

Rethinking the Industrial Heritage of Ayvalik through Trajectories on Extracting Olive Oil and Soap Making

Original

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Abstract:	<p>Ayvalik, a city located in northwest Anatolia, has been at the forefront of olive-based industries since the 1880s, when the industrialization of Europe led to the growth of commerce and agriculture in Anatolia, including first Istanbul and Izmir, followed by Ayvalik, due to their strategic locations. Ayvalik, which was an important Greek settlement under Ottoman rule, experienced a major turning point with the population exchange between Greece and Turkey in 1923, an event that caused dramatic changes in the political, demographic and economic structure of all of Anatolia. Nonetheless, Ayvalik has maintained its importance through its ongoing olive-based industries and well-preserved historical urban fabric, the like of which represents one of an exceptional example of living testimony of continuing land-use by Turks. Following the relocation of industrial activities in the 1980s, many of the industrial heritage buildings became non-functional, while half of them were converted into different cultural-touristic sites in the 2000s. This study presents a comprehensive view of the industrial heritage of Ayvalik by performing an up-to-date synthesis of the cultural material related to trajectories on industry and production processes to understand the evolution of the industrial heritage and how urban and daily life have been reflected and transformed.</p>

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Rethinking the Industrial Heritage of Ayvalik through Trajectories on Extracting Olive Oil and Soap Making

Ayvalik, a city located in northwest Anatolia, has been at the forefront of olive-based industries since the 1880s, when the industrialization of Europe led to the growth of commerce and agriculture in Anatolia, including first Istanbul and Izmir, followed by Ayvalik, due to their strategic locations. Ayvalik, which was an important Greek settlement under Ottoman rule, experienced a major turning point with the population exchange between Greece and Turkey in 1923, an event that caused dramatic changes in the political, demographic and economic structure of all of Anatolia. Nonetheless, Ayvalik has maintained its importance through its ongoing olive-based industries and well-preserved historical urban fabric, the like of which represents one of an exceptional example of living testimony of continuing land-use by Turks. Following the relocation of industrial activities in the 1980s, many of the industrial heritage buildings became non-functional, while half of them were converted into different cultural-touristic sites in the 2000s. This study presents a comprehensive view of the industrial heritage of Ayvalik by performing an up-to-date synthesis of the cultural material related to trajectories on industry and production processes to understand the evolution of the industrial heritage and how urban and daily life have been reflected and transformed.

Keywords: Olive oil and soap industries; contemporary urbanism of Ayvalik; industrial archaeology and heritage; contemporary sites.

Introduction

Industrial archaeology, or industrial heritage, is similar to archaeology in general, in the sense that it is the study of the past through material evidence in order to understand past human activities, yet as a subfield of archaeology, it focuses on the individual buildings in order to understand and preserve the places of industrial heritage (Palmer, 2005). As a practice-oriented discipline, as highlighted by some scholars, including Marilyn Palmer and Don Hardesty, it seeks to enlarge our understanding of the socio-technical systems, landscapes, and urban environments created by the industry itself (Hardesty, 2002; Casella, 2005). Buchanan (2000) stated that, the manner in which industrial archaeology is presently being practiced, started in the 1950s, and since then, most industrial archaeological studies have focused on the conservation of individual monuments. However, despite more than 60 years of study and numerous publications from various local and regional studies, there is a large gap in the research on this subject in terms of a comprehensive and up-to-date archaeological synthesis. As mentioned by Palmer (2005), quoting Collingwood, knowing the *'inner side of the events'* is fundamental in order to understand the full meaning of a place.

Ayvalık is an example of an active olive-based industry since the 19th century. The city is unique geographically, being isolated by the sea and hills, and surrounded by a large number of agricultural lands largely composed of olive groves. It is an important industrial heritage site on the northern Aegean coast in western Anatolia¹. The rapid development of the city started after the 1880s and was led to the growth of commerce and agriculture, which involved a high level of production and maritime commerce. The city reached its peak in the olive-based industries with the new operated factories on the coastline after the population exchange in 1923 (Anonymous, 2008). The present study specifically examines the olive-based industry, its production methods and related

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2
3 equipment, and shifts in the industry caused by technological developments throughout
4 history, as all of these have influenced the architectural, socio-economic and cultural
5 characteristics as well as the everyday urban life of the city. Therefore, olive-oil and its
6 by-products process, or the *'inner sides of the event'* should be deeply understood in order
7 to get a big picture of the industrial heritage and archaeology and their reflection on the
8 architecture, urban environment and daily life of the city.
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12 Accordingly, this work aims to describe the historical trajectories of olive oil and
13 soap industries since the 19th century, based on the technological developments in
14 production processes, to understand the industrial archaeology and heritage of Ayvalik,
15 and how the urban texture and everyday urban life have been reflected and transformed
16 by them. In this regard, the first part of this article focuses on the city, its industrial
17 heritage and urban life, all of which were created and influenced in part by the olive oil
18 and soap industries. The contemporary conditions will also be presented in this part in
19 order to redefine the current physical image of the city and urban life in the last section.
20 The second part consists of the technology-based developments on production process
21 and how they influenced the architectural characteristics of the industrial buildings and
22 their spatial organization. Finally, the last part provides a short assessment on how the
23 olive oil and soap industries have influenced and transformed the urban fabric and
24 everyday urban life in Ayvalik by redefining the current physical image of the city and
25 urban life.
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51 **Olive Oil and Soap Industries and Urban Environment in Ayvalik from the** 52 **19th Century Onwards** 53

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55 Ayvalik developed as a settlement where Christians and Muslims lived together
56 since 1580 and had its breakthrough after the 18th century (Psarros, 2004; Bayraktar,
57 1998; Anonymous, 2008). Edremit, and the gulf region in which Ayvalik is located, were
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1
2
3 the centre for olive and olive by-products during the Ottoman era. Ayvalik became a
4
5 pioneering settlement in the region after the 1880s due to the gradual growth of its olive-
6
7 based production, and it developed into a prosperous city with its well-developed
8
9 commercial activities. During this period, olive oil was needed by the Ottoman State, and
10
11 it was this gulf region, primarily Ayvalik, that supplied the state (Manisa, 2013).
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14
15 The late 18th and beginning of the 19th century marked the period of Ayvalik's
16
17 international trade development. The city, whose population was completely composed
18
19 of Rum² people, became a major port city as a result of this development. The main trade
20
21 goods were olive-oil, soap, olive-oil pomace, known as *pirina*³, and flour. In addition to
22
23 these trade goods, the tobacco, viniculture and leather industry were also developed
24
25 during this period (Bayraktar, 1998; Anonymous, 2008).
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28
29 In the late 19th century, the north of Edremit, which includes Ayvalik, was defined
30
31 as the olive region, and due to the weakness of the Ottoman Empire, Anatolia became an
32
33 open market, with Ayvalik functioning as one of the principal gates for European
34
35 investors to penetrate into the local economy. As a result of Europe's industrialization, in
36
37 the 1880s, the use of machines, instead of primitive tools, was introduced to the
38
39 production process in Ayvalik, prompting the construction of new factories in the
40
41 northern part of the port (Bayraktar, 1998; Terzi, 2007). According to *Servet-i Fünun*
42
43 magazine, in the 101st issue, 1894, in Ayvalik, there were 26 soap plants, 78 olive oil
44
45 plants, 40 tanneries, 25 windmills, 7 olive oil and flour factories, 45 furnaces and a
46
47 pomace factory. The French foreign trade directory, *'Annuaire du commerce Didot-Bottin*
48
49 *étranger 1914, Paris, Tome II'* highlighted the rapid industrial development of Ayvalik
50
51 in the 1910s. In 1923, the city experienced a turbulent period as a result of the population
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53 exchange between Greece and Turkey that was enacted through the Treaty of Lausanne.
54
55 This exchange had a traumatic impact on the city and the people. However, despite this
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3 turning point, the main economic activities remained the same, and according to the 1923
4 records, there were 32 olive oil plants and 28 soap factories in Ayvalik (Yorulmaz, 2000;
5
6 Anonymous, 2008).
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10 The city was not subject to any significant transformations until the 1950s, except
11 the earthquake occurred in 1944, which caused serious damage to the settlement pattern.
12
13 The urbanisation process started in earnest in the 1950s and resulted in significant
14 changes, like the loss or damage of many historical buildings due to the construction of a
15 new coast road to serve as the main artery of the city (Kiyak, 1997; UNESCO, 2017).
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21 In 1976, Ayvalik and its environs were declared a 'natural and urban historic site'.
22
23 The 1972 Development Plan called for the relocation of the industrial activities to outside
24 of the city centre due to pollution problems, but this was not implemented until the 1980s.
25
26 As a result of this decision, the majority of the traditional industrial buildings within the
27 city centre became non-functional. Immediately afterwards, a new development plan was
28 implemented, and the 'refunctioning the historic buildings for touristic purposes' became
29 the main topic of conservation (Anonymous, 1986).
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38 In order to better understand the contemporary conditions of the city, the urban
39 environment, and everyday urban life and to redefine them for today, it is essential to first
40 describe the urban texture and its contemporary condition. Ayvalik is composed of an
41 urban fabric in linear form, which is separated into industrial, commercial, and residential
42 areas. Near the coastline, the industrial and commercial fabric is dominant, while the
43 interior of the region, including the hillside, is residential. Industrial buildings have a
44 variety of architectural characteristics, and they are spread to the southern and northern
45 part of the port [*Insert Figure 1*].
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56 In the 19th century, the former port, known as *Kanelo*⁴ was the heart of the
57 commercial zone, where trade goods were imported and exported, and commercial
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3 activities were carried out. The area also offered sites of leisure and entertainment, like
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5 casinos, taverns, cafés, restaurants and resting places, all of which contributed to the
6
7 character of the urban and daily life. During this period, there was an abundance of goods,
8
9 and they were quite inexpensive. As a result of the variety of goods and their low prices,
10
11 the inhabitants lived a bountiful life that spoke to the wealth of the settlement and its
12
13 prominence in trade. After the population exchange in 1923, most of the buildings
14
15 maintained their original functions. The area incorporating the Kanelo was used for the
16
17 main public events, such as festivals and celebrations, as described by Anonymous
18
19 (2008)⁵. Today, this area is still the commercial heart of the city, where public cultural
20
21 events and the like are held, although some buildings have disappeared or have been
22
23 converted for commercial-touristic functions [Insert Figure 2].
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29 In the late 18th and beginning of the 19th centuries, the northern part of the former
30
31 port served as the educational and administrative zone and featured important schools,
32
33 academies and administrative buildings. During this period, another important feature of
34
35 the city was its education and cultural aspect. For example, Ayvalik Academy, which was
36
37 founded in 1803 and known as the *Gymnasium Kydonion*, had the reputation for being
38
39 one of the best schools in Europe and as such, served as an important landmark for the
40
41 socio-cultural and urban life of the city (Anonymous, 2008). From the 1880s up to the
42
43 1950s, new factory buildings started to be constructed in the area as part of the
44
45 industrialization process. This area became known as the northern industrial zone, hosting
46
47 many big and medium scale traditional factory buildings. This status as the industrial zone
48
49 lasted until the 1980s and was experienced not only through the physical characteristics
50
51 of the factory buildings and their smokestacks but also through the sensations, like the
52
53 smell of olive oil and the sound of soap stamping (A. S. Ertem, personal communication,
54
55 January 6, 2015). Ertem noted that the Ayvalik Academy building, which had a large
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3 garden, operated as a school after the population exchange up until its destruction, and
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5 that its garden was used for stacking the olives for his factory. Today, the administrative
6
7 character of the area is still present through the continuation of the existing structures in
8
9 their original urban functions. Moreover, new commercial and touristic urban functions
10
11 through the re-functioning of the traditional factories and depots have contributed to
12
13 creating new value for the area's urban life. However, it should be noted that half of these
14
15 structures are still abandoned [*Insert Figure 3*].
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19
20 The southern part of the former port, known as the depot region in the late 18th
21
22 century and throughout the 19th century, featured traditional factories, workshop
23
24 buildings and depots. After the population exchange, these factories were re-designed and
25
26 modernized according to the latest technological developments as part of implementation
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28 of the relocation of industrial activities (A. Ertem, personal communication, January 6,
29
30 2015). Starting from the 1980s, these buildings gradually became non-functional, and
31
32 today, half of these structures are being used for commercial and touristic purposes, while
33
34 the other half are abandoned or used as depots [*Insert Figure 4*].
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39 As for the characteristics of the industrial buildings in Ayvalik, there are two types
40
41 of traditional industrial buildings, which are defined according to their production
42
43 contents, that is, olive oil and/or soap. The technological changes in manufacturing from
44
45 the 19th century onwards went from human/animal power and steam-engines to
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47 electricity.
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50 The first type of traditional industrial building was the local workshops, referred
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52 to as '*mengene*', and these were used for production through human-powered and/or
53
54 animal-powered techniques until the introduction of the steam engine to manufacturing.
55
56 These buildings' architectural characteristics differed according to their production
57
58 contents, forming two sub-groups, *olive-oil workshops* and *soap workshops*. They were
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3 mainly located at the southern industrial zone, however, some of them are located within
4
5 the northern part and/or in the interior of the city [Insert Figure 5].
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8 The second type of industrial building was the *traditional 19th century factories*,
9
10 whose architectural characteristics and space organizations differ according to production
11
12 type, scale and technology-based developments (i.e. steam power and the introduction of
13
14 electricity). Between the 1980s and the 2000s, these factory buildings were modernized
15
16 and re-designed on the inside by reorganizing the space and the equipment related to the
17
18 production process. These types of industrial buildings focused on both soap and olive
19
20 oil production and were mainly located at the northern industrial zone. Over time, they
21
22 would be spread throughout the whole city (A. Ertem, personal communication,
23
24 November 12, 2015). They became the symbols of the city with their architectural
25
26 characteristics, especially their smokestacks, which formed the silhouette of Ayvalık
27
28 (Ucar, 2014). This industrial character of the city is still perceived today. However,
29
30 following the relocation of the industrial activities, which led to the abandonment of the
31
32 factories, the majority of the smokestacks had suffered deterioration and their upper parts
33
34 were partially demolished. Nonetheless, today, the skirts on a great number of these stacks
35
36 remain.
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42 The refunctioning of the traditional factories for cultural and touristic purposes in
43
44 Ayvalik started just after the 2000s. The converted factories are now being used as large
45
46 or boutique hotels, cafés, tea houses, restaurants, shops, a cultural centre and museums.
47
48 The restaurants reflect the local food culture, while the cultural centre and museums host
49
50 artefacts of the city's industrial past. In Ayvalik, there is also an industrial museum that
51
52 chronicles the city's olive history, where visitors can see the production processes, the
53
54 primitive processing tools used as well as the newer 19th century processing tools and
55
56 information about the family enterprises operating in these industries. Another important
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3 industrial museum, which houses a wider variety of mechanical and industrial objects in
4
5 all branches of the industry, is the Rahmi Koc Museum -formerly Taxiarchis Church- on
6
7 Cunda Island, one of the 22 islands of Ayvalik.
8
9

10 The refunctioning of the traditional industrial buildings for cultural-touristic
11
12 purposes and the continuation of the olive oil and soap industry out of the city centre have
13
14 made the city one of the major touristic destinations in Anatolia. However, it is critical
15
16 that new life be given to these structures and that attention be given to increasing the
17
18 capacity of existing buildings without compromising the technical-industrial values
19
20 related to the industrial archaeology, as these serve to preserve the aesthetic integrity of
21
22 the industrial heritage. This is particularly evident in some of the hotels that have been
23
24 reused, that is, the design interventions made for these hotels have had negative effects
25
26 on the historical integrity of the buildings.
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30 Within the scope of this work [insert Figure 6], the coastline of the city, including
31
32 the southern and northern industrial zones, along which the industrial buildings are
33
34 spread, was examined by conducting on-site investigations and in-depth interviews.
35
36 While the northern part was analysed as the main study area, the southern industrial zone,
37
38 called the 'depot region', was investigated through existing studies done by Kabasakal
39
40 (1987), Terzi (2007) and the METU design studio as part of the REST-507 course in
41
42 2015, and these were considered as the main sources. On-site investigations and in-depth
43
44 interviews were also done for this area.
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50 ***Extracting Olive oil and Soap-making Process and Local Workshops***

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53 The workshop method was the basic type of manufacturing which had been used since
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55 the establishment of Ayvalik. This method is still used today in some regions for small-
56
57 scale production. In the 18th and 19th century, the entrance of the houses in Ayvalik were
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59 reserved for producing olive-oil using this method in order to provide for the basic needs
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3 of its inhabitants (Gonul, 2004; Terzi, 2007).
4

5 The workshop buildings generally have a uniform plan with a single large space
6 and are constructed with stone masonry. They have a direct relationship with the gridiron
7 street plan that surrounds these buildings, and thus they do not have a courtyard. They
8 differ from one another in some architectural elements, such as the roof, pediments,
9 entrances, façade details and symmetrical order (Kabasakal, 1987). According to the oral
10 sources, these differences could be based on the production type, related process
11 requirements and the producer's preferences.
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21 The evidence for this type of production method is not sufficient to make a
22 precise conclusion, since the primitive type of industrial buildings was not being used for
23 mass production purposes before the introduction of steam power, or was modified in
24 time by the new inhabitants as a result of the population exchange⁶.
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30 The olive-oil production process [*insert Figure 7*] held in local workshops which
31 had been comprised of *crushing*, *pressing* and *distilling* sections since antiquity as basic
32 stages⁷, included animal and human-powered equipment. The crushing might be
33 completed through primitive stone mills with single vertical or horizontal stones. Next,
34 the olives were probably pressed through wooden or metal screw-fixed presses, which
35 were called *circir mengene* or *mengene* in Turkish. It is for this reason the local
36 workshops were called '*mengene*' by the inhabitants. As the final process done in these
37 workshops, the olive oil was distilled from its water part due to its light density and it
38 might be collected by the crocks which continue to be seen in Ayvalık. All these process
39 stages were actuated within the olive-oil workshops planned as single large spaces.
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53 Some workshops were used just for the soap making, and some were used for
54 making both soap and olive oil. The characteristics of the workshops varied as a result of
55 the processes required for making both soap and olive oil. Basically, soap-making
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3 processes consist of three basic stages: *boiling, drying* and *cutting*⁸. In that period, boiling
4 might be done using small spherical cauldrons which were the traditional tool used for
5 soap boiling in house production. These cauldrons had thick bottom parts in order to
6 withstand the fire. Soap-making process required a great number of windows in order to
7 dry the soap. In addition, in some soap workshops, the boiled soap was poured onto the
8 floors specially made of wood in an angled grid form to make the cutting process faster
9 and efficient. On the other hand, some manufacturers used the wooden shelves for
10 pouring the soap to dry. Once the soap was dry, it was cut and stamped [*insert Figure 8*].

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21 As a result of these requirements on production, workshop buildings in Ayvalık
22 vary in terms of architectural characteristics and space organization. They were used for
23 production in this method until the industrialization period when steam power was
24 introduced into the production process [*insert Figure 9*]. Then, this type of buildings was
25 not large enough to accommodate the new equipment needed. Thus, they started to be
26 used as depots or they were modified according to the requirements for installing steam-
27 powered equipment.
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39 ***19th Century Production Methods and Traditional Factories***

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41 Traditional factories in Ayvalık are categorized into two groups in terms of the
42 scale of their production. One group includes the buildings with the largest production
43 programs, which are generally factories consisting of three or more stories that were able
44 to be programmed and reprogrammed in mass production. The second group consists of
45 the smaller factories used by family enterprises, which are often two-storied construction
46 made entirely with stone paired with brick masonry techniques. According to on-site
47 investigations, ground floors were mostly comprised of stone masonry, while the first
48 floors were comprised of brick masonry, often re-adapted from local workshop buildings
49 due to the requirements of the steam-based technology mentioned previously. Using the
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3 new technology in these structures, extracting olive oil was separated into either a water-
4 based or dry-based system, dependent upon either steam power or electricity.
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8 The 19th century water-based extraction olive oil and soap making was
9 characterized by the needs of the steam-powered production processes and the
10 manufacturers' preferences in order to make the process efficient and quick. Generally,
11 in factories using the water-based method [*insert Figure 10*], the first floors were used to
12 prepare for making of olive oil by storing the olives, then directly transferring them into
13 the mills located on the ground floors, which were used to crush the olives. The ground
14 floors were composed of a single large tool for the processing of olive oil, often including
15 a large technical room for the steam boiler, a place for the furnace, which heated the
16 boiler, and a chimney. Some of these factories possessed distillation pools on the ground
17 floors for distilling the oil produced from wastewater, while others had pools or hollows
18 in their courtyards.
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33 While different floors separated the steps for extracting olive oil, soap making
34 was done in two different ways [*insert Figure 11*]. Some manufacturers preferred for the
35 operations to take place on the ground floor, which were fitted with an additional large
36 space for the soap making. This space had to easily be tied into the steam-engine in order
37 to heat the boiler for the cauldrons where the soap would be boiled in. As a result, these
38 spaces were often located in front of the technical room, in which the steam engine and
39 furnace for firing the cauldrons were located. In other examples, soap making process
40 that consisted of boiling, drying and cutting were processed on the first floors of factories
41 which had a large single room plan with a large timber angled-grid floor for drying the
42 soap. In this process, the cauldrons were conic in form, with the bottom part located in
43 the technical room at the ground floor, and the upper part positioned near the soap making
44 area located on the first floor. The facades of these soap making areas required a large
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3 number of windows for drying the soap, so they had different architectural features from
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5 the olive oil processing areas characteristics.
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8 After the introduction of electricity in the 1980s, these factories were re-organized
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10 to be outfitted with electricity. This period represents the mass production using
11
12 electrically powered equipment. The 19th century traditional factory method based on
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14 electricity followed the same steps of the other processes [insert Figure 12], however the
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16 power for crushing and pressing the equipment, which were originally run by the steam
17
18 engine, were changed to be run with electricity. As a result, presses used on the dry-based
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20 technique changed. This method is called 'dry-based' pressing or *kuru-sıkım* in Turkish,
21
22 due to the working principle of this type of press. The addition of electricity is an
23
24 important technological shift in olive-based production systems, and it influenced the
25
26 traditional factories in terms of space organization. Additionally, some rooms were added
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28 to the factories in order to store the oil and soap, or to provide a place for a sales unit.
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33 In order to understand the technology-based developments and their impact on
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35 traditional industrial buildings in Ayvalik, one of the well-preserved medium-scale 19th
36
37 century traditional olive oil factories is described in detail as an illustration of these
38
39 changes (Anonymous, 2017)⁹. This factory [Insert Figure 13] is constructed as a local
40
41 workshop before industrialization. Located at the northern industrial zone, the factory
42
43 was operated by a family of entrepreneurs, the Ertem Family. The technological
44
45 developments on manufacturing and their spatial reflections in the building are described
46
47 in three different phases. The first phase represents the steam-driven early period,
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49 between 1910 and 1954. The second phase describes the steam-driven advance period,
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51 between 1954 and 1986. The last phase represents the electricity period between 1986
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53 and 2000.
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3 The introduction of steam power occurred in Ayvalik at the end of the 19th
4 century. Since the example factory was constructed in 1910, steam power might have
5 been introduced into the production that year. In addition, according to the on-site
6 investigation, the factory is comprised of two different sections, one of which might have
7 been constructed as a soap workshop.
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12 For the steam-driven period, between 1910 and 1986, the process followed these
13 steps [insert Figure 14]. First, collected olives were brought to the factory and stored in
14 the courtyard. They were counted and separated into sacks, numbered to indicate the
15 owners, then transferred to the first floor of the factory by crane. Afterwards, the olives
16 were separated and cleaned, then sent through wooden cubed-shaped or rectangular
17 channels to grinders located on the ground floor of the factory. Once grinding was
18 completed, the main process began.
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31 The remaining steps of the process were done on the ground floor in a single large
32 space built with a technical area for the steam engine and a furnace with the boiler for
33 soap. Olives were crushed in mills which varied in number for each factory. Extra-virgin
34 olive oil extracted from the olive paste was collected into containers located near the
35 grinders.
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42 Next, the paste produced from the mills went into envelope-shaped bags called
43 *tesir torbasi* in Turkish, which were then sent to the presses located on the opposite side
44 of the mill within the same room. For steam-powered production, a hydraulic press was
45 used, which operated in three cycles. The first cycle was a dry cycle, and the others were
46 completed with hot water in order to obtain more olive oil. At the end of the pressing
47 process, olive pomace with very little oil remained in the bags, known as *pirina*, were
48 then removed and stacked into the courtyard to reuse as fuel for the steam boiler.
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3 The liquid extracted from these presses, which was made of olive oil, water and
4
5 wastewater, was separated from the containers by workers. At the beginning of the steam-
6
7 engine era, the distillation step was done through the pools/hollows in the courtyard.
8
9 However, the manufacturer of the example factory added distillation pools, called *polima*
10
11 in Turkish. These were comprised of different cube-shaped rectangular pools on the
12
13 ground floor of the factory. Distillations pools were another important development,
14
15 which speed up the process. As a result of the introduction of distillation pools, the space
16
17 where the stones mills and presses were located, had to be elevated about one meter in
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19 order to facilitate the flow of olive oil to the new distillation pools.
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24 After the distillation process, olive oil that did not pass quality checks were put
25
26 into the soap boiler, which was organized in two different ways, in two different periods.
27
28 At the beginning of the steam-powered period, the factory would produce the soap using
29
30 the traditional workshop method, in which the whole process began on the ground floor.
31
32 The ground floor was separated into two different areas, one that included a space for the
33
34 soap boiler with its furnace, and other with a space for the shelves where the soap was
35
36 dried, cut and stamped.
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40 During the advanced period of steam power [*insert Figure 15*], the factory was
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42 re-organized by separating the process into two sections: preparation and processing.
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44 These organizational changes in soap-making made the process quicker. The cone-shaped
45
46 soap boiler with the bottom located on the ground floor was fired with caustic to boil the
47
48 olive remnants. After boiling, the remaining liquid was converted to soap, which was then
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50 poured into a soap basin and then into the drying grids, known as *sabun tavlasi* in Turkish,
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52 which then allowed it to be dried, cut and stamped.
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56 In 1986, electricity was introduced into the process [*insert Figure 16*]. Basically,
57
58 the main difference between the steam-based and electricity-based production process
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3 was the use of a super steel press which was operated in totally dry cycles. For this type
4 of press, olive-paste was put into a round-disc with a hole in the middle. The press
5 operated with the help of wheels called '*dozatör*' or '*pomparya*' in Turkish, which sent the
6 pressure to the presses through water pumps. Generally, water used within the pumps was
7 provided from the sea and was stored in a water tank. This water also boiled when hot
8 water was needed.
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12 After that, the liquid extracted from the presses, made of olive oil and water, were
13 sent to the distillation pools. The olive oil was separated from the water with collecting
14 tools and the waste was discharged to the sea through channels. During this process, the
15 remains of the pressed bags which contained pirina, were sold or used for producing a
16 green soap, called '*yeşil sabun*' in Turkish.
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30 **Conclusion**

31
32 The conservation of industrial heritage using comprehensive and up-to-date
33 archaeological methods is fundamental in order to understand the characteristics of the
34 industrial heritage, current urban environment, and urban life created by industry. The
35 detailed data on the production processes of olive oil and soap industries and their
36 trajectories through history offered in this work provide a comprehensive understanding
37 of the industrial heritage of Ayvalik, and their reflection on the space and urban
38 environment which may shed light on the trajectory of the everyday urban life and
39 contemporary urbanism of the city.
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51 The evolution of the industrial heritage of Ayvalik was created by the olive-based
52 industry since the 19th century, which was organized and re-organized or structured and
53 re-structured according to the technological developments in production systems and
54 space re-arrangements in order to hasten the processes and make them efficient by the
55 manufacturers. This is the reason for the variations in architecture, in terms of material
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3 use, façade characteristics and spatial organization. As being faced with de-
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5 industrialization, industrial heritage and archaeology becomes critical issue of
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7 conservation, since they are not being used in their original functions. Giving a new life
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9 is a way to conserve, however re-thinking them through their trajectories is fundamental
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11 in order to understand their values and importance in the urban memory and provide
12
13 appropriate decisions for the contemporary sites. For the case of Ayvalik, refunctioning
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15 some of these structures for touristic and cultural purposes which mostly reflect city's
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17 industry and culture has affected the city as a plus-value.
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23 Regarding the urban fabric, it is mostly preserved with their urban functions in
24
25 their original locations. The commercial zone, in which *Kanelo* is located, is still at the
26
27 heart of the city where the commercial activities and daily life still take place through
28
29 cafes and tea houses, restaurants, taverns and resting places.
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32
33 Southern industrial zone, in which the depots for olive oil and soap productions
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35 are located, preserved its industrial characteristics through these structures, although
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37 some have been altered. While half of them are still non-functional after the relocation of
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39 the industrial activities, other half of these structures were converted into different uses
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41 for commercial and/or touristic purposes such as cafes and tea houses, boutique hotels
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43 and shops. It shows that the urban life in this zone has been transformed from its industrial
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45 characteristics into commercial and touristic centres.
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49 The northern industrial zone, which had administrative and educational
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51 importance for the urban life and memory in the late 18th and the beginning of the 19th
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53 centuries through its worldwide known academy as well as administrative buildings
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55 (some of which still retain their original urban functions), has followed different
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57 trajectories. From the 1880s until the 1950s the area was transformed into industrial zone
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59 through new constructed factories as a result of the industrialization process, which gives
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3 the industrial characteristics of the urban fabric. These characteristics of the urban pattern
4 are still quite well preserved. After the 2000s as a result of de-industrialization, the area's
5 industrial life began to be transformed into cultural tourism through the converted former
6 traditional factories. The everyday urban life related the olive oil and soap industries such
7 as the smells of olive oil, is also preserved considerably within the converted structures
8 through the gastronomic and touristic activities based on the city's industrial heritage.
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Notes

¹ In 2017, Ayvalik industrial landscape was added to on the tentative list of UNESCO (UNESCO, 2017).

² Rum is a word used for 'Greek speaking Christians under the Ottoman rule' which is derived from 'Romeus' -Roman, east roman- (Turkce Bilgi, n.d.).

³ Olive mill pomace which is a by-product from the olive-based production process, is called Pirina in Turkish. Usually, it was used as fuel for the steam engine or producing green soap in Ayvalik during the 19th century (A. S. Ervet, personal communication, November 12, 2015).

⁴ A small square on a small pier extending to the sea, still named '*Kanelo*' (Anonymous, 2008).

⁵ See Anonymous (2008) for further information on natural and urban background of Ayvalik and daily life in the 19th century by tracing the memoirs of Dr. Serafeddin Magmumi for the urban memory of Ayvalik.

⁶ These workshops were constructed by Greek manufacturers, and thus it is difficult to find information from the inhabitants due to the population exchange that took place in 1923.

⁷ The basic schema of the extraction of olive oil had been processed in three steps since antiquity. The first step is the picking of the olives, then taking the collected olives to be crushed. In the next step, the olives, which became a paste, are pressed and squeezed. The final is distillation (Boynudelik and Boynudelik 2007).

In the most primitive method, for the first step, collected olives were placed into spaces in courtyards or into holes. Then, they were crushed with a large pestle or mortars. A crucial development in the process was the introduction of new equipment in the form of a round crushing basin. The working principle for using the basin was based on animal-driven rotary motion. For the second step, called the pressing phase, the earliest olive oil press was the human foot. The important development on pressing phase was the introduction of the *screw* which was used until the 19th century. In time, the hoist and weight system were developed, along with the hoist and screw system and double screw system, which was generally called a 'screw system', often either

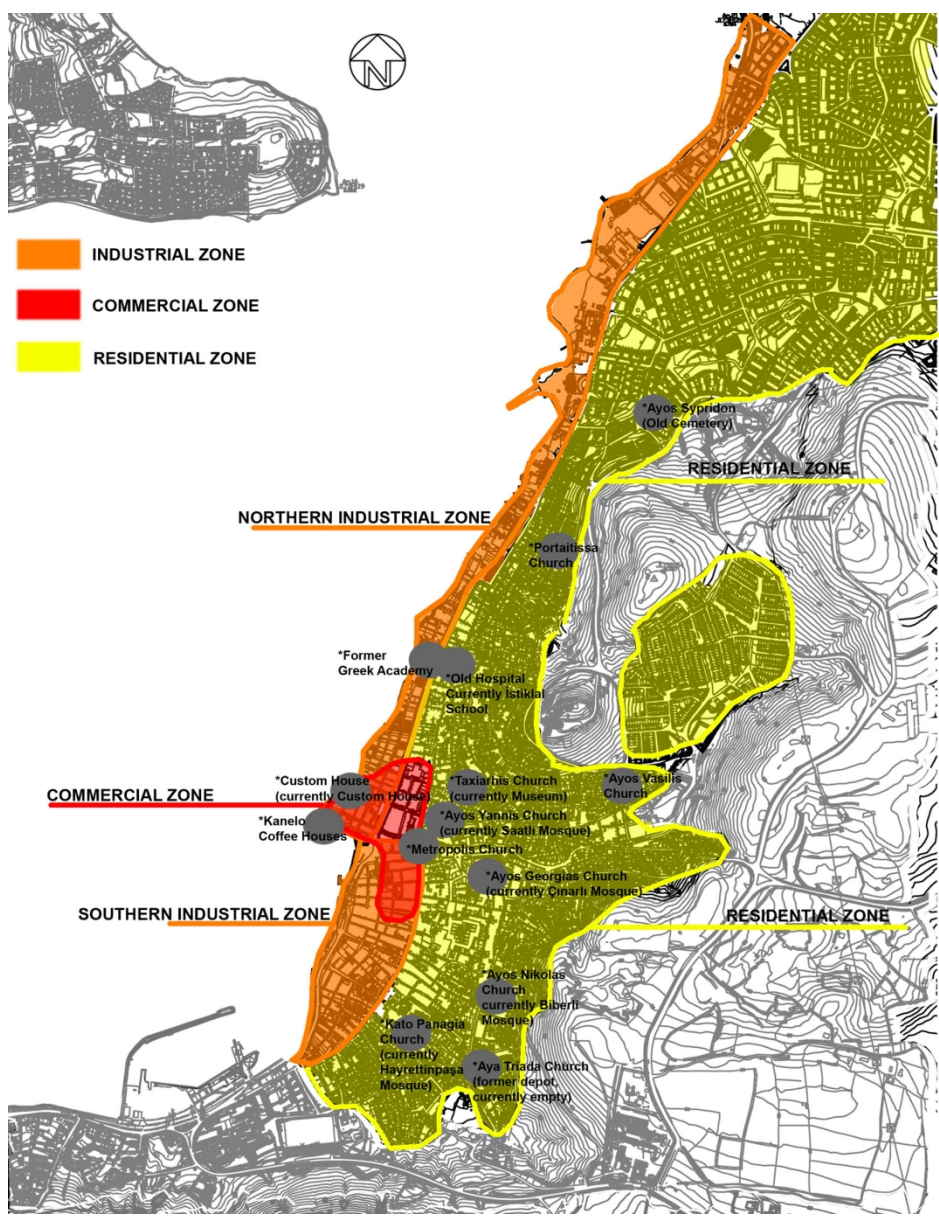
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human-driven (human engine) or animal-driven (animal engine). For the distillation phase, the separation of the olive-oil and water was done based on the density difference with the help of ladles as an equipment (Niaounakis and Halvadakis 2006).

⁸ Soap making had been a process also comprised of three basic stages: *boiling*, *drying* and *cutting*. The most important part is the boiling process, which sets the quality of the soap depending on the ingredients and the method of boiling. In the 1700s, boiling soap was done using iron and/or brick cauldrons which fired by ashes. In time, soap-makers tried to quicken the boiling process and they discovered that using copper cauldrons were more efficient (Hodson 1795; Hoakesley 1798; Gibbs 1939). The 19th century was an important period for the soap-making process for two main reasons. First was the introduction of *steam power* into the production process, the other was the manufacture of *solid caustic soda* in order to speed up the boiling process. In this period, the boiling stage was generally done using a boiler which worked using the heat from a steam engine. Long copper pipes connected to the boiler, which fed the large copper cauldron where the main boiling process occurred. These large cauldrons were in conic form, composed of a thin copper-bottom and/or cast-iron and wooden upper part. As a final step, the obtained soap was poured through the cocks connected to the pipes into wooden vessels, which were lined inside with copper (Gibbs 1939). Finally, they were cut and stamped.

⁹ The illustrated factory example was investigated by the Authors within the scope of the thesis. See for further information Anonymous (2017).

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Urban Texture of Ayvalik

150x192mm (300 x 300 DPI)



A View of the Commercial zone incorporating the Kanelo

150x84mm (300 x 300 DPI)

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A View of the Northern Industrial Zone from the sea

150x84mm (300 x 300 DPI)



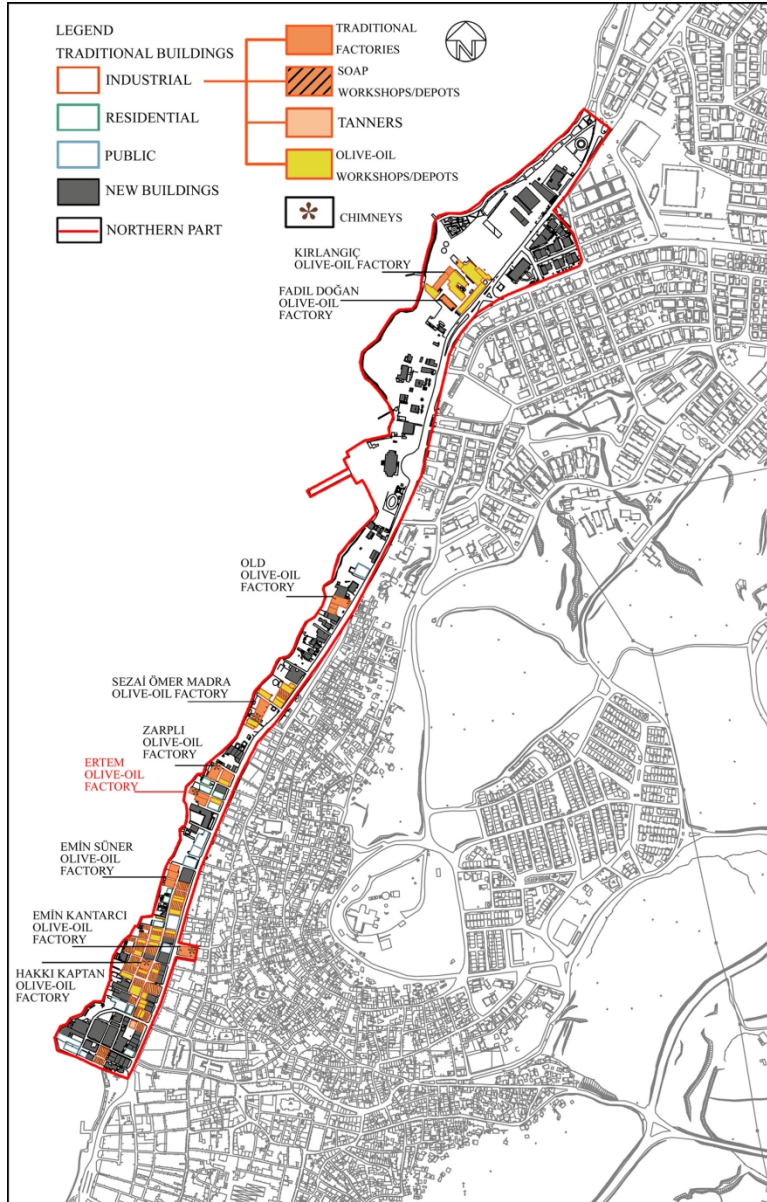
A view of the some of converted local workshops

150x84mm (300 x 300 DPI)

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A view of converted depots
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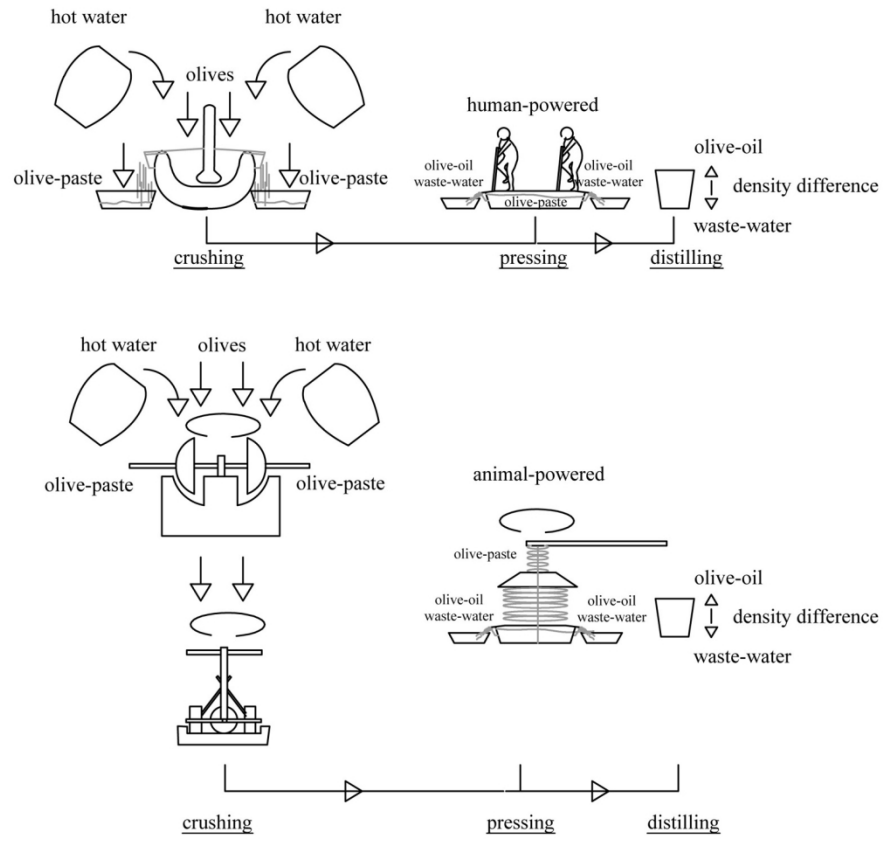


Northern Industrial Zone and examined traditional industrial buildings within the scope of the work

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extracting olive-oil
process

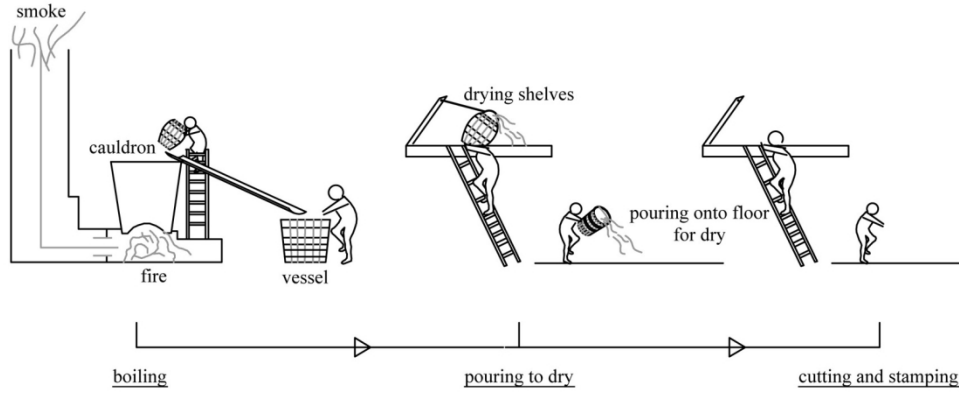


Extracting olive oil process in local workshops before the introduction of steam power

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soap-making
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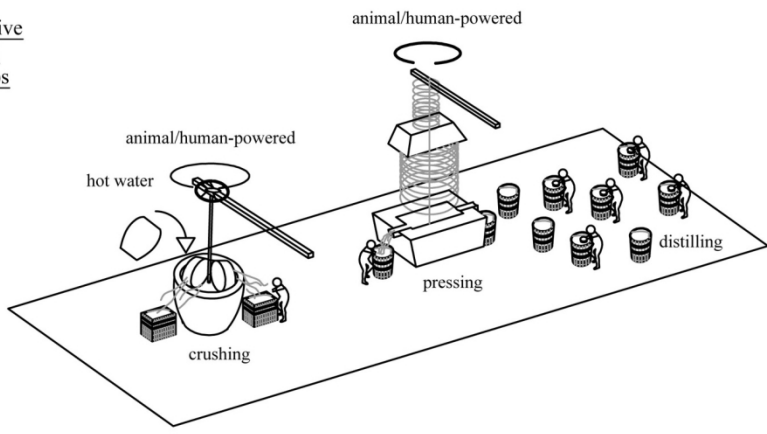


Soap making process in local workshops before the introduction of steam power

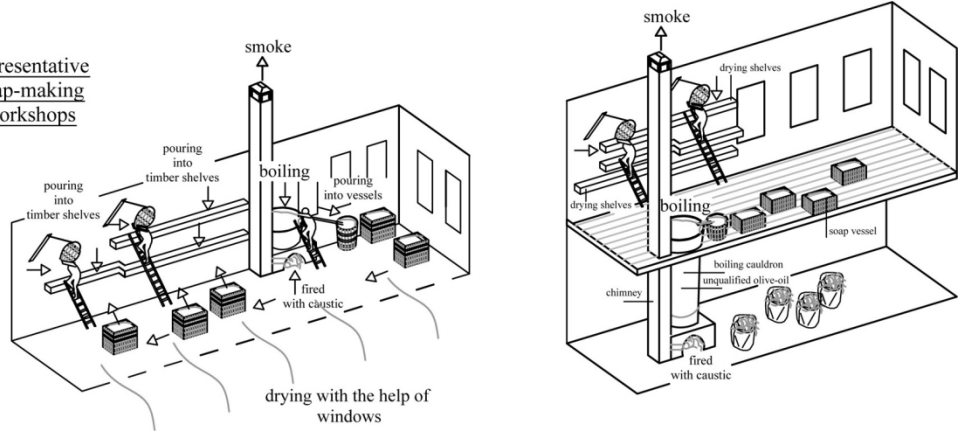
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representative
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representative
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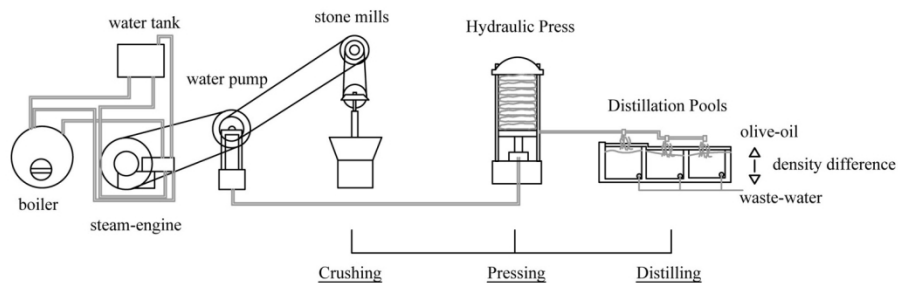
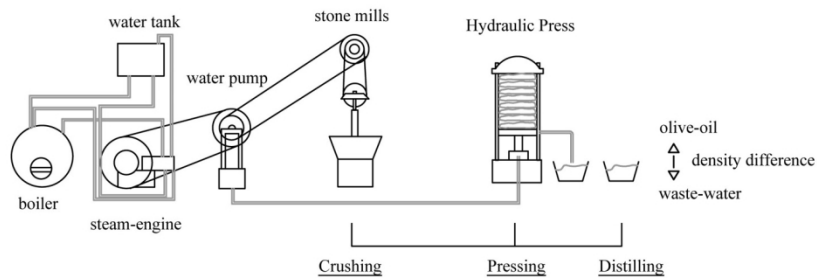


Representative drawings on the organizational schema of the olive oil and soap workshops before the introduction of steam power

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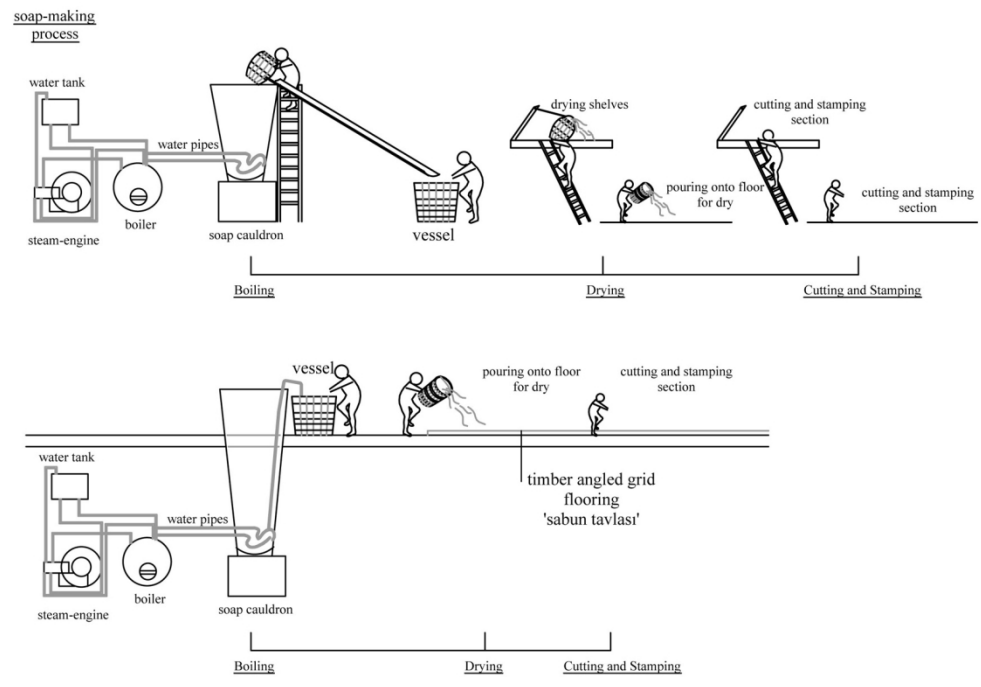
extracting olive-oil
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Steam-powered extracting olive oil process

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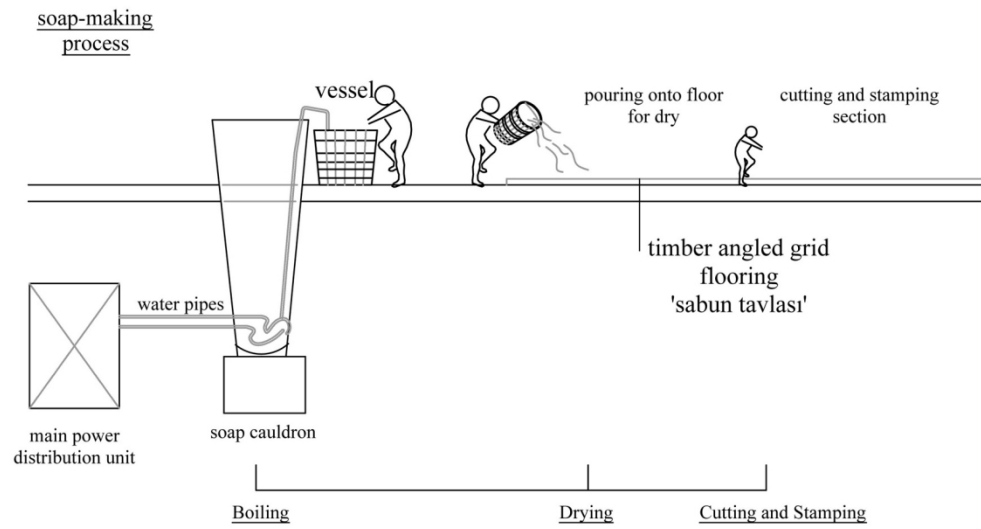
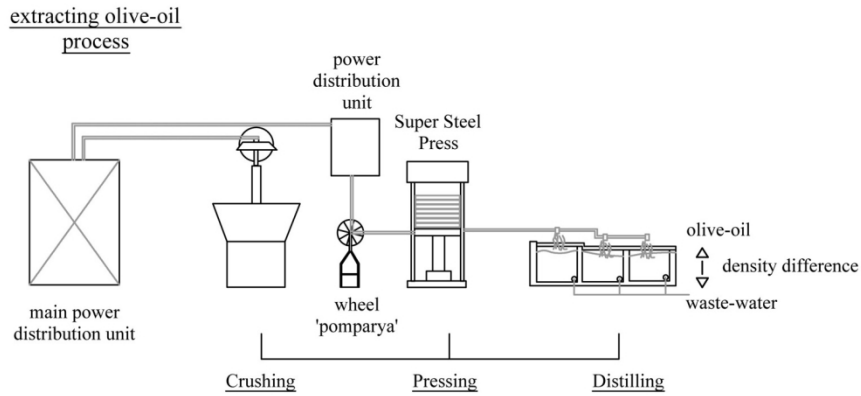
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Different organisational schema to produce soap in the workshops during the steam-powered period

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The 19th century traditional factory method of extracting olive oil and soap making based on electricity

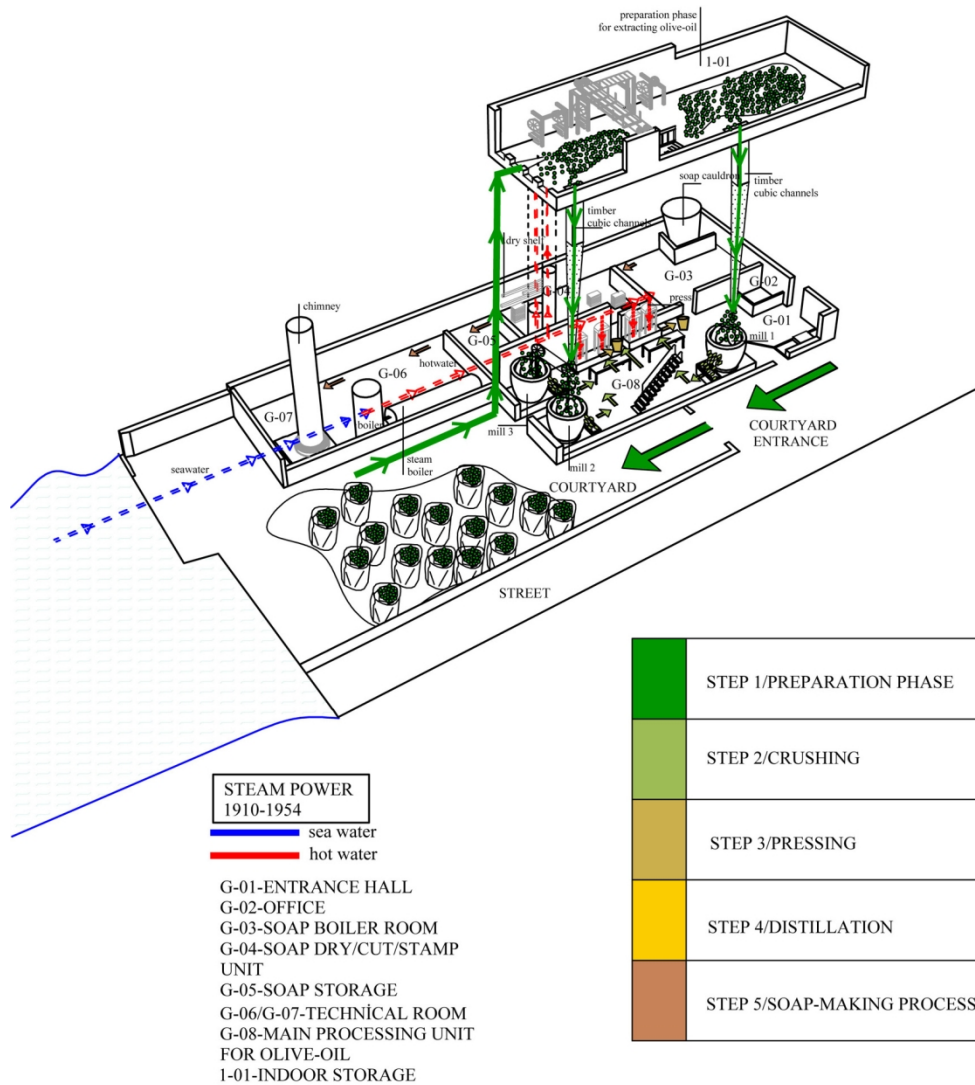
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The Factory examined as an illustration of the changes on production

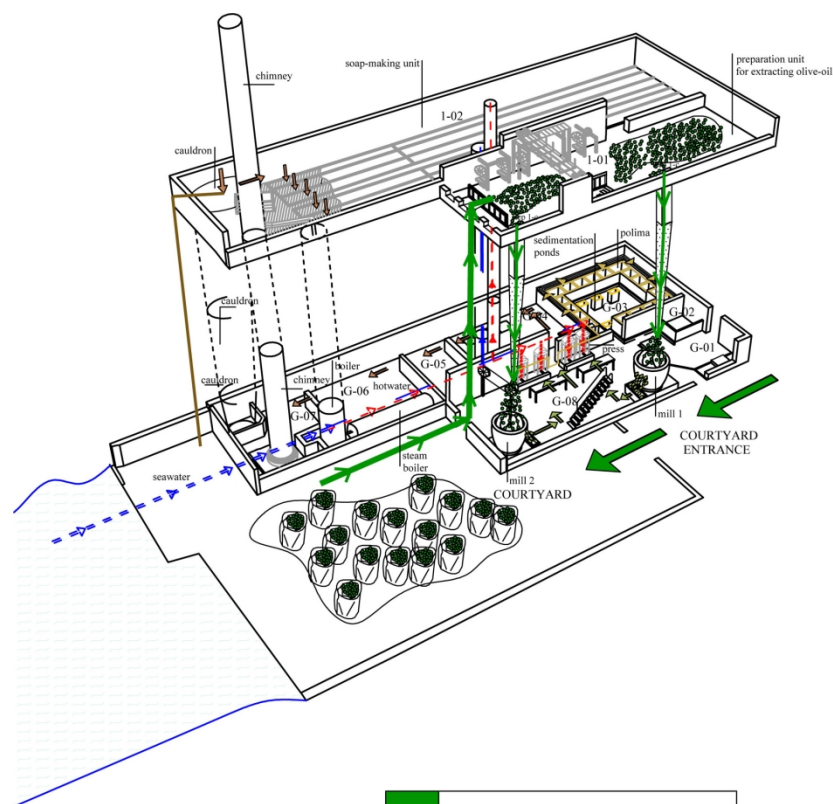
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First phase of the changes

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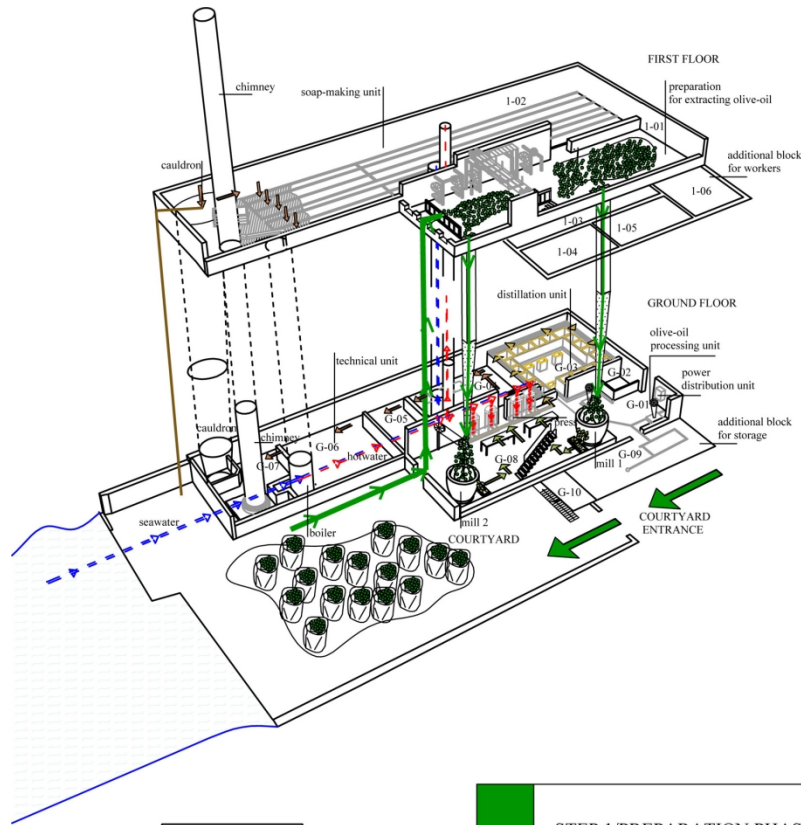


- STEAM POWER 1954-1986**
- sea water
 - hot water
- G-01-ENTRANCE HALL
 - G-02-OFFICE
 - G-03-DISTILLATION AREA
 - G-04-PRINA-RECYCLE
 - G-05-PRINA STORAGE
 - G-06-TECHNICAL ROOM
 - G-07-SOAP BOILER
 - G-08-MAIN PROCESSING UNIT FOR OLIVE-OIL
 - 1-01-INDOOR STORAGE
 - 1-02- SOAP PROCESSING UNIT
 - DRY-CUT-STAMPED AREA

	STEP 1/PREPARATION PHASE
	STEP 2/CRUSHING
	STEP 3/PRESSING
	STEP 4/DISTILLATION
	STEP 5/SOAP-MAKING PROCESS

Second phase of the changes

150x213mm (300 x 300 DPI)



ELECTRICITY
1986-2000

— sea water
— hot water

- G-01-ENTRANCE HALL
- G-02-OFFICE
- G-03-DISTILLATION AREA
- G-04-PRINA-RECYCLE
- G-05/G-06-PRINA STORAGE
- G-07-SOAP BOILER
- G-08-MAIN PROCESSING UNIT FOR OLIVE-OIL
- 1-01-INDOOR STORAGE
- 1-02- SOAP PROCESSING UNIT DRY-CUT-STAMPED AREA
- 1-03/1-04/1-05/1-06- REST PLACE FOR WORKERS

	STEP 1/PREPARATION PHASE
	STEP 2/CRUSHING
	STEP 3/PRESSING
	STEP 4/DISTILLATION
	STEP 5/SOAP-MAKING PROCESS

Third phase of the changes

150x208mm (300 x 300 DPI)

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3 *Figure [1]. [Urban Texture of Ayvalik], [2015], [Distribution of the urban functions in*
4 *the city]. Source: Author.*

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8 *Figure [2]. [A View of the Commercial zone incorporating the Kanelo], [2015], [This*
9 *area still offers the places of leisure and entertainment, like casinos, taverns, cafés,*
10 *restaurants and resting places.]. Source: Author.*

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15 *Figure [3]. [A View of the Northern Industrial Zone from the sea], [2016], [The area is*
16 *housed many big and medium scale traditional factory buildings which are mostly non-*
17 *functional today.]. Source: Author.*

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21 *Figure [4]. [A view of the some of converted local workshops], [2016], [The converted*
22 *workshops and factories are now being used as boutique hotels, cafés, tea houses,*
23 *restaurants, shops, a cultural centre and museums.]. Source: Author.*

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28 *Figure [5]. [A view of converted depots], [2016], [While half of the depots are still*
29 *abandoned, the other half of them are being used as cafés, tea houses or depots]. Source:*
30 *Author.*

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35 *Figure [6]. [Northern Industrial Zone and examined traditional industrial buildings*
36 *within the scope of the work], [2017], [Existing 19th century traditional industrial factory*
37 *buildings within the area]. Source: Author.*

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42 *Figure [7]. [Extracting olive oil process in local workshops before the introduction of*
43 *steam power], [2017]. Source: Author.*

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47 *Figure [8]. [Soap making process in local workshops before the introduction of steam*
48 *power], [2017]. Source: Author.*

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52 *Figure [9]. [Representative drawings on the organizational schema of the olive oil and*
53 *soap workshops before the introduction of steam power], [2017]. Source: Author.*

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56 *Figure [10]. [Steam-powered extracting olive oil process], [2017]. Source: Author.*
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3 *Figure [11]. [Different organisational schema to produce soap in the workshops during*
4 *the steam-powered period], [2017]. Source: Author.*
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7 *Figure [12]. [The 19th century traditional factory method of extracting olive oil and soap*
8 *making based on electricity], [2017]. Source: Author.*
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11 *Figure [13]. [The Factory examined as an illustration of the changes on production],*
12 *[2016]. Source: Author.*
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15 *Figure [14]. [First phase of the changes], [2017], [The production steps during the*
16 *steam-driven period, between 1910 and 1954]. Source: Author.*
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19 *Figure [15]. [Second phase of the changes], [2017], [The production steps during the*
20 *advanced steam-driven period, between 1954 and 1986]. Source: Author.*
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23 *Figure [16]. [Third phase of the changes], [2017], [The production process during the*
24 *electricity-based period, between 1986 and 2000]. Source: Author.*
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