



Li Zhiyan and Cheng Wen

Chinese

Pottery and Porcelain



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Written by Li Zhiyan and Cheng Wen
Translated by Ouyang Caiwei

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Introduction



Chinese pottery and porcelain have played their specific role in propelling the history of world civilization forward, with China recognized as the “home of porcelain.” One needs only to witness the name “china” as synonymous for porcelain. China is among the first countries in the world to use pottery, while her ancient invention, porcelain, has throughout the ages and the world been admired and valued for its use and beauty.

Pottery and porcelain refer to all products which are made of a mixture of clay, the main ingredient, feldspar and quartz, after shaping, drying and firing.

When did pottery first touch the life of mankind closely? Archaeological finds set the date in the Neolithic (New Stone) Age in Chinese primitive society (approximately 8000-2000 B. C.). Farm production, which arose in the latter stage of primitive society, led to a fairly stable, settled life for our ancestors. Pottery was needed for convenience and improvement of their life, and they experimented with making vessels, gradually developing the art of firing pottery out of clay.

The existence of pottery was a hallmark of the New Stone Age in primitive society. Pottery shards of more than 10,000 years ago were discovered in the Fairy Cave site in Lishui County, Jiangsu Province, and shards of sandy red pottery dating back 10,000 years ago were found, in the Nanzhuang Culture site in Xushui County, Hebei Province. The site of the Peiligang Culture in Xinzheng, Henan Province and the site of the Cishan Culture in Wu’an, Hebei Province—both discovered in recent archaeological excavations—are early Neolithic sites found in northern China, dating as far back as 7,900 years ago. The site of the Hemudu Culture in Yuyao County, Zhejiang Province, south of the Changjiang (Yangtze) River, is another early Neolithic site that flourished 7,000 years ago. Grey pottery, red pottery, charcoal-mixed black pottery and even an occasional piece of painted pottery were found at all these ancient sites. The site of the Yangshao Culture at Yangshao Village in Mian County, Henan Province, and at Banpo Village in Xi’an, Shaanxi Province, inhabited by people who lived in prosperity in a matriarchal clan society, are more than 6,000 years old. Large quantities of fine painted pottery were already made at that time.

The quality of pottery steadily improved with the progress of history. In the Shang and Zhou dynasties (16th century-221 B.C.) a clear-cut division of labour had appeared among potters. Elegant designs and pictures of flowers and birds were being carved on pottery ware during the Warring States Period (475-221 B.C.). Potters in this period introduced lead glaze, which made the surface of pottery smooth and fine and added lustre to the vessels.

In the Western Han Dynasty (206 B.C.-A.D. 24) the art of glazing pottery became widespread. Multi-coloured glaze was also introduced in the Han Dynasty (206 B.C.-A.D. 220). The renowned Tang Dynasty (A.D. 618-907) tri-color pottery with lead glaze was the invention of potters who introduced white, yellow, blue, green, brown and purple glazes and skilfully applied them in combination. The appearance of Tang tri-colour glazed pottery marked the entry of pottery art into an era of greater variety and colour, which in fact began in the Sui Dynasty (A.D. 581-618).

Porcelain did not come easily. After several thousand years of hard work, the early potters accumulated rich experience in their craft. The earliest porcelain appeared in the Shang and Zhou dynasties of slave society. Porcelain as such was in its initial stage, rudimentary and known now as the proto-celadon from which porcelain developed independently. Porcelain is finer, harder and closer-knit in texture than pottery, which is porous, opaque and gives a dull sound when struck. Porcelain is non-porous, translucent and has a smooth surface. It gives a metallic sound when struck.

Since Liberation in 1949 the Chinese government has taken archaeological work seriously, resulting in a considerable number of Shang and Zhou proto-celadon vessels being unearthed in many provinces in the Huanghe (Yellow) River valley and the middle and lower reaches of the Yangtze. These were different from earlier pottery made from clay paste, the difference being mainly in two aspects. Proto-celadon used white china clay, or kaolin (an infusible white mineral earth produced in the area of Gaoling Village in Fuliang County, Jiangxi Province), a fine, pure material suitable for making good-quality porcelain. The second difference is that the firing temperature was at least 1,200°C—much higher than for firing pottery. The distinction between porcelain and pottery lay in the firing of the paste. These two changes—in the material used and in firing temperature—brought about porcelain. This Shang and Zhou proto-celadon, which basically resembled Song Dynasty (960-1279) celadon, is to our knowledge China's earliest porcelain, dating from the Shang Dynasty, 3,400 or

3,500 years ago.

Porcelain making became steadily popular in the Warring States Period, when it began to lift itself out of its primitive state.

Early in the Western Han Dynasty whole sets of celadon vessels were manufactured, specimens of Western Han vessels excavated in Peixian County, Jiangsu Province, having been displayed in the Pottery and Porcelain Hall of Beijing's Palace Museum. The ewers, steamers, vases, jars, tripods and boxes have a hard paste and are smooth and lustrous as compared with earlier ware. The frequent discovery of Han porcelain in archaeological digs indicates that large quantities of the ware were manufactured.

White porcelain was invented during the Northern Dynasties (386-581).

It was in the Sui and Tang dynasties that porcelain gained variety and colour, glaze ingredients containing different metal oxides being available to produce brilliant underglaze colours on firing. During the late Tang Dynasty, the Five Dynasties and early Song, Yue ware celadon (from the Yuezhou kilns around Shaoxin in Zhejiang Province), with a fine paste, had "the verdure of a thousand mountain peaks" and was "like dewy budding lotus flowers." The feudal ruling class monopolized this exquisite ware, known as "porcelain of secret colour" (the olive-green of fine Yue ware), as tribute to the imperial court.

In the Song Dynasty, porcelain kilns mushroomed in different places and porcelain schools representative of particular regions appeared. Before Song, porcelain was decorated by carving, incising and impressing designs. That is, before the paste was dried, designs were carved or incised with a knife on the unglazed body or impressed with stamps for mass production and then glazed for firing. In the Song, Liao and Kin dynasties, decorative designs were painted over the glaze, black designs or red and green patterns on white porcelain for example, and this painting on porcelain marked an entirely new stage in Chinese porcelain art. The Yuan Dynasty (1271-1368) saw continued new development in the art of porcelain making which contributed to the types of famous wares.

Porcelain-manufacturing craft attained its acme in Chinese history in the Ming and Qing dynasties (1368-1911). This was shown in a tremendous variety of vessel shapes, lustrous colours and splendid designs made possible by the fine texture of the paste, adequate firing, abundance of pigments, improvement of craftsmanship and various social influences of the time. Apart from exquisite patterns, Ming porcelain decoration featured landscapes, portraits, flower-and-bird and other paint-

ings. Most of the Qing paintings on porcelain were works of famous contemporary artists or imitations of their works.

Jingdezhen in Jiangxi Province was the centre of porcelain manufacture in China during Ming and Qing. Its kilns have contributed much to the perfection of porcelain and occupy a distinguished place in ceramic art.

China's various dynasties have seen a wealth of wares including the green Yue ware of Yuezhou, Xing white porcelain ware of Xingzhou, Ding ware in Hebei, Ru ware of Ruzhou, the celadon of Longquan in present-day Zhejiang Province, and Jingdezhen ware. The distinctive style of each is admired in different parts of the world, for Chinese pottery and porcelain went abroad as early as in the Han Dynasty, and was exported in large quantities by the late Tang Dynasty. From north China the wares went westward along the famous "Silk Road"; from the south they were shipped by sea to neighbouring Asian countries and thence to North Africa and Mediterranean countries. Not until the 15th century did they reach Europe and so have the worldwide impact that provided their brilliant page in the history of world civilization.

Today, every Chinese province or autonomous region turns out ceramics with local features or in the style of the ethnic group of the area. People in this line of business have inherited and carried forward the fine traditions of the ancient Chinese ceramic art and created a flourishing situation in pottery and porcelain production.

This book, written with the lay reader in mind, deals with the beginnings and development of Chinese pottery and porcelain, bringing out their national style and artistic features. It also assesses the contributions made by Chinese pottery and porcelain to world culture. At the same time it outlines recent findings in ceramic research.



CHAPTER 1

Pottery Comes into People's Lives; Neolithic Pottery

SECTION 1

The Introduction of Pottery

BEFORE the existence of pottery it was very difficult to cook food, the only method being to roast it over a bonfire. Some primitive tribespeople lined pits with rocks, skinned and dressed their game, filled the cavities with searing hot stones, put the game into the pits and covered all with hot ashes. The game was roasted and ready for service after some time. People of some other tribes filled pits with water and placed food in the water. They then heated stones in a fire and threw them continuously into the water until the food was cooked. A variation of this method was putting fish or meat into a net which was immersed in hot springs till the food was done. Primitive people had a hard time getting a meal cooked!

How did people in remote times improve their food? This was possible in fact only after they had learned how to use fire and to fire pottery vessels, which served for cooking and for storing food and drinking water. Pottery making is a useful craft which combines art and technique, and the introduction of pottery was a great event in improving the people's lives. Pottery manufacture was a primitive handicraft of mankind with very distinct features.

Many accounts of the introduction of pottery can be found in ancient Chinese books. For instance, *Yi Zhou Shu* (*Lost Books of the Zhou Dynasty*), a historical chronicle written between the Warring States Period and the Qin and Han dynasties, says: "Shen Nong [legendary emperor of ancient China] cultivated plants and made pottery." *Lü Shi Chun Qiu* (*Master Lü's Spring and Autumn Annals*), written in the 3rd century B.C., says: "The Yellow Emperor [legendary ruler in ancient China] placed an official named Kun Wu in charge of making pottery." *Shi Ji* (*Records of the Historian*) by Sima Qian in the Han

Dynasty, says: "The Yellow Emperor appointed Ning Feng, an official, in charge of pottery making." In addition, *Sou Shen Ji* (*Records of the Spirits*), a collection of mythological stories very popular among the Chinese people, also contains this fairly detailed description of pottery making: "According to legends, Master Ning Feng, who flourished at the time of the Yellow Emperor, was the Emperor's pottery official. An immortal passed his place and helped him control the fire so that it gave off smoke of many colours, though he did not teach Ning Feng pottery making until long afterwards. Ning Feng built a kiln himself and went inside to watch the pottery baking, observing the rise and fall of the flames and smoke." Ning Feng did this so as to fire the pottery well. But one day he was burnt to death in the kiln. People cherished the memory of this person who gave his life for pottery making, and they buried him on Ningbei Hill. Such legends bring to us fragments of remote history concerning the introduction of pottery, which occurred prior to the appearance of written records, approximately 10,000 years ago. Shen Nong, Ning Feng and Kun Wu in the legends may never have existed, yet the stories show that pottery resulted from centuries of people's collective labour.

Pottery seems extremely simple to make today, but in the remote past it was a monumental feat requiring certain social conditions. Judging by the data obtained from archaeological excavation and research, pottery appeared in the Neolithic Age of primitive society. And it was precisely this era that prepared the mature material conditions for the creation of pottery.

First of all, agriculture and stock breeding began to develop in the Neolithic Age, giving people control of food sources and enabling them gradually to enrich them. With an abundance of food, people had an increasing and urgent need for vessels for cooking and storing food, and for eating and drinking purposes. Various specific demands that arose in social life were a requisite factor in bringing pottery into existence. Rising

living standards and growing population provided conditions in society to set apart a portion of labour power for pottery making, including conditions for the potters to display their creative artistic ability to shape and decorate their vessels.

Next, pottery had necessarily to await the first steps in settled life. Easily breakable, pottery vessels were not suited for nomadic life. A roaming people with no fixed dwellings would have little use for much pottery and would therefore not perfect pottery-making methods. So long as the mode of life meant roasting food over a fire and made other cooking methods and the storing of food unnecessary or undesirable, pottery had no urgent place in daily life. The Oroqens, a nomadic people who lives by hunting in China's Inner Mongolia and Heilongjiang Province, have no knowledge of pottery making. The Iroquois tribe of American Indians, who lived a partially settled life in the United States, made a few pottery vessels of limited variety. The Va people in China's Yunnan Province, though still in the stage of primitive clan community before 1949, made large

amounts of pottery because they lived a settled life and engaged in farming. Since the development of production enables people to control sources of means of subsistence and become sufficiently well-to-do to have surplus grain to store, this is the key to opening up a stable, settled life, which in turn makes possible setting apart a number of people for pottery making with its fairly complicated processes requiring an extended production time. Settled life was an important social prerequisite for the introduction of pottery into people's lives.

Long experience in farm production acquainted people gradually with the tenacious and plastic properties of clay. They knew that it could be mixed with water and used to coat their baskets, then that it could be moulded into vessels and containers of various shapes. Moreover, after long experience in using fire, people learned that it could change the properties of substances, and this hastened man's progress in battling nature. In the Neolithic Age, fire was mankind's aid in bringing pottery into human life.

SECTION 2

The Making of Pottery

POTTERY has always been close to people's lives since its beginning in the Neolithic Age of primitive society. Pottery vessels have been turned out constantly to fill people's daily needs, and the processes of pottery making have progressed continually from crude to refined. Pottery manufacture consists of three processes: first, selection and processing of raw materials; second, shaping and decoration of the vessels; third, firing by heat. Let us go into greater detail.

1. Selection and Processing of Raw Materials

THE clay for pottery making is a type of natural earth composed of a single inorganic substance or a mixture of several such substances. It is available almost everywhere. When mixed with water, it can be moulded into various shapes which it retains after drying and firing. This does not mean however that selection of clay is not necessary in pottery making. Clay that contains too much sand is not suitable, for it will be loose,

incohesive, and not take shape; the vessel will disintegrate after firing in the kiln. On the other hand, clay that contains too little or no sand is too sticky and close-knit. When mixed with water it is like starch paste, and when dried like a stone-hard crust that breaks easily on heating. Potters must therefore first of all select pottery clay carefully and then try it out again and again so as to be working with suitable raw material.

What kind of clay went into the grey pottery and the red pottery of the Neolithic Age? Painted pottery shards unearthed at Yangshao Village in Mianchi County of Henan Province, the site of the famous Yangshao Culture, show the following chemical composition: dialuminium dioxide 15.64%, silicon dioxide 65.66%, magnesium oxide 0.75%, and di-iron trioxide 18.3%. Chemical analysis of unearthed shards from other Yangshao sites furnishes similar data. All were made of clay which differed from ordinary earth. First, the raw material for painted pottery or grey pottery had an iron content of at least 10 per cent. Iron is absent in ordinary loess. This high iron content accounts for the red or grey tint in painted pottery. Second, it was low in calcium and potassium, while ordinary earth is rich in calcium, potassium and sodium. Ordinary methods of washing cannot reduce the amounts of such mineral substances. Third, it contained fairly large amounts of magnesium, which is

also absent in ordinary earth. Scientists' observations of cross-sections of the grey and the red potteries of the Neolithic Age show a much finer and close-knit structure than in ordinary bricks and tiles. Air bubbles were also much fewer, indicating that these potteries were not made from farm or surface soil, which contains a fairly large amount of humus. Interestingly enough, local residents of famous ancient cultural sites are still manufacturing pottery. In Mianchi County of Henan Province and Rizhao County (site of the famous Longshan Culture) in Shandong, for example, grey pottery, red pottery and black pottery are still made by hand. Although ordinary loess is widespread in the Yellow River valley, it is not used, the local potters selecting instead red earth, black earth and sedimentary earth.

Yet, even carefully selected pottery clay cannot be used as found in nature, for the natural material is still not ideal and must be processed. Clay that is not sticky enough for easy moulding requires washing to reduce its sand content. Some clay is too tenacious, and the moisture and air inside the paste do not readily disappear during drying and firing, so that the vessel easily cracks and becomes distorted. Pottery clay must therefore be processed to produce vessels of desired shape and size. Over-sticky clay must be admixed with less-sticky or non-sticky substances. These are called mixing substances and may include powdered quartz, feldspar and sandstone. Rice chaff, grass ash or powdered oyster shells or broken pottery are sometimes added to improve the shaping property of pottery clay. These substances also improve the heat-resistance of pottery ware and its ability to withstand sudden temperature change and so increase productivity of ware that can stand high temperatures and so serve as cooking utensils.

Raw materials must be pulverized after selection and preparation. This aims at reducing the density of granular material so that the various ingredients can spread evenly throughout the paste, a situation that directly affects the properties of pottery ware after drying and firing. Reducing the size of the grains facilitates various physical and chemical reactions of the raw materials during heating. It also enables the materials to be easily fired to form a close-knit texture, reduces air bubbles in the paste and increases its strength, hardness and specific gravity after firing.

Kneading and leavening are the final processes in preparing the raw materials. The grains and moisture in the clay mixed with water do not spread evenly, so kneading is necessary to increase clay density, reduce air bubbles and improve plasticity. In ancient times this kneading was done by treading the paste clay with the

feet or pressing it with the hands, or using cattle to tread the clay or a stone roller to press it. Kneading causes the moisture in the clay paste to spread more evenly between its grains, but it still requires keeping in a moist state for a period of time to allow seepage into the finer parts of the grains and a more thoroughly even spread of moisture in the paste. The result is then a glutinous substance between the grains that increases the stickiness and plasticity of the paste. This process, called leavening, gives better results the longer it is carried out.

The painted pottery of the Yangshao Culture and the black pottery of the Longshan Culture of Neolithic times in China's primitive society were made of a fine paste that did not swell or break apart, indicating that the clay had been well leavened.

2. The Shaping and Decoration of Pottery Vessels

AFTER the raw materials have been prepared and processed, semi-finished products, or clay shapes, are made. Examination of large numbers of pottery vessels unearthed from Neolithic cultural layers in China reveals two methods of making pottery at that time: hand-modelling and throwing on the potter's wheel.

Before pottery-making skills were developed, the only products were a few simple useful utensils moulded by hand. Later, basing on this experience, potters made large or more complicated pottery vessels with small mouths and big bellies.

Later, a new technique, known as the coiling technique, gradually evolved (fig. 1). Coiling was the main method for making pottery vessels discovered in the various Neolithic cultures of China. The process involved kneading the clay into a long strip which was coiled upon itself spirally around a stone ball or pottery mould, the potter holding the clay strip with one hand and the mould with the other, making the embryo of the pottery vessel. The Va people in Yunnan Province still use this method to make pottery, first forming the bottom of the vessel and then coiling the clay strip circularly layer upon layer, allowing each layer of the paste to dry slightly before applying the next. The finished vessel is put in a shady place to dry thoroughly before firing. Traces of such coiling are often seen inside pottery vessels made by this method.

Throwing on the potter's wheel was a more complicated method developed after the acquisition of further experience in pottery making. Potters now designed the simple device of a support propping up a wooden disc

or a disc baked of pottery clay. The clay was put on the disc which one person pedalled by foot while another moulded the clay with both hands into a vessel, keeping pace with the rotating disc (fig. 2). This wheel method invented in the late Neolithic Age resulted in pottery vessels that were round and regular on the outside, with a series of circular stripes in clear symmetrical lines on the surface.

Moulding was another method, probably invented later. In this, a mould of the desired vessel was first made and the clay attached to the outer wall of the mould to be extruded. Vessels made with moulds were uniform in



Fig. 1. Women in matriarchal society make pottery with the coiling method.



Fig. 2. Making pottery on the potter's wheel.

size and shape, though the shapes in the early stage were rather simple and variety was limited. Later, moulds were mainly used to make the components of vessels.

The next step—embellishing the body of the vessel already shaped—involved several processes.

The first was to smooth the moulded vessel with wet hands. Water had to be applied constantly to the clay shape to prevent its drying prematurely and cracking. This also smoothed the surface of the vessel. But this had to be done carefully by hand, as too much water would soften the clay and make it sag. The potter had also to smear water by hand to erase the joint seam and fill in the fissures.

After smoothing the vessel with the hands wet, its surface was even but had no lustre. Nor had the body as a whole a finished look, and decoration was achieved by impressing the body with designs on a stamp made from a wooden plank. This was engraved with various designs, or the stamp was wound with twine to produce a cord impression. Basket patterns, mat markings and checks were among the designs engraved on the stamps. Smoothing the clay shape and impressing the designs were done simultaneously during shaping. When the vessels became slightly dry, some were irregular in shape while others retained remnants of the clay strip, which required smoothing out. Some vessels were made in separate sections which were joined together during this process.

When the clay body was partially dry, ancient potters rubbed the piece with a pebble or the smooth side of an animal bone so as to fill up the fissures and smooth the rough surface. This process repositioned mica and other flake-like minerals in the clay so that they were parallel to the surface of the vessel, reducing the scattering and increasing the parallel reflection of light rays to produce a lustre.

Any painted patterns on the pottery were applied before firing. Ancient Chinese pottery vessels were beautifully shaped and painted. Decorative motifs included animals, plants and weaving patterns, indicating the closeness of these themes to people's lives in primitive society. They also demonstrate that productive labour is the source of art. Spectrum analysis of the black, brown and white pigments used shows that the main colouring agent was an iron-containing substance, possibly red ochre. The black colouring agents were natural combinations of iron and manganese available in everyday life; perhaps red earth with high iron content was used. Patterns painted with this pigment on the pottery became black after firing. The white colour may have been produced by mixing flux into clay.

3. Firing

THE shaped and embellished vessels were still semi-finished articles in the process of pottery making. Firing was required to evaporate some of the water in the texture and harden the clay into pottery vessels. The temperature for firing pottery in the Neolithic Age in China was 800°-900°C or slightly higher, though 1050°C was not exceeded. Most pottery vessels of that era were fired in pottery kilns. Good or poor quality depended on the potter's skill in controlling firing temperature, and the invention of pottery kilns more or less guaranteed this, though successful experience required long practice. A more primitive method of firing pottery had, however, certainly preceded the invention of pottery kilns, the pottery probably being fired over an open blaze, though we have no archaeological finds to substantiate this. Yet the use of a related method to this day by certain minority people, e.g., the Va in Yunnan Province, provides us with a clue. The Va people pile aired clay vessels on a dry plot of ground outside their village, placing large vessels underneath and smaller ones above. Firewood was placed in the spaces between the vessels, which were burnt for three hours. The pottery makers then used sticks to pick out the fired pottery vessels one by one from the charcoal, coating the mouth rims or bodies of the vessels with glutinous brown pigment while the vessels were still hot. The firing site was then ploughed under and crops were planted, leaving no trace of the firing.

Many kiln sites for firing pottery in China's Neolithic Age have been discovered. Typical of these are the pottery kiln sites of the Yangshao and Longshan cultures in Banpo Village of Xi'an and in Fengxian County in Shaanxi Province; Miaodigou in Shanxian County, Sanliqiao at Sanmen Gorge, Xugawang Village of Zhengzhou, Fanjiazhuang Village of Anyang, all in Henan Province; and Jiangou in Handan, Hebei Province. The pottery kilns were of two structures: vertical and horizontal (fig. 3). Most were horizontal. This had a fire opening, a fire chamber, a fire passage, a kiln chamber and a fire grate. The kiln chamber was round with the grate at the bottom. The grate was perforated with numerous fire holes through which the flames from the fire chamber were led from the fire passage to the kiln chamber. The fire opening, fire chamber and fire passage were contoured right in the earth and then smeared with a layer of earth mixed with grass. The kiln grate and other parts were also made of such mixture, which hardened into red baked earth after firing. Generally of small capacity, this type of kiln took only five or six vessels at each firing,

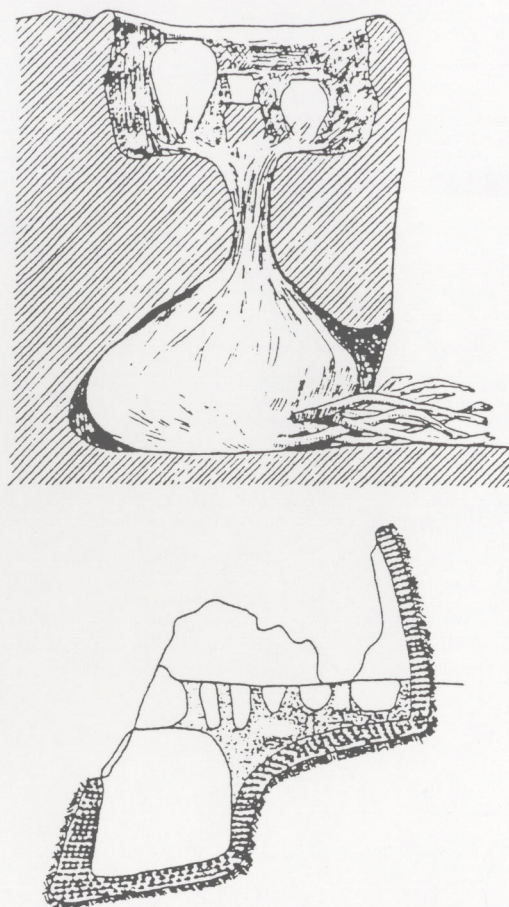


Fig. 3. Structure of pottery kilns--vertical kiln (above) and horizontal kiln (below).

though the temperature was even. And, judging from pieces excavated, the colour was basically uniform. A distorted or cracked find was rare, showing that kiln firing was fairly advanced at the early date.

The foregoing is a summary of the introduction of pottery into people's lives and the processes of its manufacture. Using pottery vessels to cook food greatly shortened the process of digestion and had an important influence on human physical development. The use of pottery facilitated the consolidation of settled life and made possible the improvement of farm production. The introduction and use of pottery provided favourable conditions for mankind to enter the era of metals. Pottery is refractory, the clay into which strongly calcining agent is added being especially resistant to high temperatures. Pottery vessels can therefore be used as crucibles to smelt metals. And when the technique of metallurgy appeared in the world the productive forces inevitably leapt ahead, promoting appropriate change in the relations of production. Human society advanced speedily and classes arose. In short, the use of pottery was a monumental hallmark of the Neolithic Age.

SECTION 3

Fine Pottery of Ancient China

THE earliest pottery vessels so far found in China are those unearthed at the site of the Fairy Cave in Lishui, Jiangsu Province, the Nanzhuangtou site in Xushui, Hebei Province, the Celestial Cave in Wannian, Jiangxi Province, the site of the Peiligang Culture in Xinzheng, Henan Province, and the site of the Cishan Culture in Wu'an, Hebei Province, the Hemudu Culture site in Yuyao County, Zhejiang Province, and the Luojiajiao Culture site in Tongxiang, Zhejiang Province. The Hemudu site at seven millennia is one of the early Neolithic Age sites in southern China. The pottery vessels found at these sites are featured by large quantities of organic matter such as grass and powdered leaves and seed hulls of plants of the grass family being admixed with the pottery clay. Firing reduced the organic matter (which had been subjected to coking treatment and admixed with pottery clay) to charcoal which made the pottery black. A cross-section of a shard shows clearly charcoal grain crystals, and this was known as charcoal-mixed black pottery. The vessels, entirely hand-made, were fired at a fairly low temperature and the walls of the body were rather thick. They were simple and irregular in shape, especially the jars, which were often uneven in thickness and colour and not properly curved, and some were even distorted in shape, showing the pottery-making art at that time to be very primitive, while variety was mainly limited to cauldrons, jars, basins, plates, bowls, lids and stands for the vessels. There was also a broad-mouthed *yu* jar and other vessels of special shapes.

Among the various potteries produced in the Neolithic Age of China's primitive society, painted pottery has drawn most attention. Primitive cultures producing painted pottery were wide throughout China, though the best known were the Yangshao, Majiayao and Qijia cultures on the Central Plains in the Yellow River valley, the Hemudu, Majiabang and Songze cultures in the lower Yangtze River valley, the Daxi Culture in the middle-upper Yangtze River valley, and the Qujialing and Qinglongquan (third period) cultures in the region around the confluence of the Yangtze and Hanshui rivers. The painted pottery discovered at these sites has been of various types but uniformly beautiful.

Most of the designs were painted on red clay pottery

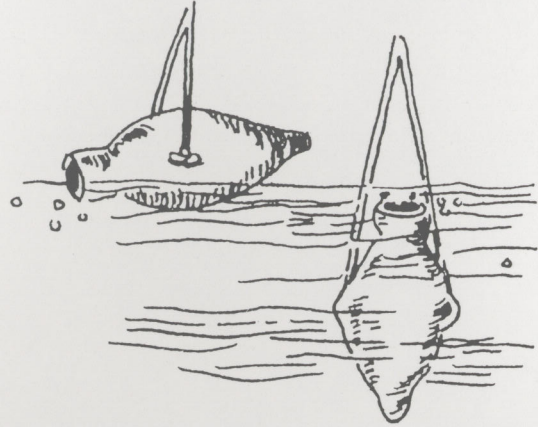


Fig. 4. Picture showing how a water jug with small mouth and pointed base is filled with water.



Fig. 5. Picture showing how food is cooked in a pottery *ding* tripod or cauldron.

and a few on sandy red pottery. The vessels themselves show great variety, their shapes suggesting their uses. Bowls and basins were probably used for eating and drinking. Jugs with a pointed base and a larger volume had either a long or short neck and two handles above the belly. These were likely used for dipping up, carrying and storing water (fig. 4). Other urns and jars were used for storing grain and water. The painted pottery sites also yielded cauldrons, tripods and ovens for cooking (pls. 1-24) and (fig. 5), also rings, beads and other small objects used as ornaments.

Long experience in gathering berries, fruits and plants and in tilling the soil brought people close to nature, and they expressed their love of living things through fine