Serving the city from its outlying buildings:
Lemon greenhouses (*limonaie*) and cordial boundaries

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1. Introduction

Tart, sour and ubiquitous, lemons *per se* are not often thought of as desirable luxury food but as agricultural commodities. Yet this was not always the case. In eighteenth-century Naples, for example, frozen desserts such as lemon sorbet, along with the silver cups in which they were served, were considered luxury consumables.¹ These also included the city’s ice-cream shop spaces (*sorbetterie*). The lemon found its place in society as a religious object and later used as an additive to surfeit waters, or liquors and cordials, and perfumes too. A century later, only the highest quality lemons were exported to other European cities; the rejects were locally consumed. These remaining lemons were regarded defective, substandard. Eventually, the supply and demand for lemons became abundant as reproachful necessities. Soon the word “lemon” became a colloquialism for a person with a “tart disposition” or a thing associated with something faulty or worthless.² This paper will first reassess how lemons became luxury consumables. Then, it briefly discusses their existence in Italy. The paper surveys how they were cultivated in the Italian provinces of Campania and Lombardy in elaborate conservatories or “lemon-houses” and indicate what form they were exported to other cities. It argues that the archaic lemon-houses (or *limonaie*) had an impact on modernism through Le Corbusier and Bernard Rudofsky’s works.

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Found on the outskirts of the city of Brescia on Lake Garda, Lombardy, the lemon-houses (or limonaie) of the small town of Limone are considered in this paper as permeable luxurious constructions (fuori opere). Curiously, the name of that town “is derived from the Latin word ‘limen’, meaning ‘border or boundary,’ making reference to its position close to the frontier of Roman rule.”

Originally, these lemon structures were foreign-type pergolas, derived from ancient Egypt, found along terraced landscapes along the Mediterranean coastlines, such as the Amalfi and Caprian hillside terraces, still producing fruit for export and part of the Slow Food Movement. Many of Limone’s remnant eighteenth-century lemon-houses, however, are found in ruins on Limone’s artificial terraces.

In sequence with Rudofsky’s impression of the small town of Limone and his Campanian experiences, in order to undertake this reassessment of how the limonaie became luxury consumables, the origins of the derogatory association of the lemon or its tart disposition must first be catechized. The origins of the pergola will be analysed within the context of Classicism/mysticism in Italy, demonstrating that the structure became a luxurious garden feature surrounding churches and palaces. Lemon greenhouses offer architects, urban designers and agriculturalists new ways of appreciating the open-plan and enable the landscape inside – inside conservatories for living-in.

2. Lemons as luxury food and agricultural commodities

Historically speaking, lemons were an important luxury and agricultural commodities. More recently, archaeologists have discovered that in the 8th century BCE (the pre-Archaic period), citrus pollen was uncovered in south-western Italy along its coastlines bordering the Mediterranean Sea in the harbour city of Cumae, the oldest known Greek settlement in Italy. From the first century on, the cultivation of citrus tree-timber and fruit became the source for wealth in Pompeii. In Oplontis, for example, at the House of the Orchard’s (1st century CE)

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cubiculum fresco ornament is depicted an identifiable white pergola and lemon trees.\textsuperscript{5} This evidence suggests that the wealthy Romans consumed lemons. Meanwhile in Palestrina, east of Rome, there is another image depicting citrus trees and a pergola found in the Nile Mosaic (\textit{aka} Barberini Mosaic; 2\textsuperscript{nd} century BCE), suggesting the pergola’s foreign influence from Egypt and the thriving presence of the fruity luxurious commodity imported from abroad, from Asia. In ensuing ancient Roman settlements and cities in the Mediterranean region, citrus trees and their fruit, including pergolas as luxurious commodities formed into “lemon-cultivating” terraces in Campania. The early lemon-structures transformed the manner how greenhouses appeared in the Mediterranean.

Some historians and commentators have claimed that the Mediterranean lemon houses were originally built adjacent to monasteries, castles or palaces in both the Medieval and Renaissance periods.\textsuperscript{6} They indicate that they were invented to cultivate fruit for export to serve the northern countries such as Russia, Germany and France since the colder climates could not grow these sub-tropical fruits. In light of the lemon-houses’ importance then, as now, of particular interest is the utilitarian function of these structures. Did they have an impact on modern architecture between the 1930s and 1970s in Mediterranean Europe? In answering this question one must begin with an understanding on the ancient Roman/Indian trade of citrus luxury good origins. And although the Cumaeans, Pompeiians and Romans traded in citrus fruits, it was not until the late Renaissance that the rise of pergolas and terraces surrounding palaces as luxurious constructions that lemons took on a significant role than purely gastronomical use would suggest. In northern Europe, lemon-houses were converted into elaborate conservatories.

2. Ancient Roman citrus trade: before the “lemon greenhouse” invention

In Classical Antiquity, the powerful citrus fruit plants, especially cedar and lemon tree timber, were once luxury consumables due to their attractive and aromatic grain. As

\textsuperscript{5} Mantha Zarmakoupi, \textit{Designing for Luxury on the Bay of Naples: Villas and Landscapes (c100BCE-79CE)}, Oxford: Oxford University Press, 2014, p.117.

extremely rare and expensive timbers, the smooth grain and knots tempted ancient Romans. Most citrus fruits were edible – they were ornamental, and additionally prized for their fragrance. Unearthed from the volcanic debris from Pompeii, destroyed by the eruption in 79AD, at the National Archaeological Museum in Naples is a curious Indian artefact – an ivory sculpture claimed to be the goddess of abundance Lakshmi. This artefact is relevant because it suggests that the Romans traded with the Indians and that imported luxury goods, such as ivory and the citrus fruit (namely the lemon – native to India), into Pompeii were seen, by Roman agricultural writer Pliny, as a “wasteful frippery.” It appears that in antiquity, imported lemon tree timber and the fruit were both considered luxurious consumables, which established the citrus trade in the Mediterranean region. In terms of food and the city, such items were counted as precious commodities.

In Pompeii, citrus-tree timber was considered by ancient Romans as a precious commodity. Cicero’s villas there and along the Baie shores in the Cumaean hills comprised of terraced porticoes surrounded by lemon groves. And apparently, Emperor Tiberius owned a “proto-greenhouse” (or specularia) adjacent to his Jovis Palace on the Isle of Capri, near Naples, with climbing plants. The ancient Romans are not only believed to have invented the proto-greenhouse but also cultivated lemon trees for their own personal use. This is especially the case when re-looking at Oplontis’ House of the Orchard fresco of the “white” pergola, mentioned earlier, compared to the pergolas built in the Middle Ages or early Renaissance era near churches and palaces in the form of vernacular scaffolds. The scaffolds were used to cover the lemon trees. Thus lemons and pergolas were luxury consumables since they were reputedly and already located in the “Bay of Luxury” (or Naples and its environs).

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9 John H Gourlie, “The Villas of the Romans,” in The Crayon, Vol.5, No.3 (March 1858, p.76). Citrus-timber appealed to Emperor Tiberius who lived on the Isle of Capri for his cedar tables were costly because they were inlaid with ivory. See James A. Arieti, Philosophy in the Ancient World: An Introduction…p.273
It was not until the late Renaissance that the lemon itself grew popular in different religious circles, as the trees were planted within the vicinity of churches, monasteries, convents and palaces as expensive structures. They were simply reserved for the clergy and the elite. Since that time the original terraced lemon orchards of the Amalfi Coast became a “Terra di Lavoro” (Land of Work).\(^\text{12}\) Lemons lost their association with luxury food. In any case, the structures themselves are agued herein as being the forerunner of Limone’s lemon greenhouses on Lake Garda.

In both the Amalfi and Limone regions, some of the original terraced lemon orchards still exist and produce fruit. The Amalfi region, in particular, is a significant cultural area in UNESCO’s world heritage list, and presents itself as a cultural landscape of lemon trees with ancient houses and historical pathways, which is protected. The *limonaia* is therefore a

transformable greenhouse for growing lemon trees. Consequently, the lemon greenhouse became a hybrid structure of the ancient Pompeiian fresco ornament and the Renaissance church pergola.

3. Limonaie and “limens”

Following the unification of the Kingdom of Italy, competition between Lake Garda and from southern Italy arose to grow “higher-quality fruit.” The Amalfi Coast continued to produce quality lemons. Meanwhile in northern Italy, in this case along the south side of Lake Garda, was a demand for lemons in the northern-most Europe – for the Austrians, to add lemon zest sparingly in strudels; or for the Germans, to use as an ingredient in medicines (cordials) and perfumes, which were economically advantageous for new business ventures. In terms of architecture and the city, the limonaia was significant as an acclimatizing form and flexible.

At Lake Garda, there were many ‘comb-type structures’ dotted along the shoreline. The lemon greenhouses, including glass panes between timber panels, were located on the south-facing terraced slopes. Stone pillars pierce the landscape towards the lakeshore. During winter, the limonaia’s facades are boarded up with glazing and timber elements to permit sunlight in the interior to not only heat the space but also to colour the green lemons to yellow. Timber rafters are also put in place to keep the snow out. Whereas during summer the limonaia frame is stripped bare and functions with respect to ideal conditions. These greenhouse-types are utilitarian-type and flexible conservatories. (Orangeries were similar structures to the lemon greenhouse but more of the ornamental-type of conservatories that followed the limonaia aesthetic in Spain, France and Germany). The Limonaie of Lake Garda ‘were constructed to make possible the cultivation of citrus fruits at high altitudes. Citrus cultivation reached its peak in 1850-1855 when Gargnano was home to around half the lemon greenhouses along the entire length of the lake.’

Eventually, “one after the other, lemon houses were abandoned. During the First World War soldiers carried away the wooden beams and planks to build shelters or use for firewood.” Interestingly, “‘elimination’ comes from the Latin word meaning ‘limen,’ which means threshold. The Romans added an ‘e’ to the beginning and created the verb eliminare, which

means to banish or push over the threshold and out the door.”\textsuperscript{16} The main point here is that the archaic structures impacted modernism – and that the “limens” or thresholds converted into spaces to live in – in the city.

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure2.png}
\caption{The tourist town of Limone, Lake Garda in Lombardy. Source: Wikimedia Commons}
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\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{Inside the limonaia, Limone. Source: Wikimedia Commons}
\end{figure}

\textsuperscript{16} http://www.vocabulary.com/dictionary/elimination, accessed 15/07/2015
4. **Limonaie, modern architects and cordial boundaries**

Modern architect Le Corbusier made a voyage to southern Italy and was enamoured with the lemon structures of the north, which no doubt influenced his thinking about modernism. For Le Corbusier ‘follow[Ed] Goethe’s footsteps, in 1907 on his voyage to Italy… [and] spent time sailing on Lake Garda and visited the lemon-houses.’

Some fifty years after Le Corbusier’s voyage, modern Austrian architect and critic Bernard Rudofsky, whose work *Architecture Without Architects* (1964) garnered much attention, documented Limone’s now rustic conservatories. Intriguingly, the cover of Rudofsky’s book featured Italy’s lemon greenhouses (or *limonaie*) on Lake Garda in ruins. At first count these lemon-house remnants appear primitive because of their vernacular appearance, but their overall gesture built upon the terraced topography is more Mediterranean and in effect modern. And yet what is curious about the lemon greenhouse is its architectural/cultural past – when Rudofsky toured and worked in the south of Italy, specifically in the province of Campania, his experiences there (and on the islands of Procida and Capri) enabled him to extract the essence, which was the pergola – and encompass it as a place to live in. Rudofsky

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17 H. Allen Brooks 1999 – *check date*...
had incontrovertibly renewed the curious lemon-houses and their luxurious past by converting them into patio-houses and urban structures in Italy, Brazil, Spain and the United States. This is especially the case with Rudofsky’s elegant limonaia-inspired house (1971) in Malaga, Spain. In effect, Rudofsky’s work supplies one key example of a skeletal greenhouse. Observing these lemon-houses as “skeletal” luxury consumables is therefore significant for uncovering the lemon greenhouse origins, their impact on the modern city. The skeletal structures have helped create modern and luxurious buildings – in the city and in the suburbs too.

5. Conclusion

As a ubiquitous food or additive to fragrant cleaning-spray to spruce-up rooms, lemons serve to become a type of sanitized-conduit for new urban networks. And in the process prolong the pleasure of lemon-scent/sense. Forming flexible borders, the row of lemon trees themselves transformed, metaphorically, into a permeable greenhouse for the cultivation of a multitude of lemon products into something more ethical, “cordial” or convivial. This new ethical association with the lemon “greenhouse” has not only allowed for better provisions for other European cities but has also set a guide for the management of other luxury consumables for modern and global cities.

The original greenhouse was ultimately an Italian invention. The presence of lemons in the Campanian region and its diffusion of the limonaie origins along Lake Garda’s shores have become popular again as tourist centres. Today limonaia, according to Domenico Fava, are “heritage structures… [they are] vestiges of a laborious and productive past.”¹⁸ In addition, many remnant sites have transformed into elite luxurious resorts. Consequently, this paper has argued that the archaic lemon houses contributed to the rise of modern European buildings not only for cultivating fruit but also greenhouses for living-in. Both Le Corbusier and Rudofsky saw the vernacular-modernist qualities of such limonaie as advantageous – the “limes” (thresholds) continue to be recycled as utilitarian structures in the landscapes they reside and beyond as a way to manage luxury consumption.

6. Bibliography


http://quod.lib.umich.edu/d/did/2222.0001.857/--lemon-tree accessed 9/07/2015