained excessively humid. Consequently, the insulating wooden flooring and wall boarding, and the same barrel containers became infested with mould growth. Needless to state the gunpowder got rotten in the process.

The only effective, albeit not straight forward remedy to this inconvenience that crops to my mind is the exposure of the powder barrels to the sun during the hottest hours of the day and under the constant watch of the Castello's Bombardiers. In addition, the doors of the gunpowder magazine are to be kept wide open to aide ventilation. This procedure is to be repeated daily for an entire week or as deemed necessary by the Governor and the Capomastro.

In view of enhancing further the drying up of the same store, it would be opportune to uproot thoroughly any vegetation growing on the floor of the adjoining terrace and to level it anew with torba⁶ as to drain off efficiently the rain water into the ditch.

The armoury of the Castello⁷ was not damaged by the recent earthquakes as alleged, and the relocation of all arms to underlying Rabat was not necessary. One may take this opportunity, however, to redo the pointing of the internal and external sections of the wall above its two windows and along the side wall respectively. Same arms can eventually be transferred back and reorganized as before.

It is pertinent also to highlight the presence of a particular type of shrub, commonly called sauda or kali and employed for the manufacture of a very strong ash,⁸ which grows all over the walls of the

⁶ Torba consists of a well-packed floor of stone chippings and grounded lime.

⁷ This was one of at least two armoury deposits. Contemporary sources inform us that the main armoury was housed within the Governor's residence overlooking the then petit square of the Matrice. The store in caption stood at foot of St John's Cavalier and was eventually modified and extended during the course of the nineteenth century to accommodate a detention facility.

⁸ Charcoal ash (obtained by removing water and other volatile ingredients from vegetation substances through slow heating in the absence of oxygen), constituted a basic ingredient for the production of gunpowder. The other prime ingredients are sulphur and potassium nitrate.



A salt tree shrub atop the parapet wall of St John's Cavalier. Note the dislodged masonry.

Castello and of the Ravelin situated outside its main gate. Its big roots reach deep into the walls' thickness, dislodge the masonry and jeopardize the overall solidity of the ramparts. Even though I had raised this issue on past occasions and stressed the urgent need of their uprooting, same shrubs were allowed to grow into small trees, thereby implying that my directions were ignored altogether repeatedly. To this effect, I am hereby invoking the mediation of Your Eminence to instruct explicitly the Sergeant of Gozo⁹ through the Governor to enact such mitigation measures, since the damage being inflicted is much more serious than commonly believed.

This is all I deemed opportune to highlight with regards to the Castello, but having visited the principal coast-watch towers that guard the shoreline of Gozo as requested insistently by the respective Castilians,¹⁰ it must be reported that:

The main front of the gun platform at the Tower of Xlendi,¹¹ which stands along the southwest coast of Gozo, is appreciably eroded by sea spray and needs to be plastered over by a mixture of lime and sand. The same applies to several sections of the tower building proper, in particular the west facing corner. Said job can be completed with a modest budget, while it is hereby certified that the earthquake did not inflict any noticeable damages.

Having been subjected to significant repairs some two years ago, Marsalforn Tower¹² lacks the equipment to raise the bridge, namely a chain, pulleys, drum and a rope. Besides, the palisade is to be crowned with spikes 1½ palms in length in view of its squat proportions, while the frequency of said spikes at either end is to be doubled.

All in all, the alleged disastrous effects of said earthquake as perpetrated by the tower's Castilian

⁹The sergeant of Gozo headed a troop of nine professional soldiers, all salaried by the Order and based at the Castello.

¹⁰ Each of the respective six towers was manned by a Castellian. Those of Garzes and Marsalforn were salaried by the Order, while ones of Xlendi, Dwejra, Mgarr ix-Xini and Dahlet Qorrot were paid by the University or regional government.

¹¹ Xlendi Tower was erected by the University in 1650. Its construction features an abutting gun platform on the sea-facing side.

¹² The then Marsalforn Tower, standing on the tip of Ghajn Damma Plateau, was erected in 1616.

are exaggerated. This preoccupation seems to have been accentuated by the presumed friable nature of the underlying bedrock. As a matter of fact, a number of persons in the company of the assistant bombardiers of the same Castilian scaled down the perilous fissures and caverns at the foot of tower and which were erroneously believed to extend well beneath the tower's base, thereby feared to threaten its stability. While confirming that the hair-like fissures that zigzag the east facing facade of the tower, in particular at the level of the base of the vault at first floor, must have been triggered by the tremors in question, it must be stressed that the tower is structurally sound. In my opinion it will remain structurally safe and fit to withstand enemy shots or analogous earthquakes for well over a century.¹³ Likewise, the distance between the base of the tower and the cliff's edge measures fourteen palms in the narrowest part.

The sea-facing side of Mgarr ix-Xini Tower, in particular its lower section, is eroded due to its exposure to direct sea-spray, thus calling for the application of a plaster layer of lime and sand reinforced with stone chippings. Proposed low-cost intervention will none the less prove to be very effective from preventing future damages.

Finally, even though the large Tower of Garzes survived said tremors intact, its fabric requires a

few repairs that are not deemed to be particularly expensive, namely:

- 1) The reinstatement of the approach flight of steps, in particular its upper section;
- 2) The erection of a gate armed with pointed spikes;
- 3) The replacement the underlying right hand beam of the draw bridge;
- 4) The reinstatement, redesign and stiffening of the open lookout post which crowns the north-facing corner of the tower, whereby the broken corbels are to be replaced, the trajectory of the overlying parapet wall is to be receded by 2½ palms, while the resulting enclosure is to become supported by three corbels on each side. The other vedette on the opposite side, that is the south-facing corner, is still sound. No other vedettes are required to control effectively the approach to each of the four sides of said tower;
- 5) The installation of missing apertures and the replacement of the rotten ones, and the introduction of screens in the respective window openings to offer better protection against inclement weather;
- 6) The repositioning and reconstruction of the altar within the chapel over a terraplien base to avoid a repeat of the present break-up which has been brought about by the varying quality of the underlying



Early nineteenth century view of Garzes Tower by Salvatore Busuttill (1798-1854). Note the plinth supporting the tower structure.

¹³ The same Marsalforn Tower collapsed in 1716 when the underlying cliff gave way. It was replaced by a second work in 1720. This second stronghold, which stood on the crest of the same promontory, was eventually demolished in 1915 to make way for a Wireless Communication Station.

foundations, namely a combination of solid walls and packed infill;

7) The pavement of the entrance hall with flagstones;

8) The repair and pointing of the uppermost stone course of the plinth along the facade overlooking Mġarr Harbour.

Each of the listed eight jobs, which fall under the responsibility of the Order, should be executed with a modest budget.

This is all I had to report with regards to my last visit to Gozo. As noted repeatedly most of the highlighted damages have been spearheaded by the unstoppable passage of time rather than by the tremors in caption. Anyway, I thought it opportune to submit this written statement to Your Eminence, which I respect deeply, as a follow up to my verbal communications on the matter.

Valetta, 20th June 1693

*Humble servant and brother of Your Eminence
The Knight Fra Mederico Blondel*

An Annual Votive Procession in Thanksgiving

The remarkable absence of casualties, as opposed to the terrifying estimate of over 100,000 deaths in southeast Sicily, was interpreted unanimously as a divine act of the Almighty through the merciful intercession of several celestial vassals, in particular the saintly protectors of Malta and Gozo respectively. Unavoidably, this common belief prompted the staging of a host of pious manifestations. For instance, the Order lost no time to encourage the population to partake in prayer sessions and acts of penance following the violent tremors of Sunday 11th, whereas a thanksgiving *Te Deum* recital was held in most churches on many anniversaries to follow (Castagna, 1869: 297).

On their part the ecclesiastic and civil authorities

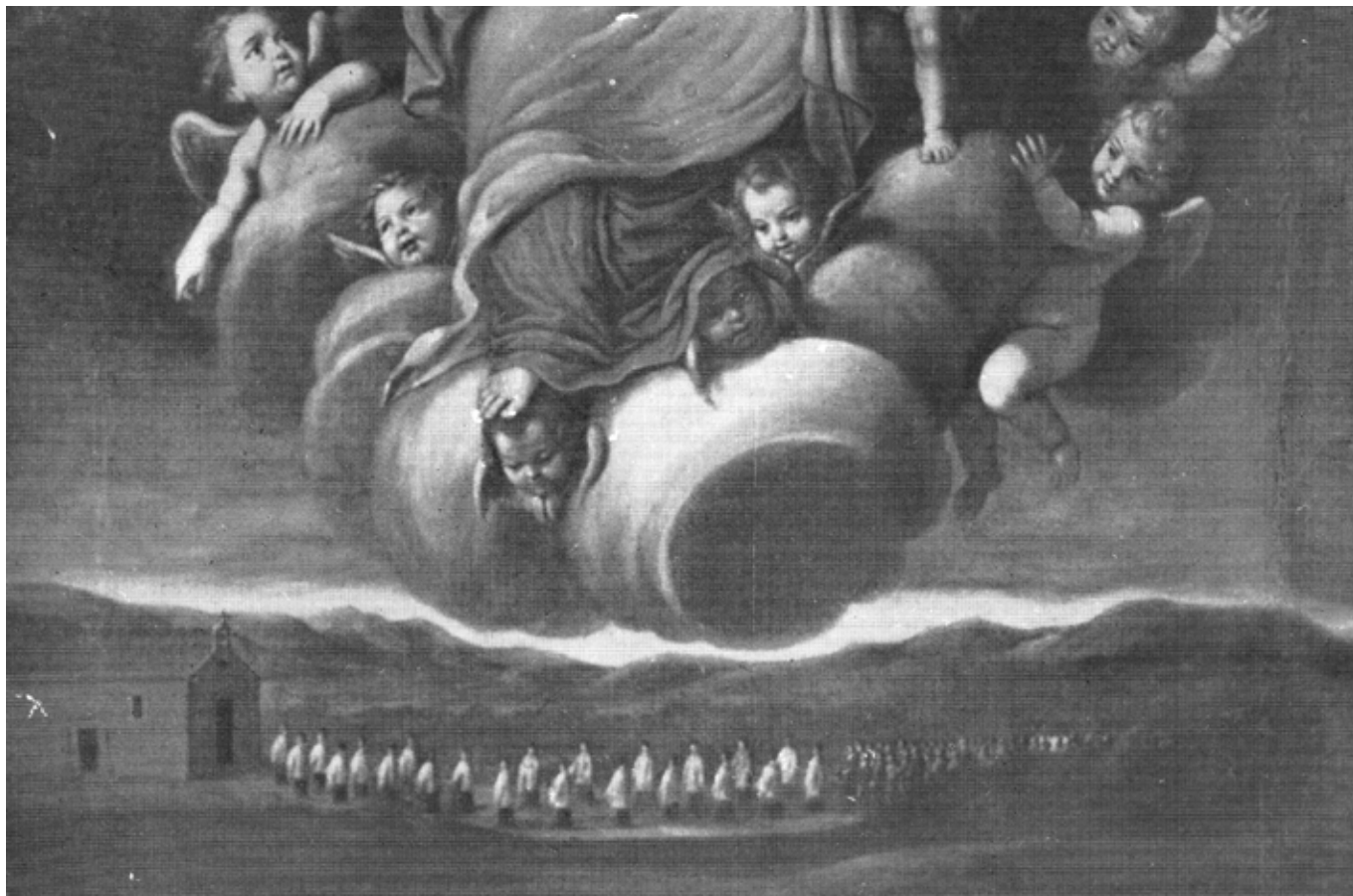
of the sister island institutionalised a votive procession with the effigy of St Ursula¹⁴ from the Matrice to the devout chapel of Our Lady of Graces.¹⁵ Held on the second Sunday of January, this procession saw the involvement of the Chapter and Clergy of the Matrice, Cathedral since 1864, the Clergy of St George's Parish, the Friars of the Rabat Priories, and the lay community under the distinguished leadership of the highest local authorities, including the Governor during the Knights' tenure and the Bishop after 1864. Stefano Erardi (1630 – 1716), one of Malta's most prolific artists of the late seventeenth century, was commissioned an altarpiece representing Our Lady of Graces and part of said votive procession on its arrival at the then wayside chapel. This painting was subsequently enlarged and adapted as main altarpiece for the present church of the Capuchin Friars erected during the 1740's. The same Friary treasures a second flatwork depicting the same



Our Lady of Graces altar painting by Stefano Erardi (Photo by Guzeppi Cremona 1890 – 1950, © John Cremona)

¹⁴ The effigy of St Ursula is said to have originated as a figurehead and was donated to the Matrice in 1614 by the then Governor Eugenio Ramirez Maldonato.

¹⁵ The Chapel of Our Lady of Graces was eventually handed over to the Capuchin Order and replaced by the present church during the 1740's.



Detail of lower tier showing St Ursula's Votive Procession on its arrival at the then wayside chapel.

votive procession winding its way uphill on its return to the *Matrice* (Azzopardi, 1993: 5-13).

Following the earthquake of February 1743, the original pious intent of this votive procession was extended to reflect the Saint's repeated miraculous intercession in the same analogous scare. A second votive procession with the effigy of St Ursula was eventually established during the early nineteenth century in thanksgiving for the Saint's mediation during the plague outbreak of 1814 (Vella Apap, pp 61-4). This second procession used to be held on the third Sunday of September and flow towards St George's Parish Church. Both votive processions with the effigy of St Ursula were suppressed in 1968 (Vella Apap, pp 61-4).

Acknowledgement

Information by John Cremona was critical to put together parts of this essay.

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Why 'Lace Studies' at Academic Level?

CONSIGLIA AZZOPARDI

Introduction

One may wonder why 'lace' can be considered a subject of study at a high academic level. Some may mock the idea; the issue may be considered by some as degrading and not befitting university studies of our times where all is enwrapped in computerised technology.

General Perception about Maltese Lace

Internationally, very little has been documented

so far by lace historians about Maltese lace. Their reference has been brief, simply stating that a certain Lady Hamilton Chichester had in 1833 brought about some Genoese lace teachers to teach the craft to the natives, causing Maltese lace to grow into an important secondary lace of mid-nineteenth century.

Such a short paragraph would be incorporated with other Mediterranean needle or bobbin laces of Greece, Cyprus, Sicily and Tenerife. In the past, local reporters have considered the Maltese Islands

to be rich in lace and honey, from which many important visitors both civil and ecclesiastical have benefited and enjoyed presents. Many believe that Maltese lace has long stopped being made and the young generation hardly accept it has ever existed. This very modest discretion does not reflect the true image of the lace manufacture that has taken place on our islands when, even in our days, so much lace is displayed in our churches especially during the village feasts and other ceremonies. Neither does it tell of the masterpieces stored away as family heirlooms, which lay awaiting study and evaluation.

Being brought up in a real lace environment of a Gozo village, from where the addiction to the craft has been stimulated, and having had a long teaching experience in the subject, it became quite logical that I would take up studies and research the history of the lace made by our technique called 'Maltese'. It was not an easy task to scrape through church archives, libraries and family collections to



Princess Elizabeth and Duke Philip on their visit to Gozo in 1952 watching a lace maker at tax-Xelina – Sannat.



Maria Saliba, expert lace maker at Munxar, working typically on her door-step on a summer's afternoon.

trace roots and elicit information. Interviewing the last persons involved with the craft and its trade was very interesting and challenging - some unhappily passing away before giving me the chance to return for further details. Most prominent among these was the late Bishop Nichol Cauchi of Gozo.

New Discoveries

Contrary to what we presently know about the characteristics of Maltese lace, there is not only one type but five styles, using more than the unique *trajbu* pillow to which we are accustomed. However, all styles correspond to the cultural events that have happened during the 18th, 19th and 20th centuries. In the same manner that the language problem addressed in the Maltese Islands during this period effected the education, politics, religion and culture of Malta, so did it influence all aspects of Maltese lace. In fact each of the different styles was a reflection of the historical, political, economic and artistic demands of the time. It may be said that each style has its own history, its own technique, and its artists creating variant tastes. Though loosely organised, lace artists and lace merchants alike were very alert to changes of fashion and kept abreast with the demands of their time.

These diversities in style seem to have perished over the decades, but one thing remains certain - the tradition in technique has remained sound and intact. With the amount of knowledge that we at present have about making Maltese lace, it is enough to trace back any old techniques. We can now classify surviving designs into distinctive categories, state which thread is best suited for which patterns, and discern the purpose of lace use. For example in the past we never made distinction between patterns best worked in silk or in linen – we used to think it was the same. Now, it is possible to enjoy the benefit derived out of results when patterns have been tested over the years by lace experts. This of course was accompanied by good lace artists who developed their understanding of lace construction to produce masterpieces in designs reflecting architecture and sculpture. Unfortunately these artists disappeared and although we have surviving lace pieces and surviving lace patterns there are no traces left of lace artists.

Diploma in Lace Studies

The Lace-making Programme opened at the University of Malta Gozo Centre in 1996. Certificate courses took place on a part-time basis every Saturday spread over four years. From this evolved the Diploma in Lace Studies under the Islands and Small States Institute. At present eight students are following the diploma with lectures, taking place during evening sessions, in History of Art, History of Lace, Design, Conservation, Lace in Costumes and Vestments, Needle lace in the Small Islands of Europe and Basic principles of Management and Economics. A project of practical bobbin lace and pattern drawing takes place during the summer.

Such topics were chosen because of their importance in relation with reviving the teaching of Maltese lace on an academic level as is deemed necessary in our times. However both students and lecturers suggested that topics should be expanded so that more time would be devoted to learning techniques. In the past, these techniques were automatically learnt at home but nowadays they have been eliminated from the new life-style led by families. Consequently something has to be done to create a space in the new system of education embraced by all, where traditional lace culture can be transmitted to the younger generation.



Participants of the Diploma in Lace Studies at UGC, with Consiglia Azzopardi, during their project session - summer 2011.

Urgent Need

Having concluded the history of Maltese lace during the nineteenth and twentieth centuries, it may be said that lace craft has lain buried in transition only beneath the surface but its roots are very much still alive. It means that if not left to decay they can be injected back to life. And this could be done through properly channelling its teaching into the 21st century.

Unlike teenage students, who have the tendency to shun from lace making in favour of sport and dancing, there is enough interest in grown-up students at university, especially those studying tourism and art. If this natural resource is properly utilised it would be of great benefit in favour of Maltese lace.

An effort to preserve the culture of Maltese lace would be the setting up of a place which exhibits a collection of traditional lace artefacts. Such a place will provide the young generation with a vision of the amount and quality of the work executed in this field during the past centuries. This will be

an incentive for the more artistic ones to use this inherited resource and apply it to their creative future.

It is worth investing money and precious human resources while there is still time, and not just sit back and watch this wonderful art die out and perish for ever.

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25th Edition of the Gozo Observer

LINO BRIGUGLIO

The first edition of the Gozo Observer was issued in May 1999 and since then an average of two editions per year has been issued to date. Initially it was not issued regularly but as from the thirteenth issue (1995), two editions a year were printed; one in June and one in December.

The articles covered a variety of themes, including economic, environmental and social issues relating

to Gozo. Some editions carried reviews of books published by Gozitan authors. Every issue also contained a section which gave an update on any activities which had taken place at the University Gozo Campus (earlier called the University Gozo Centre).

The following is a list of articles carried in the Gozo Observer as from the first edition.

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1	May 1999	Editorial: The UGC as an Educational Milestone in Gozo	Maurice Cauchi
		Highlights from the University Gozo Centre - 1998/1999	Frank Grech
		Older People in the Maltese Islands with Special Reference to Gozo	Lino Briguglio
		Atmospheric Pollution Seminar	Raymond Ellul
		Gozo Students Issues	Michael Refalo
		The Gozitan Student in Malta	Charmaine Hili
		Senior Students Education: How are they faring?	Maurice Cauchi
		Antonio Saliba: The first cartographer, astronomer and astrologist	Joseph Bezzina
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		A Degree Course in Gozo Studies	Franco Masini
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		Outside Influences in Musical Life in Gozo	Mro Joseph Vella
		Intensive Works in the Education Sector	Kevin Sciberras
		Gozo Lace: Again on the Maltese Pillow	Consiglia Azzopardi
		Smoking Habits in Gozo	Maurice Cauchi
		Id-Deċentralizzjoni u l-Kunsilli Lokali	Noel Formosa
		A View from the Future	Mario Tabone
		Book Review: "The Maltese Migrant Experience"	Maurice Cauchi
		Book Review: "The Examined Life"	Louis Scerri
		Wiċċ u Rġejjen	Joe Friggieri
		Frammenti	Charles Bezzina
		U ma Kellix il-Kamera!	George Mercieca
		Il-Librerija Pubblika tal-Katidral	Frank Grech
		Paul Camilleri Cauchi (Profile)	Frank Grech
		John Magro (intervista)	Maureen Buttigieg

		Wirt Ghawdex	Godwin Vella
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3	February 2000	Editorial: Academic Duty	Maurice Cauchi
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		The Mysterious Pans of Gozo	Maurice Cauchi and Carol Jaccarini
		The Public Library, Victoria	George Borg
		John L. Grima: Gozitan Artist	Frank Grech
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		Diskors tal-Ministru għal Ghawdex (waqt seminar fl-okkażjoni tas-sena internazzjonali tal-anzjani)	Giovanna Debono
		L-Ghanja tač-Ċinju	George Mercieca
		Jien	Charles Bezzina
		Contemporary Art Education in Gozo	Mario Cassar
		Sir Adrian Dingli	Joseph Bezzina
		Il-Karnival Spontanju fin-Nadur	Mario Saliba
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4	December 2000	Editorial: Illiteracy in Gozo	Maurice Cauchi
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		Strengths and Weaknesses of Small Islands	Lino Briguglio
		Trade Schools in Gozo	Joanne Borg
		List of Theses by Gozitan Students	Frank Grech
		Joe Xuereb: Sculptor (Profile)	Lino Briguglio
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		Il-Gwardjani Lokali	Giovanna Debono
		Book Profile: The Maltese Migrant Experience	Maurice Cauchi
		Book Profile: The Placenames of the Coast of Gozo	Joe Zammit Cutajar
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		Book Reviews: “Let’s Go to Wied il-Lunzjata”, “Ġrajjet Koperativa” and “Sant’ Anna”	Maurice Cauchi
		Jum il-Vittorja	Maurice Cauchi
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		Book Reviews: “Gaulitana 21”, “Gaulitana 22” and “Eugene Fenech, A Renowned Surgeon Born in Late 18th Century Gozo”	Maurice Cauchi
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		Migration and Changes in the Population of Gozo in the Post-War Period	Maurice Cauchi
		Cultural Activities in Gozo, 2001	Joseph Calleja
		The Household Budgetary Survey 2000: Gozo Data	Maurice Cauchi
		Gozo and the EU: Negotiations on Regional Policy	Lino Briguglio
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		Destruction of Prehistoric Caves	Maurice Cauchi
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		Traffic Bottlenecks in Gozo	Maurice Cauchi
		The Maltese Musical Patrimony	Joseph Vella
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		The Gozo Youth Congress	Joseph Calleja
		Book Reviews: “Gozo Past and Present”, “Worlds Apart” and “Bijoetika fl-Ewropa tal-Lum”	Maurice Cauchi
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		On the Specificity of Gozo and of Gozitan Female Labour	Mary Darmanin
		Gozo in the World and the World in Gozo (Thesis)	Raymond Xerri
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		A Brief Outline of the Geophysical Properties of the Island of Gozo	George Said
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Professor Lino Briguglio is Director at the University of Malta - Gozo Campus.

Recent Activities at the University of Malta - Gozo Campus

JOSEPH CALLEJA

The Summer Activity

This year's summer social activity was entitled 'An Evening with Chasing Pandora'. The event took place on Friday 26th August in the central courtyard of the University of Malta – Gozo Campus. An audience of about two hundred attended the event.

The programme included a number of items from the band's repertoire and each song was accompanied by a brief commentary. Chasing Pandora, consisting of duo Melissa Portelli and Keith Anthony has become one of Malta's most successful and respected bands. Recently the duo has added friends and fellow musicians Ismael Azzopardi on keyboards and Dru Mayer on percussion to their lineup.

Like previous events held at the same venue, this year's concert offered patrons an enjoyable evening of live performances al fresco in the ideal setting of the Campus's charming central courtyard followed by a reception in the gardens.

Among the guests were the Hon. Giovanna Debono, Minister for Gozo and Professor Lino Briguglio, Director of the Campus .

Courses Offered at the University Gozo Campus

This year two new courses were opened by the University of Malta at its campus in Gozo. The courses are the Diploma in Commerce and the Diploma in Facilitating Inclusive Education.



The summer activity: An Evening with Chasing Pandora



A video-conference lecture in progress.

Eight students are attending the former while the latter is being followed by 85 participants.

Another course leading to the Higher Diploma in Public Accounting and Finance, which is being offered at the University of Malta, is also being followed from the Gozo Campus through the video-conferencing system. This system enables the Gozitan students to follow the course from Gozo avoiding the hassle of commuting to the Msida Campus. The University of Malta's Institute for Sustainable Energy is also offering three different courses through video conferencing. These courses are aimed at training solar installers, engineers and architects in the fields of solar heating and solar photovoltaic (PV) system installations (single and three phase systems).

The Gozo Campus offers short courses from time to time. A short course entitled 'Emotional Intelligence: Listening to Children and Young People's Needs' was held at the Campus during October and November. The course covered basic concepts in emotional intelligence, as well as the basic techniques in developing emotional intelligence skills in those working with children and young people. The course was coordinated by Dr Erika Ferrario, a lecturer within the Department of Human Sciences at the University of Milan-Bicocca (Italy) and a visiting researcher at the European Centre for Education Resilience

and Socio-Emotional Health at the University of Malta. The course was repeated due to over-subscription.

Graduation of University Gozo Campus Students

Five students who completed courses at the University of Malta - Gozo Campus received their certificates during the recent graduation ceremonies. The courses completed were those leading to Masters of Arts in Islands and Small States Studies (three students) and the Master of Arts in Hospitaller Studies (two students). The



The Gozitan and Maltese graduates in MA (ISSS), with Professor Lino Briguglio, Director of the University of Malta - Gozo Campus. Middle row: Christopher Gatt (second from left), Neville Vella (third from left) and Reuben Galea (fourth from left).



The Gozitan and Maltese graduates in Master of Arts in Hospitaller Studies. Back row: Chris Galea (fifth from right) and Maureen Rapa (second from left).

students who graduated in Masters in Islands and Small States Studies are Christopher Gatt, Reuben Galea and Neville Vella, while those who graduated in the Master of Arts in Hospitaller Studies are Chris Galea and Maureen Rapa.

Installation of a Photovoltaic System

The University Gozo Campus will be benefiting from the European Regional Development Fund (ERDF) under the Cohesion Policy Programme 2007-2013 through a project that has the aim of setting up a Photovoltaic System at the University of Malta Gozo Campus. The project, which will be completed in March 2012, has a total cost of €175,820.

The aim of this project is to contribute towards the reduction of 30 tonnes of CO₂ emissions at the University Gozo Campus with consequent environmental benefits to society. This project also contributes directly to the Eco-Gozo objective of the Government through a reduction in the use of grid-connected renewable energy, as well as the RES policy, by contributing to the Government's aim of establishing a decentralized system of power generation with small and medium-scale, environmentally-friendly RE facilities.

As part of the preparatory works for the actual installation of the photovoltaic panels, the main roof of the Gozo Campus was water-proofed through the application of a screed and a layer of insulation material. This project, which costs around €30,000, was financed by the Ministry for Gozo.



Works during the reinstatement of the main roof of the Gozo Campus.

Joseph Calleja is Administrator of the University of Malta - Gozo Campus.



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