

RECENT RESEARCHES  
IN

INTERDISCIPLINARY  
SCIENCES

*Editors*

Recep Efe

İsa Cürebal

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Emin Atasoy

St. Kliment Ohridski University Press, Sofia

# Recent Researches in Interdisciplinary Sciences

Editors

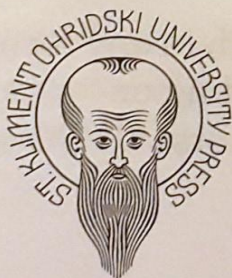
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<b>Chapter 22</b> .....	312
The Brand Management and the Social Media Strategies in Leather Garment Industry	
Deniz GÜRLER, Saliha GÜLLÜ	
<b>Chapter 23</b> .....	323
Jingdezhen, the City of Porcelain	
Betül AYTEPE	
<b>Chapter 24</b> .....	333
Inorganic and Organic Additives on Ceramic Bodies and Impacts on Surfaces	
Seyhan YILMAZ, F. Müjde GÖKBEL, Aslı ÇAKIR	
<b>Chapter 25</b> .....	343
The Tourism Potential and Characteristics of Kırşehir Caves	
Kadir TUNCER, Murat POYRAZ and Lütfi NAZİK	
<b>Chapter 26</b> .....	358
Flood Analysis of Arakonak Stream Basin (Solhan-Bingöl)	
Ahmet TOPRAK, Halil GÜNEK	
<b>Chapter 27</b> .....	375
The Effects of North Atlantic and Arctic Oscillations Over Winter Precipitation Values of Selected Stations in Turkey	
Okan BOZYURT, Mehmet Ali ÖZDEMİR	
<b>Chapter 28</b> .....	391
Rainfall Anomalies at Turkey's the Göller District (Period 1970-2011)	
Yüksel GÜÇLÜ	
<b>Chapter 29</b> .....	405
Izmir and Özalp (Van) Cases in the Reflection of Maritim and Continentalite to Phenological Periods of Agricultural Plants	
Fatma KAFALI YILMAZ, Mehmet Ali ÖZDEMİR, Hülya KAYMAK	
<b>Chapter 30</b> .....	419
Morphometric and Hydrologic Features of Bayramçay and Çapakçur River Basin	
Mustafa UTLU	
<b>Chapter 31</b> .....	432
The Distribution of Landslides Observed in Murat River Valley Between Bingöl and Palu (Elazığ) by Geomorphological Factors	
Vedat AVCI and Murat SUNKAR	
<b>Chapter 32</b> .....	445
Comparison of Basin Morphometry Derived From ASTER and SRTM DEMs – A Study on Çağlayan and Kabisre River Basins (Northern Turkey)	
Melike Sultan KARABULUT, Hasan ÖZDEMİR	

# Chapter

## Jingdezhen, the City of Porcelain

Betül AYTEPE\*

### INTRODUCTION

City of Jingdezhen, which is located at the North-East of Jiangxi Province of People's Republic of China, has become an outstanding porcelain center with its rich clay resources and high quality porcelain ware products. It is close to Poyang Lake in the West and to Yangtze River in the East. It has been found out that, by building kilns waterside, people started to settle near the kilns. The importance given to ceramics here is obvious from places like the buildings, business areas, temples, work areas, which belonged to ancient empires that ruled in the territory, are covered with colorful ceramics (Fig. 1). China porcelain wares are important worldwide in the field of arts and handicrafts. Kaolin (pipe clay-china clay), which is used in porcelain production has been named after Gaoling Mountain which means High Hill. The masters who use the raw material, kaolin in bodies and glazes, have produced quality and pure white porcelain wares by high firing. (Xiaolong, 2010). In ancient times, production and marketing were made easier by exporting porcelain to some other territories and all over the world via Silk Road, from land and sea. History of Chinese pottery dates back to the early Neolithic Age. The porcelain wares sent to Central Asia, Iran, Mediterranean were being transported to Africa, Europe, America and Indian Ocean via Silk Road on the sea which is also known as 'Porcelain Road' (Fig. 2).



**Figure 1:** People's Republic of China and Jiangxi Province - City of Jingdezhen.



**Figure 2:** Road and Silk Road on the Sea transportation from China. (Jingdezhen China Ceramics Museum).

The adorable city of Jingdezhen, which is often visited by national and international artists and known as the "Porcelain Capital", has internationally made a name for itself. In this exceptional city, there has been an artistic life ongoing with workshops, artist presentations and constantly opening new exhibitions. The variety of

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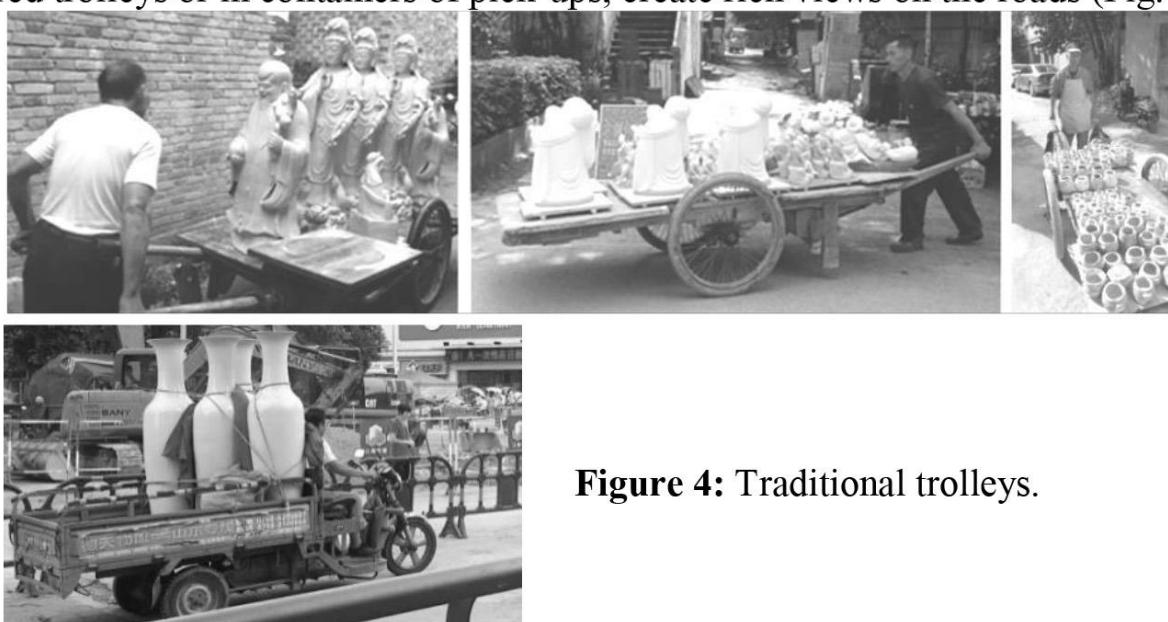
products is obvious with modern design, different techniques and production methods. It has been a city which is aware of the possibility to provide employment through vocational education thanks to the availability of schools where porcelain is thought primarily. That the government, the municipality and private sectors play an active role in popularizing the porcelain production is remarkable from the aspect of promotion and maintaining the values. As it is a student city, there is also a population that consists of the young who give value to the profession as well. It is pleasing to see art galleries constantly opening in the university as well as in many other parts of the city. There are many porcelain sculptures in parks, gardens and outdoor spaces of this territory where green spaces and a beautiful nature are available despite many buildings. There are many art galleries and ceramic studios all over the city.

Finding art materials easily and their being economic is one of the important advantages for an artist and student in the territory. That, even the streetlights are made of porcelain, creates a sympathetic view (Fig. 3).



**Figure 3:** Porcelain street lights, Jingdezhen.

In all the restaurants, houses, shops, people use porcelain plates, glasses, spoons. Moreover, the big sized porcelain products that are being carried by traditional two wheeled manpowered trolleys or in containers of pick-ups, create rich views on the roads (Fig. 4).



**Figure 4:** Traditional trolleys.

Apart from that, the waste porcelain and plaster moulds which are available all around the city, remind of a natural land art by creating a kind of an installation scene (Fig. 5).



**Figure 5:** The rich scenes of waste porcelain.

Sanbao (Ceramic Village) is a traditional place to be seen in this territory both because of its nature and the ceramic products. The Sculpture Factory which is located in the center of the city is an important location where many ceramic shops, mold makers, public kilns are available, ceramic is produced and many essential materials are found easily (Fig. 6). Jingdezhen China Ceramics Museum, Jingdezhen Ancient Kilns and Folk Custom Museum and Taoxichuan, which was formerly a ceramic plate factory and is now being used as an art center, are among important places to be seen as well.



**Figure 6:** Plaster mold shops and public kilns, The Sculpture Factory, Jingdezhen.

## **I. JINGDEZHEN AND TRADITIONAL PORCELAIN PRODUCTION**

The first known pottery in Jingdezhen has started during Xinping Han dynasty. During the period of Jingde Reign, Song dynasty it was decided that each porcelain piece, which was produced for the empire, to be signed with the name Jingde Reign (1004-1007) and then the territory was named as Jingdezhen (Web 1).

In the early 200 BC, during the period of Han dynasty, the first porcelain wares started to be produced. However, porcelain developed during Tang dynasty. In 907-960, started the celadon and white porcelain production. In the first half of 11<sup>th</sup> century, during the reign of Song dynasty (960-1279), monochrome pure white, green, light blue, blue and white porcelain glazes were produced; in 1271-1368, cobalt blue flower patterns were applied on porcelain surfaces with brush.

During the Ming period (1368-1662), bone china clay, which consisted of high quality raw materials, was used in making forms and the white glazed ceramic bodies

were being high fired. In 1522-1566, the best porcelain productions started to come out. During 1573-1620, it regressed though; however, during Qing dynasty in 1662-1912 the quality of porcelain improved again and the glory days of porcelain started in 1736-1795 thanks to detailed applications and new technology which were started to be involved (Sano, 2006).

Jingdezhen porcelain is suitable for high firing as well as being strong and stainless white. The porcelain bodies are still being built with conventional methods in the territory. The body which consists of feldspar, quartz, sericite and kaolin clay is grinded and washed and bricks called Dunzi are made (Fig. 7-8-9). These bricks are dried and vacuumed after being turned into clay and become ready to shape when needed (Jingdezhen Ancient Kilns and Folk Custom Museum).



**Figure 7:** Kaolin clay.

Kaolin is a material that can tolerate the heat up to 1700 C and starts sintering over 1400 C. When it is mixed with porcelain stone, comes out a quality body that can tolerate high degrees. There are various kinds of kaolin in China, some of which are Mingsha, Xinzi Kaolin, Xigang Kaolin and Linchuan kaolin.

Another process is, preparing the glaze recipes. The raw materials are grinded, washed, and pugged according to the proportions. The glaze bricks called Dunzi are made, maintained and piled up. When needed, they are grinded, tempered with water and glazed.



**Figure 8:** Porcelain stone clay and grinding.



**Figure 9:** Porcelain stone called Dunzi and glaze bricks.

Jingdezhen Ancient Kilns and Folk Custom Museum.

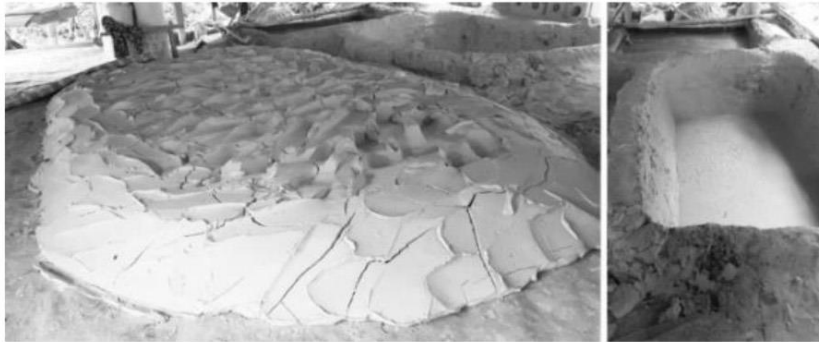
Today in Jingdezhen, raw materials are grinded with traditional methods. The process of grinding is so simple as well as being practical and economic. There are water buckets attached to the long handles of the hammer shaped pieces made of wood.

As the water mill turns round, these buckets are filled with water. When filled with water, the end of the wooden hammer rises and goes down when the water is evacuated. By this way, raw materials are grinded by the wooden hammers which constantly hit the pit where the raw materials are piled. Although this process takes quite a long time, it is still being used by the local people who actively work with porcelain (Fig. 10).



**Figure 10:** Traditional grinding with water mill, Sanbao.

The grinded raw materials are pugged and manually kneaded. They are kneaded with feet by stepping up on the batch of clay (Fig. 11).



**Figure 11:** Clay pit and kneading.

Single firing is also preferred for Jingdezhen porcelain wares. The dry product, which has not been bisqued yet, is glazed, high fired and surfaces with perfectly matured glaze come out.



**Figure 12:** Traditional potter's wheel.

Jingdezhen Ancient Kilns and Folk Custom Museum.

The pottery wheels, which are used in traditional pottery, are turned by the help of a stick. As the act of turning must be done so often, it takes so much physical power. However, the potters, who are used to it, can throw quite fast. They are able to throw a great number of products each day (Fig. 12).

After being thrown, the products are left under the sun to dehumidify and when the bodies are leather hard, they

are gained an aesthetic and ergonomic appearance by carving away the bottom and scraping off the dry-foot (Fig. 13).





**Figure 13:** Carving away the bottom.

Jingdezhen Ancient Kilns and Folk Custom Museum.

On-glaze and under-glaze decorations are applied. Apart from colorful pigments, the surface can be colored by glazing as well. At this stage, some of the products are glazed, decorated and single fired without a bisque firing. The other method is to bisque, decorate and to fire for a second time (Fig. 14-15).



**Figure 14:** Decorating and glazing.

Jingdezhen Ancient Kilns and Folk Custom Museum.



Underglaze painting, 1320 C,  
R: 22 cm, h: 52 cm.  
The flowers in the wind.



Overglaze and underglaze painting,  
first firing, 760 C, second firing 1320 C,  
87x50 cm. Female role in chinese opera.

**Figure 15:** Porcelain Decoration of underglaze and over glaze. Artist Lin Wang.

The larger porcelain products are produced by plaster mould casting or on pottery wheels. Large forms can be thrown on potter's wheel by the help of a couple of people (Fig. 16).

There are various production processes in the territory. The practices are sophisticated and successful, quality products come out.



**Figure 16:** Shaping the large forms.

## II. CLASSIC KILNS

Archeologists have discovered many traditional ancient kilns and ceramic ruins in this territory. When the development of handicraft and porcelain production during the dynasties which were founded throughout the Chinese history is analyzed; it is obvious that the art of porcelain has strong roots. When the samples that have been found in excavations are analyzed, glazed-unglazed and blue-white decorated porcelain wares have been discovered and it is clear that porcelain forms like plates, sauce bowls, bowls, vases, glasses, jars, boxes, teapots had been produced.



**Figure 17:** The ancient porcelain kiln areas in China. (Xiaolong, 2010).

In the past, porcelain wares were fired in wood fired kilns and each kiln had a different effect, created different colors on the products and there were also some other types of kilns in different dynasties (Fig. 17). Nowadays, the wood fired kilns are less available and gas kilns are widely preferred instead.

There are three different types of wood fired kilns in Jingdezhen Ancient Kilns and Folk Custom Museum. Jingdezhen is also one of the ancient kiln areas and quality porcelain wares have been produced through these firings (Fig. 18).

During the reign of Song dynasty, Ru, Guan, Ding, Longquan kilns were used. In Logquan kiln, dark green celadon porcelain, in Ding kiln, white porcelain, in Yaozhou kiln, anaglyph celadon porcelain, in Jun kiln, scarlet with the effect of pigments, in Cizhou kiln, dark porcelain with white decoration were produced (Jingdezhen China Ceramics Museum).



The Horseshoe Kiln.



The Dragon Kiln.



The Gourd Kiln.

**Figure 18:** Types of Jingdezhen traditional wood fired kilns.  
Jingdezhen Ancient Kilns and Folk Custom Museum.



**Figure 19:** White glazed vase, Jiajing period, Ming dynasty, 1522-1566.

(Color Porcelains of the Ming and Qing Dynasties).

In South Jingdezhen, during the reign of Song dynasty, lucent and translucent celadon glazed exclusive porcelain wares were produced with China's most famous kilns. The Qinbai porcelain which originated from this territory was made with under-glaze cobalt oxide decoration. In the 14<sup>th</sup> century, the blue and white porcelain wares became Jingdezhen's most important productions. The examples from Qing dynasty, reflect the development of Chinese porcelain. While in Eastern dynasty, celadon and dark glaze was being applied, in Southern and Northern dynasties, there were examples of celadon glaze. While in Sui and Tang dynasties there were Xing, Ding, Gongxian, Yaozhou, Yue and Changsha kilns; in Song dynasty, Ru, Official, Ding, Jun, Yaozhou, Cizhou, Jingdezhen, Longquan, Yue kilns were used (Xiaoqi, 1999). The porcelain wares, which were made for the empire in Ming and Qing dynasties, were being produced and fired in Jingdezhen porcelain kilns that belonged to the dynasty (Fig. 19).

In Qing dynasty, blue and white porcelain wares reached the highest level. Over 35 colorful glazes were produced in Jingdezhen kilns by Tangying the dynasty of Qing. Besides, in Longquan and Dehua kilns, famous celadon and white glazed porcelain wares were produced and the process of single fired glazed porcelain was practiced. During the reign of Tang, Song and Yuan dynasties, pure white glazed porcelain ware production is improved. The porcelain wares, the high quality of which is understood from the bell-like sound they make, were being fired in Tang dynasty, the Xing kilns. The Tao and Huo kilns were used at that time. In Yuan dynasty, blue and white, under-

glaze red, egg white colored glazes were produced. (Color Porcelains of the Ming and Qing Dynasties).



**Figure 20:** Jiajing period, Ming dynasty, 1552-1566. (Color Porcelains of the Ming and Qing Dynasties).

In Qing dynasty, the red glazed porcelain wares were quite important and valuable. As red is the color that represents the feelings like happiness, good luck and joy in Chinese culture, it was widely preferred by people (Fig. 21). In the 10<sup>th</sup> century, during the reign of Tang dynasty, copper red glazes were applied on porcelain wares. The technique is developed during Sun dynasty and during Ming dynasty it became more glorious. The color reached its best during the reign of Qing dynasty (Web 2).

The blue glazed porcelain is produced in Jingdezhen during the reign of Yuan dynasty and the blue colored glazes called Jianjing and Wangli had been derived from Islamic countries. Besides, during this period, colorful applications, which were more popular than patterns, were obviously quite common (Fig. 20).



**Figure 21:** Red glazed Yuhuchun vase, Yongzheng period, Qing dynasty, 1300 C, 1723-1735. (Color Porcelains of the Ming and Qing Dynasties).

During Ming and Qing dynasties, various kinds of celadon glazes in different color tones were produced in Jingdezhen kilns. Yellow glaze is quite important as well. Many different tones of yellow were produced (Fig. 22-23).



**Figure 22:** Celadon glazed vase, Yongzheng period, Qing dynasty, 1723-1735.



**Figure 23:** Yellow glazed plate, Hongzhi period, Ming dynasty, 1488-1505.

(Color Porcelains of the Ming and Qing Dynasties).

The green and turquoise glazes that contained copper were being produced by oxidizing at low degrees. By adding small amounts of different colorant raw materials in copper, different tones of green and turquoise glazes were made. The turquoise green was found during the reign of Qing dynasty (Fig. 24).

During the later periods, the visual effects of the glazes and vivid colors came forward and there were examples with surfaces on which the liquid glazes in more than

one color were applied. Additionally, the traditional forms from all the periods clearly show themselves (Fig. 25).



**Figure 24:** Kui-dragon turquoise glazed anaglyph plate, Qianlong period, Qing dynasty, 1736-1795. (Color Porcelains of the Ming and Qing Dynasties).



Flambe glazed vase with two handles.



Square Zun with Oven Jun Glaze.

**Figure 25:** Qianlong period, Qing dynasty, 1736-1795. (Color Porcelains of the Ming and Qing Dynasties).

## CONCLUSION

In the territory, in 1954, Ceramic Institute of China Light Industry, in 1984, Jingdezhen Special Ceramic Research Institute, in 1985, Jiangxi Ceramic Institute, in 1993, Jingdezhen Ceramic Research Institute were founded and are still operating. Additionally, Jingdezhen Ceramic Institute is quite good at undergraduate studies and it plays an important role in the development and sustainability of the art of porcelain.

Thanks to the ceramic bazaars, which are set up in two different places every week, the producers have the opportunity to sell their products and present themselves and their art. Jingdezhen, where traditional and contemporary productions are made, is an important art center and a city of opportunities to gain new experience about art.

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