

## The fruiting of *Yucca Gloriosa* in Malta.

(A Note read by Dr. John Borg on the 13th January, 1913.)

KERNER VON MARILAUN in his celebrated work on the Life of Plants (Vol. II page 152, Italian Translation by Prof. Moschen,) treating of the importance of moths as pollen-carriers, states, "that in certain species of *Yucca*, for example *Yucca gloriosa*, nobody has ever seen the fruit neither in its habitat, nor in gardens, and it is believed that the moth corresponding to this species has become extinct. There may be some doubts regarding this last assertion. But it is certain that without the intervention of *Pronuba yuccasella* certain species of *Yucca*, and principally those bearing capsular fruits, do not produce fruits or seeds."

Now, *Yucca gloriosa*, which is a native of South America, is the most common species of *Yucca* in local gardens and flowers regularly every year, producing the well known magnificent panicle of pendulous white flowers. At any rate, in specimens grown in the open ground, the flowers of *Yucca* are succeeded by large oblong capsules about three inches long, which when ripe become dry and turn dark brown, nearly black, and are full of large flat seeds, having perfect germinating power, and from which healthy young plants of *Yucca gloriosa* are freely grown in our nurseries.

There is no doubt that the species of *Yucca* under discussion is really the *Yucca gloriosa* of Linnæus bearing capsular fruits, to which reference is made by Kerner von Marilaun; and after the most active search for *Pronuba Yuccasella* in most gardens where there were *Yuccas* in bloom or in fruit, I am satisfied that this moth does not exist in this Island.

The question arises what is the fertilizing agent of *Yucca gloriosa* in Malta? I have noted that several species of Hymenoptera, attracted by the abundant nectar of the flowers of *Yucca* are found buzzing around them all the day: and in the evening the panicles of *Yucca* are visited by various moths. The presence of nectar also accounts for the numerous Diptera which are found upon and within the flowers of *Yucca*, among which the common house-fly is seen frequently and makes its presence singularly objectionable by disfiguring the creamy white flowers with its excrements. But in whatever manner these insects act as carriers of pollen, it is certain that in our gardens there is no insect which acts upon *Yucca gloriosa* in the same way as *Pronuba yuccasella* in the pollination of *Yucca Whipplei* in California.

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## The absence of pronubal insects necessary for the fertilization of the genus *Ficus*.

(A Note read by Dr. John Borg on the 13th January 1913.)

THE importance of Caprification in the fertilization of most of the local varieties of *Ficus Carica*, the common fig-tree, has been referred to by me in a note published in the *Daily Malta Chronicle* of the 18th May 1899.

The agent in the fertilization of the common fig is *Blastophaga grossorum*, a Hymenopterous insect belonging to the family *Coecidomya*. However it seems that the attentions of *Blastophaga grossorum* are limited only to *Ficus Carica*, which is a native of the Mediterranean region, and to its wild and cultivated varieties.

Another fig-tree, *Ficus Pseudo-Carica*, the fig-tree of Harrar, Abyssinia, bears a close resemblance to the common fig-tree, both in its habits and characters, and also in the edible quality of its fruit. This new species has been introduced in the Island from Italy, by Baron G. Depiro Gourgion, who has kindly presented me with a plant. This tree has not yet fruited in this Island, and though it has fruited in Italy I am unable to state whether the ripe syconium contained fertile seeds, and in that case whether fertilization was due to *Blastophaga grossorum*.

But there are under cultivation in local gardens, many species of *Ficus* which fruit regularly, but so far are not known to produce fertile seeds. The following are the best known species in local gardens: *Ficus elastica*, *F. rubiginosa*, *F. eriobotryaefolia*, *F. magnoliaefolia*, *F. Benjaminia*, *F. repens* (*F. stipulata*), *F. benghalensis*, *F. Parcelli*, *F. lucida*, *F. citrifolia*, *F. cordata*, *F. dealbata*, *F. reticulata*, *F. altissima*, and *F. pandurata* (*F. lyrata*). All these species fruit regularly, and in the first ten the syconium ripens to perfection, but no seed is formed, and all my attempts to raise plants from the atrophic seeds contained in the syconiums were invariably unsuccessful.

Apparently if the soil and climate enable the tree to bring its syconium to maturity, there should be no reason why the syconium ought not to contain well-formed and fertile seeds. So far therefore it is evident that *Blastophaga grossorum* the pronubal insect of the common fig is unable to fertilize any of the exotic species of *Ficus* cultivated in Malta.

According to the best authorities there are close upon 600 species of *Ficus* distributed all over the tropical and subtropical regions of both hemispheres; and there are about 50 species of hymenopterous insects belonging to the genera *Blastophaga*, *Crossogaster*, *Sycophaga* and *Tetrapus* which act upon the various species of *Ficus* much in the same way as