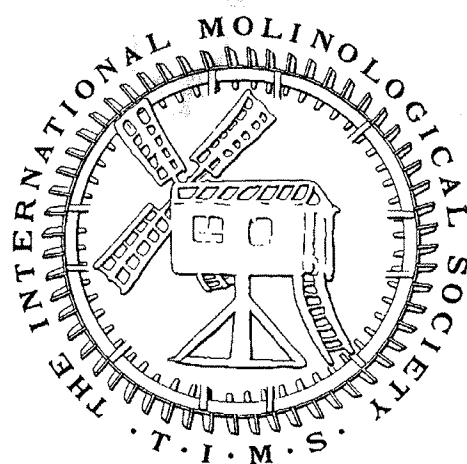


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Corn Grinding Windmills in Cyprus (18th -20th centuries)

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The term windmill, throughout the 20th century in Cyprus, was applied to the metal-framed windpumps used for irrigation. By 1900, windpumps were being imported into Cyprus by the British Government from Toronto, Canada. The first mention is of five Aermotors in the Famagusta district in the Cyprus Blue Book of 1900-01: 398. In 1912 the American Company Perkins, were importing the Canadian Aermotor, but from 1918 to 1932 the sales of Aermotor were taken over by Alexander Dimitriou & Sons Ltd, a company which continued the import of windpumps from Australia (Toowoomba Foundry PTY. Ltd.) and later from Argentina (F.I.A.S.A., Buenos Aires). Up until the 1940's, as a result of massive imports, many areas of Cyprus were covered with forests of all-metal windpumps, especially the region around Famagusta (Ammochostos), which was called the town of the windmills. In 1946 Ammochostos district accounted for 944 out of the 1107 windpumps found on Cyprus (Christodoulou, 1959, p.121.) These irrigation pumps replaced the traditional animal-driven water-raising wheels. Many hundreds of them survive and some are still in use. They are a familiar sight, even in Nicosia where they were used to water the spacious gardens of old mansions.

The exploitation of wind power in Cyprus was a subject

of great interest to scholars who visited the island in the early years of British rule. In the face of an increased demand for grinding power throughout Cyprus, Sir Samuel Baker (1879) was surprised by the total neglect of wind-power, in a country where a steady breeze is the rule... Throughout the great plain of Messaria windmills would be invaluable, both for grinding purposes and for raising water. Instead of this, corn was brought on mules from great distances to the watermills of Kythrea, 13 km northeast of Nicosia (Baker 1879: 74-75).

Similar comments were made later by a German writer, who noticed that, in contrast to Rhodes, windmills were totally absent from Cyprus (Ohnefalsch-Richter 1913:112-113).

Yet, corn-grinding windmills did exist in Cyprus and were still in operation at that time!

They continued, however, to remain hidden from scholars. J. Notebaart, who visited Cyprus in the early 1960's, did not find any trace of windmills, and the information he received from official sources was also negative (Notebaart 1972: 208). Nevertheless, the authors of Windmills of the Cycladic Islands were able to point to a drawing of a windmill in Larnaka, made by the Russian pilgrim Basil Barskii in 1727, and to an engraving of 1887,

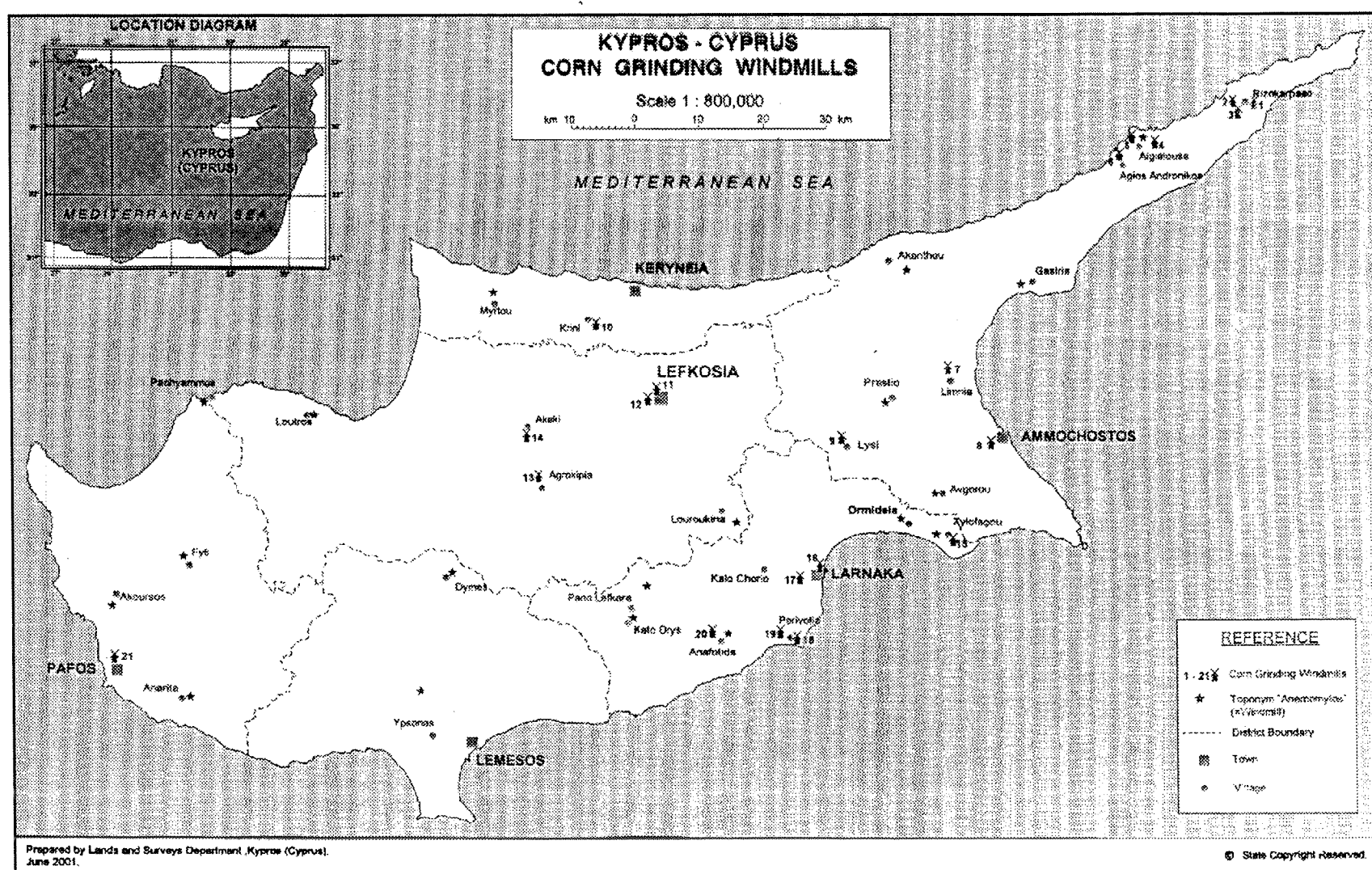


Fig. 1. Distribution map of the corn-grinding windmills of Cyprus. Prepared by Lands and Surveys Department, Cyprus, June 2001.

depicting a group of windmills in the Karpas (Vaos - Nomikos 1993: 58-59).

Bearing the above contradictory evidence in mind, I started to search for the missing windmills of Cyprus. Research focused on maps and cadastral plans, old photographs and other representations (paintings, drawings, engravings, etc.), archival documents and other written sources, together with a survey of existing architectural remains and the collection of oral information. The last mentioned evidence was meagre, since even very old persons do not seem to recollect windmills in operation. Interesting exceptions occurred when ruins of windmills survived in the possession of owners who knew the history of their family and its connection with the windmill.

Since in most maps of Cyprus prepared in the 20th century it is almost impossible to distinguish between windmills and windpumps, my starting point was Kitchener's map, completed in 1882, before the introduction of windpumps. On the 15 sheets of this map (scale of one Inch to one statute Mile= 1: 63,360), the indication Windmill, accompanied by a schematic representation, is found eight times all over the island, and there is also the indication Tower in two cases near the village of Perivolia, in Larnaka District.

A comparison of Kitchener's Windmills with the toponyms Anemomylos (Windmill) published in *A Complete Gazetteer of Cyprus*, I, 1987: 111-112, has shown that out of twenty such occurrences throughout the island, only two, one in Aigialousa and another in Xylofagou, coincide with Kitchener's indications. This is not surprising, since earlier windmills, which no longer existed by the time of Kitchener's survey, as well as those which were constructed after 1882, could not have been included in his map. Furthermore, it seems that Kitchener did not record every single windmill. On the other hand, windmills did not always give their name to their location.

With a view to finding further evidence of windmills in the locations of the toponyms, a systematic research was carried out in cadastral plans and in the topographical map of Cyprus (scale of two Inches to one Mile), which was compiled from about 1900 onwards and formed the basis for the preparation of the cadastral plans. In the locations of 15 out of the 20 toponyms no other indication for the existence of windmills was found. In several other cases, however, the cadastral plans, as well as air photographs, were very helpful for the tracing of structural remains of windmills.

Using the above findings in combination with evidence from other sources, I was able to bring the number of previously existing or still surviving windmills of Cyprus up to 21. These are presented in the following account according to their geographical distribution, moving from east to west (see map, fig. 1):

Ammochostos District

In the Karpas peninsula, under Turkish occupation since 1974, to the south of Rizokarpaso, the indication Mill near a circular building, was noted in the cadastral plans on two separate plots in the Anavrysi Quarter, where the structural remains of a windmill were found in 1970 (Papadimitriou 1992:12). A third windmill is indicated by Kitchener to the northwest of Rizokarpaso. Another three

indications Mill near rectangular buildings along the river in the same area, shown on the cadastral plans, can only be interpreted as watermills.

In the Agia Triada Quarter of Aigialousa, a circular building with the indication F.M. (Flour Mill) was noted on a cadastral plan. In 1970 the ethnographer Eleni Papadimitriou photographed in Agia Triada the windmill of Papa-Anemomyllaris: the preserved tower is stone-built and plastered; the door has a wooden frame and there is a rectangular opening above the lintel. There are holes in the masonry at several points all round, above the level of the entrance. Mention is made that windmills with sails were in operation in the Karpas till the beginning of the 20th century (Papadimitriou 1992: 10, 12, 31,64, fig. 41) (fig. 2).

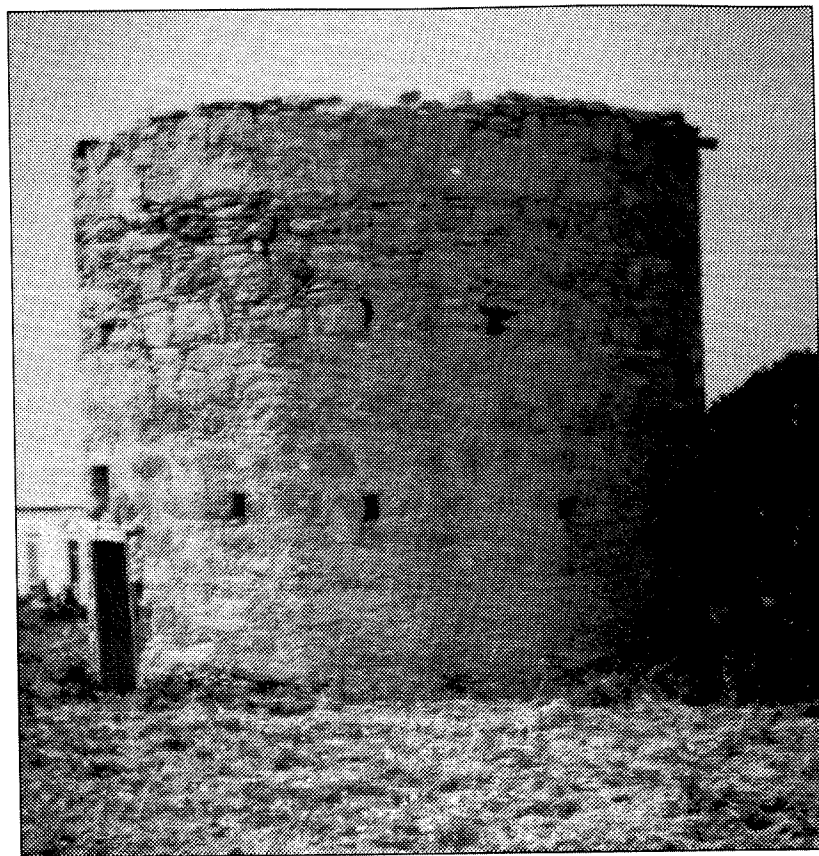


Fig. 2. The windmill of Papa-Anemomyllaris in Agia Triada, Aigialousa, Karpas (Photo by Eleni Papadimitriou, 1970).

In the Kalamia Quarter of Aigialousa, near the location of a toponym Anemomylos, another circular building was found, indicated as F.M. (Flour Mill) Ruin on a cadastral plan and as Wind Mill Ruin on the 2-inch map and also on Kitchener's map. Furthermore, this case was traced on an air photograph in the Department of Lands and Surveys.

A short distance to the north of Agios Andronikos (Karpas), the indication Mill was found on the 2-inch map, on the same spot where a windmill is indicated on Kitchener's map, but no trace of any building could be found on the corresponding cadastral plans of the area.

Although windmills are not indicated or preserved in all cases, this evidence makes the presence of at least six examples in the Karpas indisputable.

Windmills in operation there are illustrated in the engraving published in *The Illustrated London News*, December 10, 1887, p.696. It belongs to a set of sketches prepared by Captain Robert Holden during a tour of inspection in the district of Karpas by the British High Commissioner, Sir Henry Bulwer, in 1887 (figure 3). A

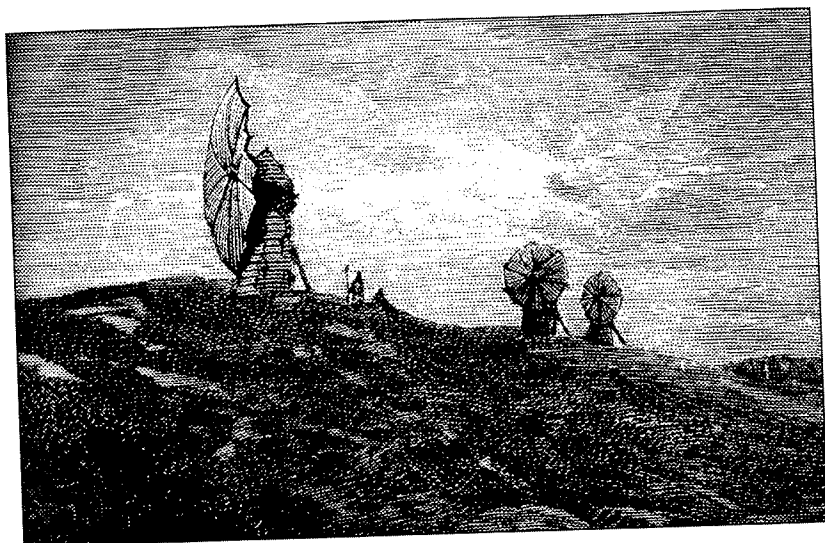


Fig. 3. Windmills with canvas sails, Karpas, *The Illustrated London News*, December 10, 1887.

recent reproduction of the picture is accompanied by the caption: Windmills with canvas sails: Probably the only known sketch which illustrates the windmills of the Carpas district, that were used for grinding corn. (Lazarides 1984: 72-73). The original description refers to its sail [sic] constructed of canvas stretched over eight crossed sticks; the mill-building is of solid masonry. Although the closest mill in the picture gives the impression that it is polygonal and probably made of wood, the reference to solid masonry in the description leaves no doubt that the mill tower was similar to that of the windmill in the same area shown in figure 2. A feature worth noting is the tail pole with which the windmills in the engraving are provided.

To the north of the village of Lysi, a windmill indicated on Kitchener's map, was also found on the 2-inch map, and on the corresponding cadastral plan a circular building was labelled Flour Mill. In his book about Lysi, S. Xystouris mentions that this mill was built in 1880 by Neophytos Kekkös; it was provided with sails and was used for grinding corn. In 1887 a steam-powered flour mill was established in the village (Xystouris 1980:123). However, refugees from Lysi remember the stone-built mill tower still standing in 1974, when they were forced to leave their village because of the Turkish invasion.

Another example of an old abandoned mill tower with an internal stone staircase, was preserved at least until 1974 to the north of the village of Limnia. It seems to have belonged to the family of Thukydides Michanikos (born around 1910), who was also a miller and operated a steam-powered flour mill. Though it was not possible to trace the ruined building on cadastral plans, people from Limnia remember their grandparents saying that it was a corn grinding windmill.

Another windmill is indicated on Kitchener's map between Kato Varoshia and Ammochostos. A book on this suburb of Famagusta states that on a hill behind the girls' primary school there was a windmill that operated until 1890. The stone tower was battered and there were two [sic] very big canvas sails. It looked rather like a Dutch windmill. It was known as the Flour Mill of Hadjiorkos the Jew. A recent examination of the cadastral plans has revealed that on plot 1130 it says Agios Nikolaos Quarter, locality Kato Varoshia, there is the indication Flour Mill, but without any sign of a building; and this is very close to the girls' school.

There is also an Anemomylos (Windmill) Street nearby. Taking into account that there is no reference to any other windmill in the same region, we can assume that this must be the mill on Kitchener's map. Apart from the above, and the four toponyms within Ammochostos district, 35 windmills are recorded in the Ammochostos district in the Cyprus Blue Book of 1880:350; this total drops to three in 1900-01:398, one in 1909-10:312 and none in 1911-12:322.

Keryneia District

The only evidence of windmills here, is the indication of an example in the village of Krini on Kitchener's map, which, however, was not supported on any cadastral plan or on the 2-inch map.

Larnaka District

Moving southwards, we meet the windmill indicated by Kitchener in the village of Xylofagou. The history of the family to which the windmill belonged takes us back to about the mid-19th century, when the Kranidiotis family, fishermen from Kranidi in the Peloponnese, took refuge on Cyprus. They became millers and followed this profession for generations, operating a steam-powered engine with French millstones from La-Ferté-sous-Jouarre from 1928 to 1975. The windmill was sold at a later date to a doctor who restored the ruined tower, distorting its original form.

In the village of Perivolia there were two cylindrical buildings, indicated by Kitchener as Towers, but as Mills on the 2-inch map and on the corresponding cadastral plans. One of the mills was declared an Ancient Monument by the Department of Antiquities in 1980, as a Medieval Windmill. The term Medieval is hardly accurate, though Perivolia was connected with the Frankish kings of Cyprus, as it formed part of the fief in the neighbouring Kiti, which in the 1460's belonged to Charles de Lusignan and later to the

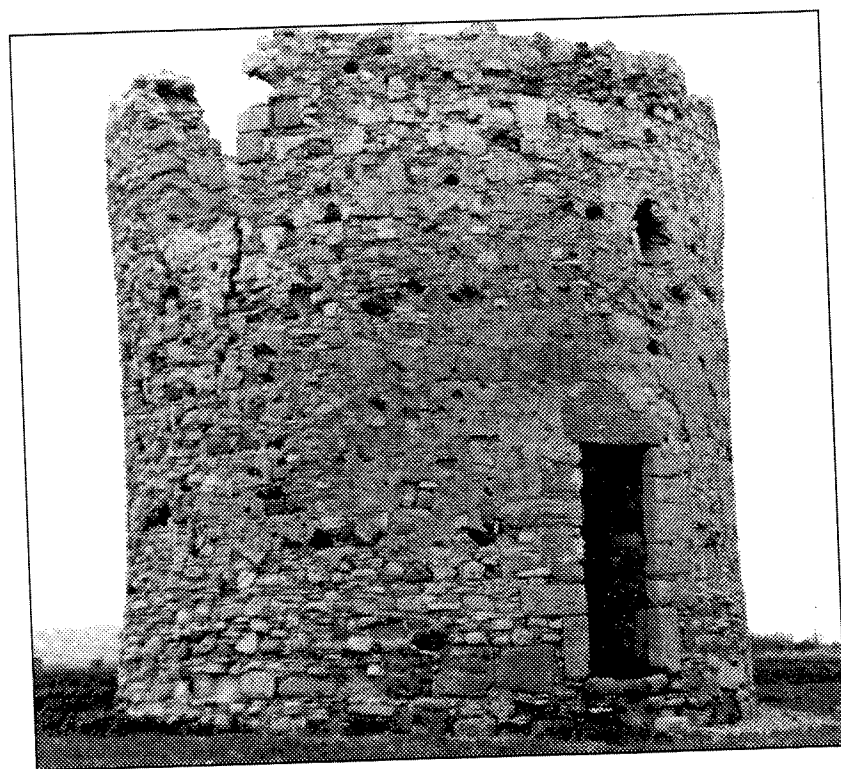


Fig. 4. Windmill in Perivolia, Larnaka District (Archive of the Department of Antiquities, Cyprus, 1984).

Podocataro family (Richard 1983: 169, 121, 128). It is also worth noting that Simos Menardos in his study on the place-names of Cyprus, first published in 1906, mentions two towers in Perivolia, the smaller of which had been converted into a windmill (Menardos 2001:44-45). During my survey in the area in April 2001, I found out that both windmills had been demolished. As seen in a photograph of 1984 in the archive of the Department of Antiquities, the Ancient Monument then still preserved its stone-built tower to its full height. The entrance and the window were framed with dressed stones, the door lintel consisting of a monolith, and a circular opening existed high above the doorway. The tower was plastered both inside and outside; the stone staircase, which formed an integral part of the building in the interior, was supported by an arch (figure 4).

Another windmill was referred to in 1836 by the American missionary Lorenzo Warriner Pease who wrote in his diary: Anaphotia has a windmill in ruins near (Severis: forthcoming publication). The windmill does not exist any more but the toponym Anemomylos is still preserved in the village of Anafotida.

On Kitchener's map the only windmill near Larnaka is one in Kato Vlachos Chiftlik near Kalo Chorio, for which no other evidence was found. However, the existence of windmills in Larnaka, at least during the 18th century, is documented in other sources:

The Russian monk Basil Grigorovich Barskii, in his drawing of Larnaka, dated 1727, depicts to the right of the British and French consulates, mentioned by name, a disproportionally large windmill, cylindrical, with a conical cap and eight spokes (figure 5).

About 40 years later, an Italian priest, Giovanni Mariti, who lived on Cyprus from 1760 to 1767, mentions that on the citadel of the ancient city of Citium a windmill was then standing on the site of a castle. Speaking of the location of this city, the predecessor of Larnaka, he refers again to the windmill: Of its port, the same which Strabo calls a closed harbour, the remains were in my day fully visible, and on a hill above it a windmill occupied the room of some old light-tower or fort (Mariti (1769) 1971:23, 159).

José Moreno, a Spanish naval officer, drew a

navigational map of the bay of Larnaka, during his short visit to Cyprus in May 1788. Among other features on the coastline, a single windmill (solo molino) appears to the north of Larnaka, very close to the sea (Severis 2000: 58-60, fig. 52) (figure 6).

If we take into account the topography of Larnaka, the short distance of the artificial mound of the acropolis from the sea, and the fact that at that time the area was covered with marshes, we have good reason, I believe, to identify Moreno's solo molino with the one drawn by Barskii and with the windmill seen by Mariti on the acropolis of Kition.

In 1879 the British authorities decided to fill up the marshy area of the ancient harbour of Kition with ballast taken from the adjoining acropolis (Bamboula Hill), which was thus completely dismantled (Nicolaou 1976: 35-36).

Pafos District

Apart from toponyms in three villages, a single windmill has been preserved in the town of Pafos, in Agios Theodoros Quarter. It belonged to Othon Trichakis from the island of Chios, who was married to Hadjieleni from the village of Arminou in Pafos. After 1882 they bought an extensive plot in Pafos, turned it into an orchard and built houses and the windmill, later also a steam-powered mill. In 1912 they went back to Arminou and Othon died there in 1914. According to this information, the windmill must have stopped working during the first decade of the 20th century. The stone-built mill tower is preserved to its full height of about 6m. It has an outside diameter of 5.13m and a wall thickness of c. 0.70m. The doorway faces north: it is framed by dressed stones and has an arched lintel of ellipsoidal form. A stone staircase with 11 steps, winding upwards along the inside of the tower wall, led to a mezzanine, and, according to information, there was an additional planked floor higher up, for the millstones. All the woodwork was destroyed or taken away between 1936 and 1941, so that only some fragments of beams are to be seen protruding from the walls. In the lower part of the masonry, one on either side of the entrance, there are two

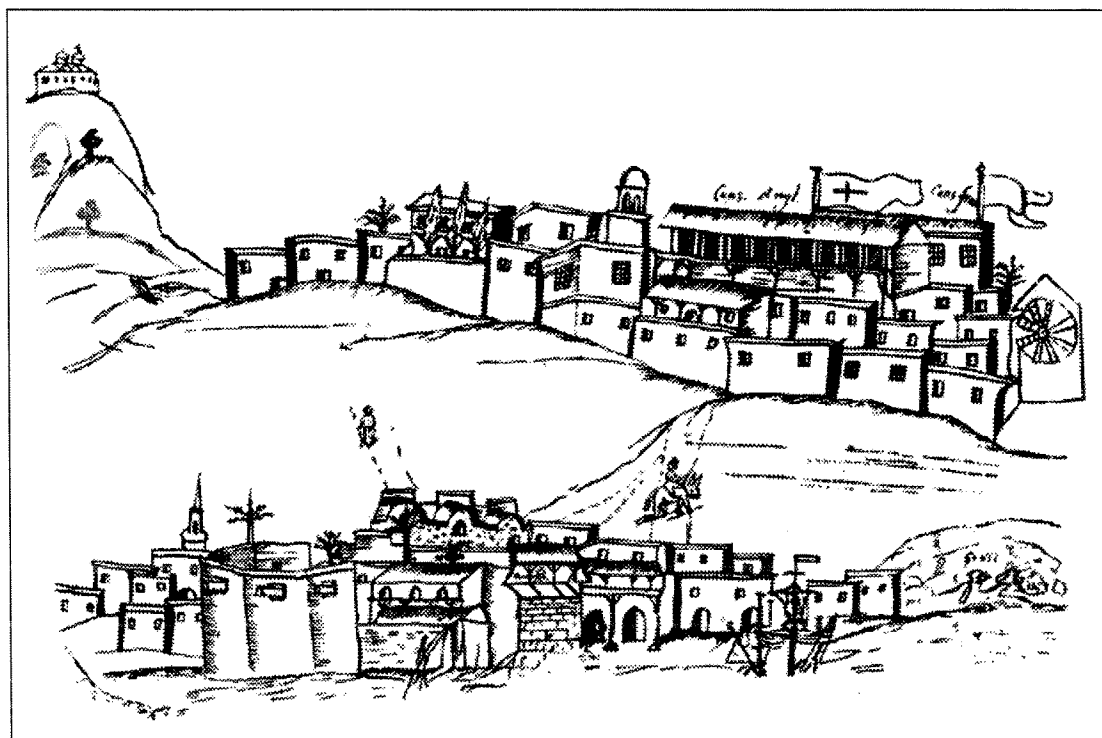


Fig. 5. View of Larnaka and Skala. Drawing by Basil Grigorovich Barskii, 1727.

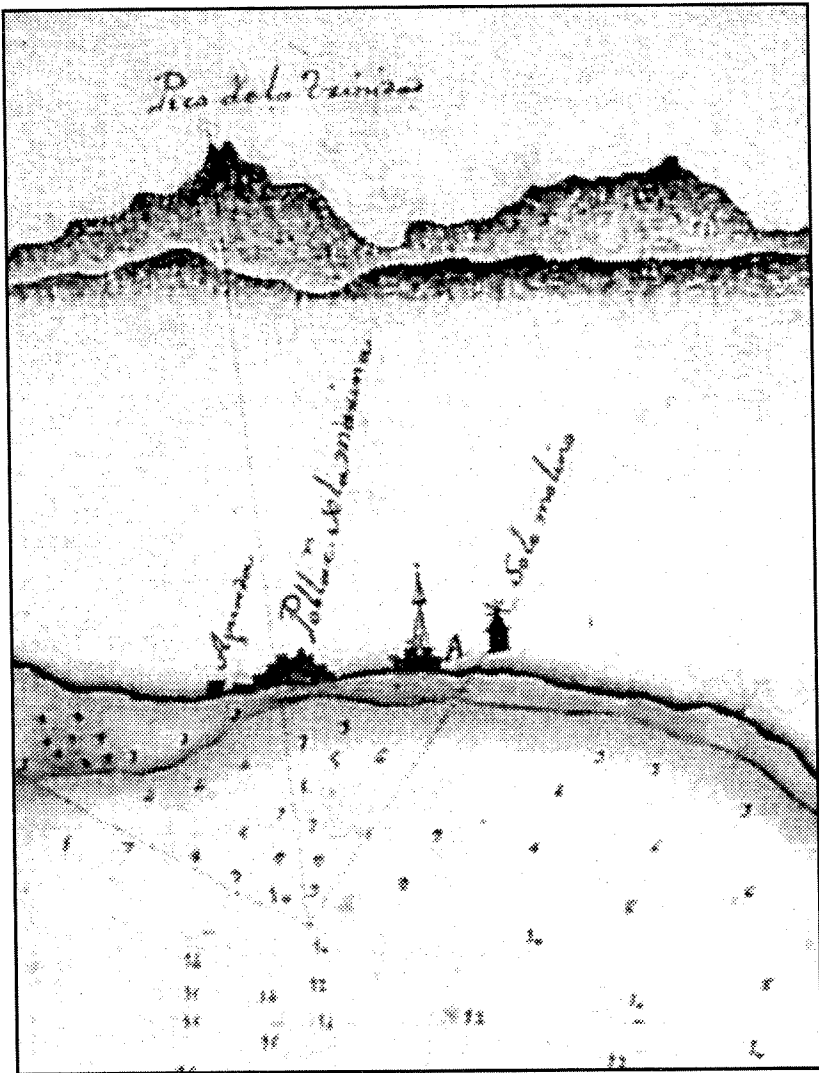


Fig. 6. Solo Molino on the bay of Larnaca. Map drawn by José Moreno, c.1788 (courtesy of the Bank of Cyprus Cultural Foundation).

trapezoidal openings, and at a higher level two rectangular windows placed one above the other on the east side; opposite, there are two corresponding windows in the west side. The upper windows have partly collapsed and the building in general has suffered serious damage. However, it is the only example preserved on an excellent site, on high cliffs with a view to the sea, and with empty space around it. For the windmill of Pafos a Preservation Order was published by the Minister of the Interior (Town and Planning Department) in 1995, so the building is eligible for financial incentives for restoration purposes (figure 7).

Lefkosia (Nicosia) District

Here we have four toponyms and a reference to a field with a windmill near Agropkipia. It formed part of the property of the Monastery of Achera, as it is recorded in a register of the Archbishopric from the time of Archbishop Chrysanthos (1767-1810). Since there is no relevant indication on the cadastral plans of the area, we can assume that this windmill disappeared long ago.

The only surviving example in the district is a ruined windmill tower in the village of Akaki. This building was declared an Ancient Monument in 1980, as another Medieval Windmill. Like Perivolio, Akaki is also connected with the Frankish period: Leontios Machairas mentions in his Chronicle a quarrel about greyhounds, between King Peter I (1359-1369) and Henry de Giblet, owner of Meniko; Peter was at the court of Akaki, which was built by his grandfather King Henry (Dawkins 1932: 241-251, 593). It is doubtful, however, whether the windmill dates back to this period.

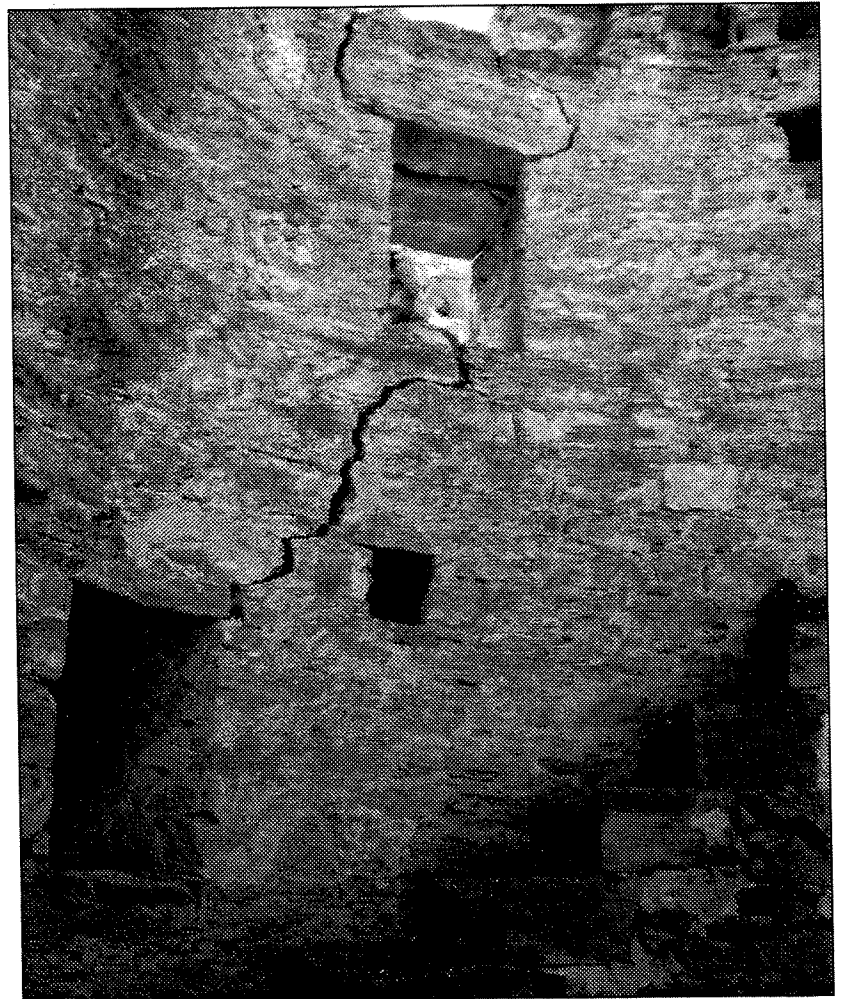
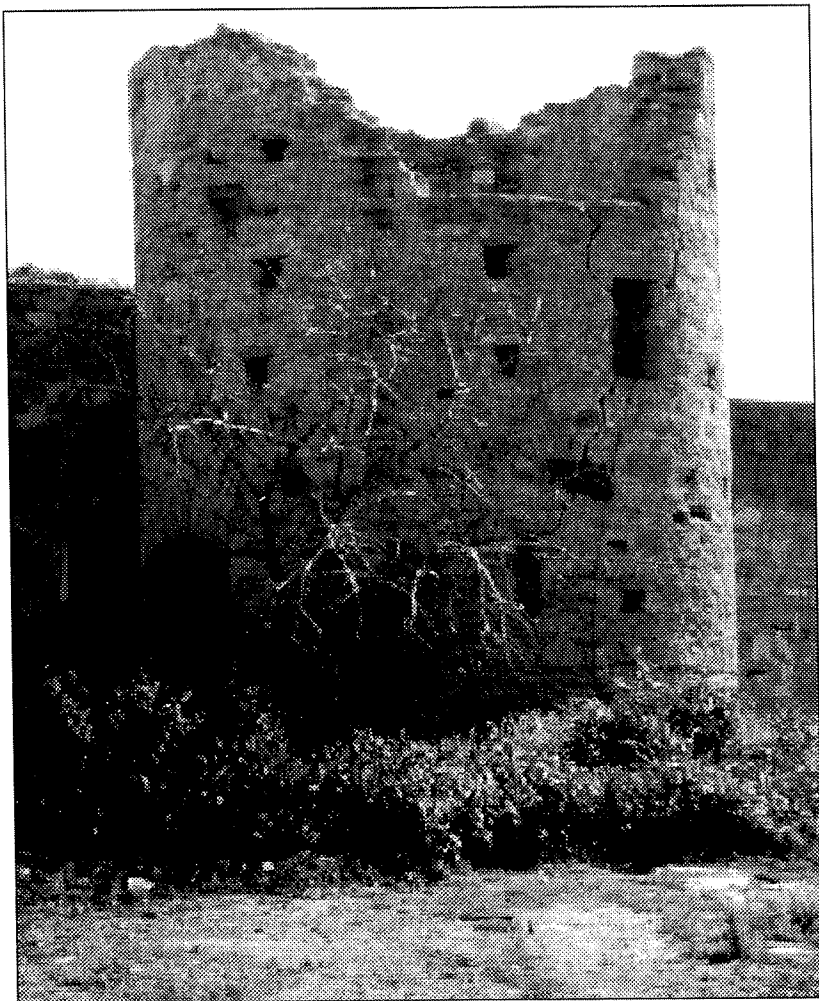


Fig. 7a, b. The windmill of Othon Trichakis in Pafos (Photos by E. Egoumenidou, 2001).

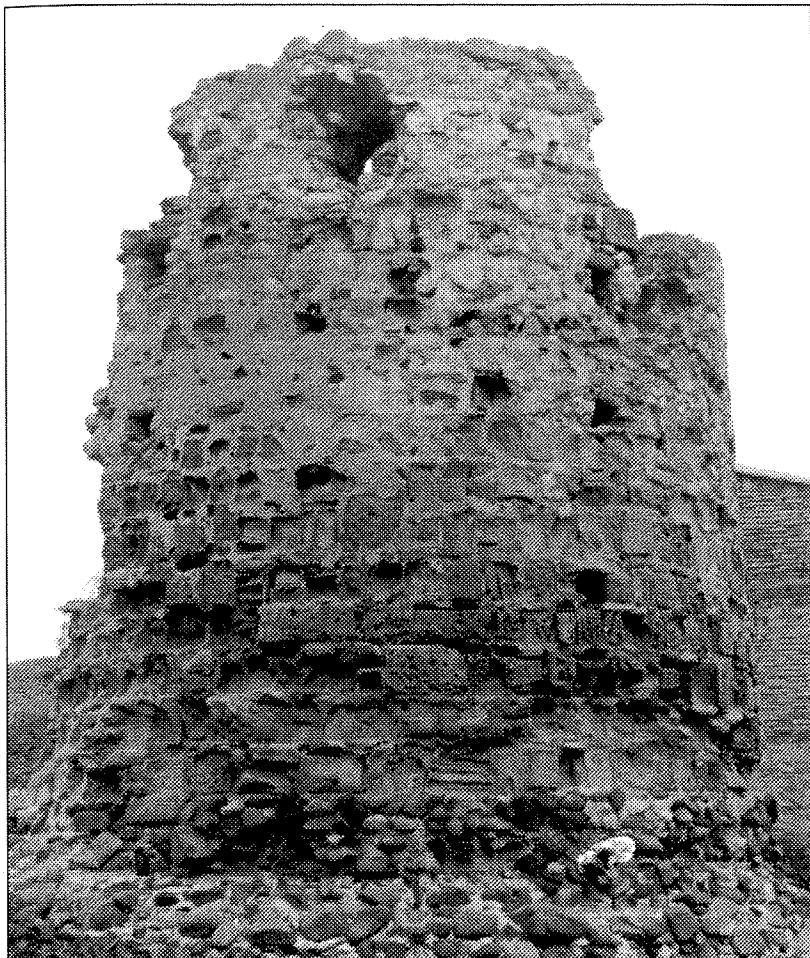


Fig. 8. The windmill in Akaki, Nicosia District (Archive of the Department of Antiquities, Cyprus, 1964).

The mill tower, preserved to a height of about 5 - 5.25m, is built of dressed sandstone on a base of river boulders. Only half of it survives today, but it is shown in a better state in a photograph of 1964 (figure 8). The eroded masonry was originally plastered. The walls are about 1m thick and the inside diameter reaches c.3.70m. The partly preserved stone staircase along the inside of the tower, is built on a solid base 1.5m high and from the upper southwestern part of the wall project two truncated beams.

For the presence of windmills in Nicosia itself, we are provided with authentic evidence by Archduke Louis Salvator of Austria, who visited the capital of Cyprus in 1873. Walking on the ramparts of the Venetian City walls (Muraglia), after Keryneia Gate, on the way to Quirini bastion, whose Turkish name Deyirmen (degirmen) actually means a corn-grinding mill, he passed by an Oede Windmuehle (abandoned windmill), and further on, after Pafos Gate, he came upon another verlassene Windmuehle (deserted windmill) (Salvator 1873: 9-11).

The role of these windmills is rather obscure. They must have been built after 1567, when the construction of the fortifications started, and stopped working long before 1873, since they were then in a ruinous state. It seems rather improbable that they were constructed to supply flour during the siege of Nicosia by the Turks in 1570, which lasted only 45 days. Even later, their role must have been insignificant; they are not even mentioned by the historian Archimandrite Kyprianos, who describes Nicosia as absolutely dependent on the watermills of Kythrea, to such an extent that, in cases of revolt, rebel Turks would capture these watermills to starve the capital. As Kyprianos mentions, during the insurrection of 1765, what little flour

people could get, they had it ground in hand-mills (Kyprianos in Cobham 1908: 360).

Conclusions

The aim of this short overview of the wind-powered flour mills in Cyprus, is to open a new chapter in the pre-industrial technology of the island, on a specific topic that has remained almost completely ignored; furthermore to create an incentive for further research as well as for the protection and preservation of the very few surviving windmills.

Searching through various sources, I was able to identify 21 examples throughout the island; even if we were to add the windmills whose existence is indicated by the toponyms and those recorded for Ammochostos district in the Cyprus Blue Books, there would be too few to lead to safe conclusions, but enough for some preliminary remarks:

The Cypriot windmills show a typological homogeneity; they all seem to belong to the Mediterranean type of cylindrical tower mills with rotating cap and vertical wheel (moulin tour: Notebaart's type A III; see Vaos - Nomikos 1993: 52, 62-63, and Blom 1999: 11-18), a type which has been traced from the Dardanelles to the coast of North Africa (Cobbett 1939: 458-461, Notebaart 1972: 267-343). Only the windmills of the Karpas in the engraving of 1887 do not seem to conform to this pattern and their tail pole is a feature alien to those Mediterranean tower mills found in the Aegean. They do not, however, reflect the real windmills of the Karpas, and, as we have already mentioned, there is a discrepancy between their description in the accompanying text and the depiction, which is probably due to artistic licence.

Chronologically these corn-grinding windmills cover at least the period from the 18th to the early 20th century. Their end is better documented than their beginning; their decline occurs with the advent of the 20th century and was mainly due to the introduction of steam-powered mills. When the windmill first appeared in Cyprus, remains obscure. The declaration of the windmills in Perivolia and Akaki as Medieval monuments, brings up the issue of their presence or absence in Cyprus during the Frankish (1191-1489) and the Venetian (1489-1570) periods, or possibly even earlier. Considering that the island was ruled by conquerors coming from countries where windmills were already established, and the fact that windmills existed in those times in places which were close to Cyprus and had a similar history, like Syria, Palestine, Rhodes and Kastellorizo, it is logical to assume that windmills did exist in Medieval Cyprus. This hypothesis is corroborated by the surviving old toponyms which commemorate the former existence of windmills on the same spot.

Medieval sources do actually include many references to molini, but the context is not always clear about the kind of mill, and in most cases it indicates watermills. In fact, watermills were more numerous by far; their presence in Cyprus is documented from the 12th century onwards and over 200 are still preserved throughout the island, most of them in ruins. Their operation continued down to the mid-20th century, in isolated cases even to this day. However, taking into account the evidence put forward in this paper, medieval sources should be re-examined from the viewpoint