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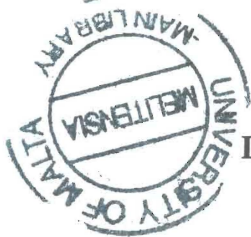
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### The cropped walls of Malta

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#### Abstract

In the Maltese Islands, most hedges are of fruit trees planted beside the dry stone walls that form most field and old road boundaries. Walls, and not hedges, are an integral and prominent part of the landscape, since terracing covers most slopes, and their retaining walls often project up above the soil of the upper field. However, hedges have been planted by walls for their crops, have developed as native plants, grow by neglected walls, and have—usually recently—been planted free-standing to screen, e.g. dwellings or to ornament, e.g. roads. Some hedges provide wind breaks and shelter (including shade and moisture), but most are themselves sheltered by walls.

The fruit trees include almond, carob, fig, olive, pomegranate, vine and prickly pear (the last, not a tree). These formerly added usefully to the farm economy, but with modern wealth are now increasingly left unharvested.

#### Introduction

In Malta (c. 27 × 14 km) and Gozo (c. 14 × 6 km) cultivation used to be intense, all parts which could bear crops, doing so. Over a third (sometimes estimated as a half) of Malta is now covered by development and the quarries from which the building stone was extracted. Gozo is far less built up, more rural, and there is a continuing tradition of each family being engaged (part- if not full-time) in farming, fishing or both. There is, therefore, far more interest—and, indeed, a much greater proportion of hedges—in Gozo.

Hedges may be:

1. Fruit crops or livestock fodder. The (traditional) hedges may have other uses also. Often, now, the farmers do not harvest the crops, so the trees are unlikely to survive long unless Tree Protection becomes effective. A proposed 2001 Act protects native (and a few alien) trees, but not those grown for their fruit. The hedges are mostly by old stone walls, occasionally beside farms and other old buildings.

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Most hedges come in this category.

2. Neglected walls, where wild plants have grown up and down the stones, and grown at the bottom of field retaining walls, along both the lower and the higher field. Their vegetation varies from that of native maquis (if long-neglected) to ruderal species (in well-maintained land).
3. Screening, of e.g. dwellings, places to attract and shoot birds. Recent. Commonly Cypress (*Cupressus* spp.).
4. Street ornaments. Most are recent. Lines of, e.g. oleander (*Nerium oleander*) beside or on the central reservation of larger (mostly modern) roads.

Most farmland is hilly, and has been terraced into fields. Even on near-flat flood plains the field dividing walls are often low terraces, with the land level higher on one side than the other. The retaining walls often project above the level of the upper field, so that this edge also has a wall that can shelter and support a hedge. The retaining walls are therefore high. Since field width goes down to less than 5 m, the retaining walls are also dense. The landscape formed with walls and, in parts, the hedges associated, is distinctive. The walls are even more prominent than are hedges in England.

There are also free-standing dry stone walls, usually by old roads or farms, sometimes on the rare flat land. These, and old buildings, support fruit and fodder crops.

Walls are traditional, and most are decades or even centuries old. Age gives time for native plants to grow up from the soil beside, to colonise cracks in the walls themselves, and, for retaining walls, to colonise the top and grow up, adding to the height of the structure, and also grow and hang down, covering the surface below. Retaining walls of course have soil behind them, which longer roots can reach, some soil can also penetrate to the surface, and soil can also be blown into cracks. Only two food plants are common on (rather than beside) walls. The native caper (*Capparis spinosa*) is common both on wall surfaces and on the top of retaining walls. The exotic prickly pear (*Opuntia ficus-indica*) is planted on the latter, and spreads a little.

Just under walls there are usually bands without field crops, ranging 5 cm–1 m wide. If these are not used for hedges, they are left bare, or grow ruderals.

These bands, if vegetated, form useful beetle banks and buffer strips: trees and ruderals are both valuable habitats, though harbouring different species. Bands are also valuable as refuges for plants, as habitats vary from shade to sun, undisturbed to disturbed, etc.

The fields, and therefore retaining walls, form different patterns in different areas, but these are not related to the hedges they may bear.

In addition, there are modern walls of rectangular, cemented limestone blocks. These may replace dry stone walls after, e.g. a road is widened (they are easier to construct) or be part of a modern development. If farming continues when unaltered fields are encircled by modern

development, hedges may continue at the perimeter, as before. If land has been taken from the field, or if the fields are lost, hedges are unlikely to be replaced.

**Fruit and fodder hedges**

Malta is windy and has a Mediterranean hot, dry summer. Trees and shrubs therefore tend to grow well by walls, which may provide shelter, shade and moisture.

Species of tree and shrub include (but are not restricted to):

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|                            |        |                             |              |
|----------------------------|--------|-----------------------------|--------------|
| <i>Ceratonia siliqua</i>   | carob  | <i>Opuntia ficus-indica</i> | prickly pear |
| <i>Eriobotrya japonica</i> | medlar | <i>Pistacia lentiscus</i>   | Pistacia     |
| <i>Ficus carica</i>        | fig    | <i>Punica granatum</i>      | pomegranate  |
| <i>Oleo europea</i>        | olive  | <i>Vitis vinifera</i>       | vine         |

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Other stone fruits and citrus occur less frequently. *Capparis spinosa* (caper), a sprawling, woody plant, is not uncommon. Together with the planted shrubs, there may of course also be self-sown native species, *see below*. Different strains of fruit trees often mature at different times, and a row of, say, almonds or figs, is likely to have each tree different, to give the longest possible season of ripe fruit (almonds are eaten 'green' as well as (dry) nuts). Carobs are usually planted with one male tree to a large number of female trees. Carob fruit has traditionally been livestock fodder in good times, food for people, in bad (though seasonal sweets have always been made from carob).

These hedges are seldom self-perpetuating (except e.g. caper), because they consist of individually planted trees. Replacements need to be planted. Such hedges are sporadic, and more in the more rural Gozo than in Malta. Most often the hedge is under the retaining wall of the terrace above, but this varies. One farmer may have almonds right round a field, along the retaining wall of the terrace above, and along the projecting top of the wall of the terrace below. The farmer of the next field may have none. And another farmer may have his hedge by a building or roadside wall.

Prickly pear, from tropical America, is of course more recent, and was used similarly to carob for fodder and human food (the cladodes ('leaves') are used for fodder only (except in famine). It has been widely planted, often standing up above a retaining wall and is rooted in this, unlike the trees rooted in soil. Prickly pear is shorter than the trees, mostly 1-2 m (2+ m, if older) and forms a very effective wind break. Pomegranate, medlar, stone fruit and citrus in contrast, usually profit by the shelter of a wall. Windshelter is, say, twenty times the height of a hedge in England, according to the Countryside Agency.

This good fruit is now seldom harvested: which explains the relative sparseness of hedges. Increasing prosperity and life style changes make it not worthwhile. The hedges are therefore not sustainable, and may well be removed (unless protection orders are used and enforced). Because

of lack of maintenance, some of the trees, particularly of carob, olive and prickly pear, are now very large, and shade the field edge, preventing growth of crops.

Hedges may be mixed rather than monospecific, e.g. carob and fig. These two also planted just by the wall may now appear to grow on the wall itself.

Non-woody wall crops are rare, but *Cucurbitaceae* may be planted to climb and cover a wall, giving a good harvest for practically no ground space. In Gozo, though, in the deeper countryside there are more roadside, free-standing hedges planted for fruit, e.g., mulberry (*Morus alba*), olive (*Oleo europaea*).

### Walls with wild vegetation (and wild-plant hedges)

Native plants and hence animals are common on as well as beside walls. There may, of course, be fruit trees as well. In fact, combinations beside walls such as fig-carob-asparagus (*Asparagus aphyllus*) or almond-Pistacia-cane (*Arundo donax*) are frequent. (Pistacia both grows wild and is planted.)

In well-cultivated fields, species on walls are usually sparse and almost ruderal, for example:

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*Antirrhinum* spp. (snapdragon) (wall)  
*Capparis spinosa* (caper) (wall)  
*Cupularia viscosa* (samphire) (soil and wall)  
*Oxalis pes-caprae* (cape sorrel) (soil)  
*Parietaria officinalis* (pellitory) (soil and wall)

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In more neglected places, especially on slopes with maquis around, vegetation tending to maquis can develop and virtually cover the wall, with, e.g. (w = woody):

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|                               |                 |   |               |
|-------------------------------|-----------------|---|---------------|
| <i>Asparagus aphyllus</i>     | asparagus       | <i>Phagnalon rupestre</i>                     | phagnalon (w) |
| <i>Coridothymus capitatus</i> | thyme (w)       | <i>Pistacia lentiscus</i>                     | Pistacia (w)  |
| <i>Carlina involucrata</i>    | thistle         | <i>Rhamnus lycioides</i> ssp. <i>oleoides</i> | buckthorn (w) |
| <i>Crataegus monogyna</i>     | hawthorn (w)    | <i>Rubus ulmifolius</i>                       | bramble (w)   |
| <i>Daucus carota</i>          | wild carrot     | <i>Salvia verbenaca</i>                       | clary (w)     |
| <i>Foeniculum vulgare</i>     | fennel          | <i>Smilax aspera</i>                          | smilax (w)    |
| <i>Hedera helix</i>           | ivy (w)         | <i>Smyrniolum olusatrum</i>                   | alexanders    |
| <i>Lonicera implexa</i>       | honeysuckle (w) | <i>Teucrium fruticans</i>                     | germander (w) |
| <i>Narcissus tazetta</i>      | narcissus       |   |               |

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The proportion of 'green walls' (walls green with vegetation, growing from below, above, or middle) is higher in Gozo. On retaining walls, more of the vegetation hangs down from the top.

Cane, *Arundo donax*, is visually different. While wind breaks may be constructed of dead canes, narrow bands of growing canes may be both by walls and free-standing and also form wind breaks. Canes are also made into screens, parasols and, earlier, had many household and farm uses. Cane grows in damp places, seepage areas, stream banks, etc., and covers these. To get a hedge, this growth must be restricted: by management or by the pattern of dampness.

A good lichen flora grows on older walls. Mosses are seasonal, and sparse: it is rare to have a mossy wall.

A 'hedge' of about 1 m high can also be formed from herbaceous plants, by a field wall, including the very short ones often found on flat land, and free-standing. These give some shelter (see above) so may be intentionally planted, e.g. a close single line of Jerusalem artichoke (*Helianthus tuberosus*) or grow naturally, perhaps with farmers' encouragement, e.g. tree mallow (*Lavatera arborea*) or even the common crown daisy (*Chrysanthemum coronarium*) or fennel (*Foeniculum vulgare*).

**Hedges for screening**

These are sparse, usually monodominant, and of various species. Cypress (*Cupressus sempervirens*, native) is often used round dwellings. Eucalyptus (*Eucalyptus* spp., exotic) and, less, acacia (*Acacia cyanophylla*, exotic) are often round ponds or other places where wild birds are attracted for slaughter. Such hedges may be planted on river banks.

**Hedges for ornament**

These are mainly on the sides or central reservations of modern roads and surrounding small parks, etc. They are usually monodominant, and usually of exotic species such as oleander (*Nerium oleander*), palm (e.g., *Chamaerops humulis*), or *Citrus* spp. These are spreading in Gozo, where, now, there are more fruit-bearing hedges than in Malta.

**Discussion**

Until recently, food was difficult and expensive to import, so every possible area was cultivated. Making the best use of small terraced fields was essential. Only part of the land (near springs or rivers) used to be irrigated, another limitation to yield, especially for dry-season crops. Multi-use of fields was desirable. This involves not just several crops a year, but often fields of mixed crops. And, a fruit crop from the edge of the field, mostly where field crops would not be planted anyway. While fruits were abundant in the times of the Roman, Arab and early Knights of St John, in the nineteenth century, trees were sparser even than they are now. When the cropped hedges existed in the past is therefore uncertain. And as their fruit is, particularly in Malta, now unused, it is doubtful for how long they will extend into the future.

The primary function of hedges is for food. Some provide shelter for other crops (e.g. cane, prickly pear), but most grow themselves in the shelter of walls. In exposed parts this shelter may be required, in others, it is convenient—the hedges usefully occupying strips which would not otherwise bear crops.

The total length of Maltese hedges is probably increasing, since the modern uses of screening and ornament are spreading rapidly. Commonly the fruit from traditional hedges is not harvested, lessening the likelihood of replacement planting in the future. Wind breaks, though, are still needed: but not in all places for all crops.

Biodiversity of both animals and plants is increased by the hedges, on visual assessment, as would be expected. There is unfortunately no quantitative data yet available.

Depressingly, the leisure use of hedges (and indeed patches) for the killing and trapping of wild birds is increasing.

Meantime, the cropped walls of the Maltese Islands add to the world-wide diversity and variety of hedges.

### **Acknowledgements**

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### **Further reading**

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