

A History of the Porcelain Industry
in Jingdezhen

by

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Submitted in fulfilment of the requirements
for the degree of Doctor of Philosophy

Department of Chinese Studies
University of Leeds
September 1976

Y11111
Y11111
2011

Abstract

This study examines the history of the porcelain industry in Jingdezhen from the Ming dynasty to the present day, but with special emphasis on the Ming and Qing periods. After a chronological survey of the town's history from earliest times to 1949, various aspects of the production and distribution of porcelain are considered: the raw materials used and their manufacture, transport and marketing, management and labour, finance and overseas trade, and their significance in the industry's development is assessed.

Among the problems that are examined throughout the study and in the conclusion are the reasons for the establishment of the industry in Jingdezhen in the first place, its great progress during the Ming dynasty and failure to modernise in the late nineteenth and early twentieth centuries, and the connections between economic development, state involvement and technological progress.

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The photographs, taken in the 1930s, are from A.D. Brankston, Early Ming Wares of Chingtechen, and the Ming woodcuts from the 1972 reprint of Song Yingxing's Tiangong kaiwu.

A Note on Romanisation

Chinese place names are given in the Hanyu Pinyin system of Romanisation apart from the following, which are so common that it would be pedantic to alter them:

Canton Nanking Peking Yangtze Taipei

Proper names are also given in Hanyu Pinyin except when they occur in works written in or translated into English in which case the author's preferred form is used.

Jingdezhen itself appears in many guises. It is Ching-te-chen in the Wade-Giles system, Kingtehchen in the Post Office transcription, and Kim te tchim to Père d'Entrecolles. Other versions such as Longfellow's King-te-tching are variations of these.

"I asked for a book on China, because nobody knows anything about it, and I didn't either, certainly I didn't, and they sent me a book on pottery, cups and saucers and dishes. I meant the country of course. I didn't care about pottery. But it was very interesting. I read it all day."

William Mayne, The Changeling

Oxford 1961 p.12

CHAPTER I

Introduction

"O'er desert sands, o'er gulf and bay,
O'er Ganges and o'er Himalay,
Birdlike I fly, and flying sing,
To flowery kingdoms of Cathay,
And birdlike poise on balanced wing
Above the town of King-te-tching,
A burning town, or seeming so,
Three thousand furnaces that glow
Incessantly, and fill the air
With smoke uprising, gyre on gyre,
And painted by the lurid glare,
Of jets and flashes of red fire."

Longfellow, "Keramos"¹

"Tens of thousands of pestles shake the ground with their noise. The heavens are alight with the glare from the fires, so that one cannot sleep at night. The place has been called in jest 'The Town of Year-Round Thunder and Lightning.'"

Wang Shimao²

Jingdezhen was one of the first great industrial centres in China and probably one of the earliest in the world. It was a huge complex of kilns and workshops long before the Staffordshire Potteries were even thought of, and has been producing high quality porcelain in large quantities for well over six hundred years. It was one of a very few islands of urban industry in the sea of agriculture and rural crafts that was traditional China, and it continues today as a supplier of a wide variety of ceramics to the consumers of

the People's Republic. Its wares have been sold all over China and all over the world, and cups and bowls made in the workshops today are found in many English shops. For centuries Jingdezhen produced ordinary pottery for the use of local farmers, fine quality blue-and-white for the tables of landlords and officials, richly decorated vessels for ritual use, export ware to tempt the merchants of Portugal and Holland, but, most famous of all, the porcelain made to order for the courts of the Ming and Qing emperors.

I

This study is a descriptive industrial history of Jingdezhen. In the past, particularly among Western scholars, porcelain has been discussed mainly from the aesthetic point of view, and its place in the economy has been rather neglected. Although certain aesthetic considerations are dealt with when they are relevant to technological and economic changes, this aspect of porcelain's history has, by and large, been left to art historians whose work I have used extensively.³ In contrast, contemporary Chinese and Japanese historians have concentrated on the economic history of Jingdezhen and their work has been extremely useful.⁴ An econometric study would of course have been highly desirable, but the statistical material is patchy and unreliable. While there are adequate figures for imperial orders and tax liabilities throughout most of the period considered, there are few for the amounts produced, costs, prices or wages. However, available statistics have been used where appropriate to illustrate trends. The traditional dynastic and reign divisions have been used in the body of the work not as arbitrary conventions but because court policies very much affected the industry. Other periodisations such as the division into feudal and capitalist or semi-feudal eras have not been taken for granted and are reserved for the final section of the study when their significance and relevance is examined.

Some of the material used in this study has been available in English for some time, but most is drawn from books and articles in Chinese and Japanese. Up to now no attempt has been made to put it together to give a complete history of the town. In addition, material from local gazetteers has been little used before, and this has been combined with other official records, reports by travellers and evidence drawn from archaeology and art history in an attempt to set down as full a history of the town as possible.

Although Jingdezhen has always produced a wide variety of wares, as the industry developed from the eleventh century onwards, it concentrated more and more on luxury or prestige goods. There had always been some demand for these, but as the economy flourished during the middle dynasties, the Tang and Song, this demand increased, and by the middle of the Ming it had reached enormous proportions. Jingdezhen responded to this demand by stepping up the production of its finest porcelain. Other towns did the same with their own specialist industries, and fine silks and lacquer work became widely available to the rich.

Although everyday pottery was produced in Jingdezhen, for sale in local markets, the town stood to a certain extent outside the mainstream of the Chinese traditional economy, because the production of porcelain for the luxury and prestige market was so important.⁵ However it was similar to other areas with good communications south of the Yangtze where a strong cash economy developed. Jingdezhen's development is important in the consideration of China's early modern economic history as it exemplifies the problems of an emerging industrial economy under the combined influence of court officials and private manufacturers.

II

This study discusses the development of the porcelain industry from the beginning of the Ming dynasty in 1368 to the final collapse of the Chinese Republic in 1949. These centuries saw the most important developments in the town's history, the phenomenal growth and the qualitative change from cottage industry to industrial centre during the middle years of the Ming dynasty; the adaptation to the Manchu conquest; the response to growing pressure from the West, and the attempts to develop a modern industry at the beginning of the present century. The historical background before the Ming dynasty is discussed to show the basis for later developments, but not in such great detail. The main emphasis is on the Ming and Qing dynasties and the early Republican period, but the history of the later part of the Republic and the demise of the industry in the 1930s are described, and a brief account of Jingdezhen since 1949 is appended to complete the picture.

In Part I of the study, the industry is examined as a whole and its history followed chronologically from the Ming and Qing dynasties to the Republic, and within the context of important national developments. This section gives the background to the industry, after which various aspects of production and distribution are examined in detail to assess their significance for the development of the industry.

The availability and quality of raw materials are examined in Chapter VI to show how the existence of suitable clays and fuel in the immediate vicinity of Jingdezhen stimulated the growth of the industry in the first place, and how finer materials were readily available from slightly further away as the industry expanded and demand grew.

In Chapter VII it is shown that the fundamental processes of porcelain manufacture were already highly developed before the Ming dynasty, so that later developments were simply refinements of these techniques. Improvements in organisation and the division of labour were more important than technical changes in the progress made during the Ming dynasty. There is also an important connection between high development of handicraft skills and the slowness to mechanise in the nineteenth century.

Jingdezhen was fortunate in its easy access to transport facilities, and this gave great scope to the traditional industry, although failure to modernise the transport system presented a serious obstacle to the progress of the industry in later years. This is the subject of Chapter VIII.

Transport was used both for the supply of raw materials and for the distribution of finished pottery. The marketing of porcelain and the part played by both commercial distribution and official supply in increasing demand and production are discussed in Chapter IX.

Right up to the present day, porcelain was made mostly by independent small craftsmen, but the industry was very much under the influence of officials. The degree of control and the methods of administration are examined in Chapter X and it can be seen that the fortunes of the industry depended very much on official control which was exercised by eunuchs, local magistrates or metropolitan directors in the Ming and Qing dynasties, and finally in the eighteenth century rested with customs officials. A number of problems arose in this connection, including the questions of ownership and control which are re-examined in the conclusion when early capitalist developments are discussed and the growth of early modern industry analysed.

Cheap and available labour was important for any handicraft industry, and was plentiful in the Jingdezhen area (Chapter XI). The artisan tradition that culminated in a complex system of guilds is traced back to the *corvée* legislation of the middle ages, and the importance of the development of a fine division of labour is examined.

Government control was exercised through taxation as well as official presence, and this tax was used in part to finance official orders (Chapter XII). Private production depended on sales and credit, and also on the putting-out system which linked it closely to official production.

A lucrative export market supplemented the earnings of pottery owners, and in some periods replaced imperial orders as the main source of income, but after the Opium War, exports were outweighed by an enormous increase in the imports of cheap, foreign, machine-made porcelain. These imports were partly responsible for undermining the industry and hindering modernisation. (Chapter XIII)

A number of themes which run through the study and have appeared in the chapters on the various factors of production and distribution are examined in the conclusion. Jingdezhen was particularly suitable as a site for the pottery industry, and the reasons for its establishment there in the first place and its potential which was exploited fully for later developments are discussed. The relationship between general economic developments and technological progress is examined to see whether the remarkable prosperity of the mid-Ming depended on technical innovation, and it is suggested that technological developments played only a minor part in the growth of the town. The role of the bureaucracy is crucial in the consideration of the two most important developments in Jingdezhen's history: the great development in the Ming dynasty and the failure to modernise at the end

of the Qing. Government officials were much less involved in the industry than has sometimes been thought and concepts such as the 'imperial kilns' give a misleading idea of the extent of state control.

The middle years of the Ming saw the expansion of the porcelain industry, and other industries, on an unprecedented scale, and this has assumed even greater importance because of the discussions on embryonic capitalism which were one of the central concerns of historiographers in the People's Republic of China during the 1950s. The information collected is re-examined to see whether the case of Jingdezhen lends weight to any of the conflicting theories of capitalist formations that were published in that period. The evidence seems to point to widespread capitalist relationships in the industry during the Ming period but there is nothing to suggest the inevitable development of a fully capitalist industry had the West not intervened. The last, but by no means the least, of these problems, is the failure of Jingdezhen to develop a modern, mechanised industry at the end of the Qing dynasty, when certain opportunities presented themselves. Both Western commercial pressure and internal developments are important in assessing this.

III

Studies of a single industry or industrial centre in, say, Western Europe, usually depend on the analysis of local records and statistics that have been kept for many years, and trends can be determined from order-books, accounts and ledgers. This sort of material is not available for Jingdezhen - or indeed most of China - in anything like the quantity found in the West. For example there are extremely detailed records of official orders for some periods and none at all for others. Information on prices, costs, wages and production quantities is very uneven, and generally speaking much fuller for later periods. All this makes it

difficult to give a complete picture of Jingdezhen and its industry over such a long period, but in spite of the problems it seems most worthwhile to approach the subject from the point of view of industrial history because some important long term trends can be discerned.

The sources available for this study have determined its perspective to a certain extent, because the few primary sources that exist are official records, and the writers, with a few honourable exceptions, were far more concerned with the maintenance of imperial supplies and local order and control than with the welfare of the townsmen, their work or their way of life. Arthur Waley's comment about an earlier period still applies to the Ming and Qing dynasties:

"All the records come from members of the ruling class, and this class was interested in the common people mainly in regard to their corporate utility as soldiers and taxpayers, though always with an eye to the menace that they constituted as possible insurgents."⁶

Of course, something of the life of the ordinary people can be gleaned from these reports, and from the eighteenth century onwards travellers accounts provide a valuable supplement, but there are many gaps that can only be filled by inference from what is known about other periods, either earlier or later, and by making assumptions about the kind of development that took place.

Jingdezhen was not the only pottery town, and certainly not the only industrial centre in imperial and republican China. Pottery and porcelain were manufactured in various places in Fujian and Hebei and at Fatshan in Guangdong. Material from a study made during the 1930s of the Peng Cheng potteries has been used, and the comparison highlights some of the distinctive developments in Jingdezhen's history.

Jingdezhen was described by William C. Milne in 1857 as

"an immense village, or walled town rather, stretching three miles along a beautiful river and flanked by a semicircle of five mountains from which much of the earth required for the ware is brought."⁷

The "beautiful river" is the Chang, which flows from Jingdezhen down to Lake Poyang. The town is located very near the confluence of the river and its three tributaries, the East, South and West Rivers, at 29°N, 117°E.⁸ From the mountains come the raw materials for the industry: china clay and china stone, decomposition products of felspathic rock, which are mined in many of the surrounding hills. The whole area is thickly wooded, providing enormous quantities of fuel, brushwood as well as high quality pine for firing finer porcelain.

Jingdezhen is in the north-eastern region of Jiangxi, which lies to the east of the Poyang Lake, and consists of the alluvial plain of the lake, the river valleys of the Xinjiang and Raohe, and the wooded mountains of the Wuyi and Huaiyu ranges which run along Jiangxi's border with Zhejiang and Anhui.⁹ The area has been a major producer of rice and tea for centuries; wheat, millet, buckwheat and gaoliang have been grown from time to time and fisheries have been developed recently.¹⁰ It has always been a highly productive region, part of the economically dominant Yangtze valley, and rich enough to support an industry as specialised as porcelain manufacture which depended for its basic supplies on the countryside around it.¹¹

For many years Jingdezhen was shielded from political turmoil and military campaigns by its position: far enough inland to avoid coastal raids, and far enough south to escape the worst ravages of invasion by northern nomads, although

it did suffer in the early part of the Qing dynasty and during the Taiping rebellion when the disturbances were internal rather than external. The mountainous borders limited communications but water transport via the Chang River and the Poyang Lake to Jiujiang or via the Gan River and Meiling Pass to Canton were well enough organised to enable the industry's products to be distributed easily.¹²

In addition to its place in the national economy, Jingdezhen was an important part of a local economic system that included agriculture, tea-production and paper-making, but unfortunately there is not a great deal of information about these other activities for the earlier period.

Although it was one of the most important economic centres of the region, Jingdezhen was never the seat of local government during the imperial period. The county, xian 縣 magistrate sat at Fouliang, a walled town just north of Jingdezhen and also on the River Chang, and the prefecture, fu 府 officials were at Raozhou, where the Chang joined the Poyang Lake.¹³

Jingdezhen itself, called Changnan (South of the Chang) till the Song dynasty, was never under the firm control of resident officials, and it is possible that this gave it a freedom to develop that would not otherwise have been possible. With the materials and fuel easily accessible, and water transport available for its products, the industry had a sound basis for the growth that was to come.

PART I

CHAPTER II

Jingdezhen Before the Ming Dynasty

1. Han to Tang: "From Xiping Pottery to Imitation Jade"¹

There have been potteries operating continuously in the Fouliang area, or Xiping as it was formerly known, for nearly two thousand years: "according to tradition, pottery was first made in Xiping² during the Han dynasty."³ There is as yet no archaeological evidence to support such an early date for the beginnings of the industry, but Chinese historians think it probable that the town made coarse pottery for local use in the Later Han (AD 25-220) rather than the former (206 BC - 8 AD) because of the greater degree of commercial development in that period.⁴ The pottery made in the third and fourth centuries was stoneware, although some of it used kaolin. However the mixture of this with chinastone to produce vitrified white porcelain when fired at a high temperature was not used till the sixth century.⁵

The industry developed during the period of division (the third to sixth centuries AD) that followed the fall of the Han, and a zhen 鎮 administration was established in Xiping during the Eastern Jin (AD 317 - 419). As these were set up only in key military or economic areas, and as Xiping had no military significance during this period, it must have been important for its industry as at that time the area was beginning to produce finer pottery and even early forms of porcelain.⁶

Porcelain was apparently supplied from what is now the Fouliang area to the court of Chen in AD 583 before the Sui dynasty took control of all South China,⁷ and Xiping had begun to model its products on celadon ware.⁸ Then in AD 619, the second year of the Tang dynasty reign of Wude (618-626), the potters sent a gift of "imitation jade"

jiayu 假玉 to the imperial court.⁹ Two years later, in 621, an official was sent from the court to supervise the production of porcelain, and in that year a xian administration was established.¹⁰ Most of the porcelain was made in kilns outside the town, in places like Hutian, Shihuwan and Shengmeiting. Excavations carried out in this area during the late 1950s suggest that the Shihuwan and Shengmeiting kilns were almost certainly firing during the Tang dynasty, as fragments of Tang blue glazed porcelain were found.¹¹ A.D. Brankston, the engineer and connoisseur of porcelain who visited the area in 1938, judged that Xianghu, Hutian and Nanshan kilns also "were probably started during the Tang dynasty."¹²

China's population increased during the Tang dynasty and trade developed considerably. With this trade grew the need for coinage, which meant copper.¹³ Copper became scarce, and its use was restricted to currency by a series of edicts beginning in 791.¹⁴ Till then large vessels such as jugs and bottles for the luxury market had been made of copper because the porcelain at the time was not strong enough. After the use of copper was restricted there was a demand for large porcelain vessels which the potters were eventually able to make successfully.¹⁵ Tea drinking was growing in popularity at the same time, and when tea drinkers who were particular about their bowls turned from stoneware to the pleasanter porcelain, the industry was able to respond by supplying fine wares.¹⁶ Fouliang was a tea-producing area very near to the famous Qimen (Keemun) district, and to the market for tea was added "tea-pottery" and tea sets, some of which were produced in the area, probably at the Tang kiln sites which have been excavated recently.¹⁷ Porcelain from what is now the Fouliang area was not particularly famous during the Tang dynasty. Changnan, which later became Jingdezhen, was more important as a market than as an industrial centre, since more pottery was produced around the town than in it, and indeed it was one of the four important market

towns of Jiangxi, the other three being Wucheng, Zhangshu and Hukou.¹⁸ The Yue ware from Zhejiang and the northern Xing ware were more highly thought of, but distinctive local styles were being evolved in Xiping.¹⁹

2. Song Dynasty: Making a Name

It was during the Song dynasty (960 - 1270) that Jingdezhen made its name - literally - as the centre of the Chinese ceramic industry. The town became the seat of a zhen or market town administration during the Jingde reign (1004 - 1008),²⁰ and during this period the emperor Zhenzong (reigned 998 - 1022) ordered porcelain from the town. This was drawn from the private kilns and submitted to the court through a supervising official, and on the base was painted "made in the reign of Jingde". The ware became known as "Jingde 景德 ware" and the town was called the zhen of Jingde - Jingdezhen.²¹ From then on the town, which had previously been known as Changnan, became generally known as Jingdezhen.

Kilns in the Jingdezhen area flourished during the commercial expansion of the Song dynasty, producing porcelain for official use and for trade, including pieces sold to the Jin or Jürched peoples in the North.²² A number of Song kilns have been excavated in the Jingdezhen area, and fragments of white glazed porcelain dating from this period have been found, at Shihuwan, Hutian and Nanshan, for example.²³ It is thought that some kilns in this period operated for officials and were manned by corvée labour. The majority, however, were family undertakings, although labour was supplemented to some extent by hiring.²⁴

For most of the Song dynasty, Jingdezhen was in competition with kilns in the north of China such as Qiancicun in Hobei (which produced the classic Ding ware), Haobiji in Honan, and Cizhou. Jingdezhen's pottery and porcelain was never as important as that of its rivals in the Tang and Song

dynasties, partly because the other kilns were much nearer to the Tang capital of Changan and the Northern Song capital, Kaifeng, both in the north. The significant change in Jingdezhen's position came with the gradual shift of power to the south, and the establishment of the capital in Hangzhou (during the Southern Song) and Nanking (at the beginning of the Ming.) In the intervening Yuan dynasty, the capital was in the north and Jingdezhen was not so important. During the early Jürched invasions that led to the capture of Kaifeng, the Song capital, in 1127, many kilns were destroyed and large numbers of potters fled south, many of them to Jiangxi.²⁵ Although stories of destruction by the barbarians may have been exaggerated, production of high quality porcelain in the north certainly decreased and Jingdezhen became the ceramic centre of the Southern Song dynasty which set up its new capital in Hangzhou. Some potteries survived in the north, including some producing high quality pieces; dated moulds and twelfth and early thirteenth century pieces from the north have been identified.²⁶ What is certain is that they could not maintain their earlier position, and Jingdezhen became the one major centre both for the production of porcelain and its supply to the court.

3. Yuan Dynasty

When the Mongol conquest was consolidated by the founding of the Yuan dynasty, the kilns of Jingdezhen once again supplied porcelain to the court, and a Fouliang Porcelain Bureau, supervised by an official known as a tiling 提領 was established in the town. A similar official under the Song dynasty had been known as a jian zhen 監鎮.²⁷ The Yuan dynasty changed the title of the official from jian zhen to tiling and made the provincial governor supervisor of pottery production. Just as in the previous dynasty, "when there were orders, these were met, when there were none, [work] stopped."²⁸ The tiling supervised the production of the

imperial ware which was known by its inscription of shufu, Imperial Palace 樞府²⁹ but his main responsibility was the collection of tax from private kilns.³⁰ Fouliang was made a prefecture capital in 1296 and Jingdezhen made a customs station. The governor of Jiangxi was appointed Superintendent of the Potteries from 1324-37 with orders to attend whenever an imperial requisition was made.³¹

The new dynasty organised a complex but unified tax system to draw revenue from the area it had conquered. One of the functions of this system was to monopolise or at least control all profitable enterprises, such as the preparation of salt and tea and the extraction of metals. Commerce and private manufacture were also heavily taxed.³² An account of the taxation as it applied in Jingdezhen is given in the Taojilüe, Brief Notes on Pottery 陶記略 written by 蔣祈 Jiang Qi in the thirteenth century.³³ The tax was calculated on the basis of the dimensions of each kiln and the number of men working on it. No account was taken of the size of the furnace or the number of chimneys. The details were put on an official register and the revenue collected in this way was used to pay the provincial governor, his deputies and the local police, and to provide for the widows and orphans of the potters. Extra taxes were levied to pay soldiers and provide for festivals. Other activities were also closely controlled: dealers and even river porters needed licences from local officials.³⁴

The taxes were extremely high, and Jiang Qi explains that the money was often not forthcoming because of corruption, competition from other potteries, which reduced the income of potters in Jingdezhen, and fluctuations in the harvest, which affected the opening of factories.³⁵ Taxation was lightened to a certain extent in the Taiding period (1324 - 1328) when the tiling was replaced as supervisor of the porcelain industry by the local circuit official, and private kilns benefited as a result.³⁶ In spite of the heavy taxation,

they had obviously survived, as there were sufficient at the beginning of the Ming dynasty to begin the supply of imperial ware almost immediately.

The reference above to the effect of varying harvests shows how closely the industry was tied to agriculture. Potters often worked for part of the year on land belonging to the kiln owners and were thus near enough to be on call when required for a firing.³⁷ Although they supplied the government, the potters were not government artisans who "worked in government factories and were supplied by the government with the raw material or with money for its purchase." Rather they were registered as civilian artisans, "who could freely carry on their own manufacturing and trade, though on occasion the government might requisition certain amounts of their products, or assign tasks to them for which they would be compensated with food rations and wages."³⁸ This, broadly speaking, remained the position till well into the Ming dynasty, and apart from a short period in the late Ming and mid-Qing when something like an 'imperial factory' was operating, right up to the fall of the empire. The position that the potters achieved under the Yuan dynasty was the one they retained, a somewhat anomalous one on the borderline between the official world and private enterprise. It gave them a certain amount of freedom to carry out commercial manufacture, but kept them under firm government control, although this was applied only when necessary.

This, then, was the basis for the spectacular developments of the Ming dynasty. The ingredients were all there. Potters with a high degree of technical competence, used to dealing with government contracts; readily available raw materials; convenient transport. But the town of Jingdezhen itself was not yet the industrial centre it was to become. Its main function was still as a market for the porcelain that was produced in kilns near the raw material deposits, which were spread out all over the region, as far out as Wuyan, Qimen, Leping and Poyang.³⁹ In the next stage of the development of the industry, in the middle part of the Ming dynasty, many of these outlying kilns closed down and production became concentrated in Jingdezhen itself.

CHAPTER III

The Ming Dynasty

During the Ming dynasty, Jingdezhen was transformed from a market town surrounded by kilns into one of the earliest industrial towns and the most important centre of pottery and porcelain production in the whole of the Chinese empire. This transformation was possible because of the industry's reorganisation in response to a rapidly changing economy and to the new demands made on it by the development of overseas trade and the increasing orders for imperial porcelain. The fact that Ming court officials paid much more attention to Jingdezhen than in any previous dynasty proved a great stimulus to the town's development.

1. The Early Years

Zhu Yuanzhang, who became the first Ming emperor and styled his reign Hongwu (1368 - 1398) had to give priority to the consolidation of his conquests, like every other dynastic founder creating an administration out of the collapse of its predecessor, and to political and economic reconstruction. His main concern was with "internal reorganisation - the suppression of secret societies and other subversive elements, the promulgation of a new code, the re-establishment of contacts with neighbouring powers, the rebuilding of the country's defences, and the repair of irrigation systems,"¹ but he still found time to take an interest in porcelain which was wanted either as decoration for the palace, or as gifts.² Jingdezhen was within easy reach of Nanking which Zhu Yuanzhang had occupied since 1356, twelve years before he founded the new dynasty, and which he subsequently made his capital. The Hongwu emperor's patronage set a strong precedent for future reigns.

The kilns which had produced rough pottery for local people and fine porcelain for officials and the rich during the previous dynasties continued working while the Yuan dynasty collapsed and the new Ming dynasty was established. It has been estimated that there were nearly three hundred kilns operating during this period.³ A certain amount of economic disruption went along with the rebellions and military activity, and this would have had more effect on the sales of higher-priced wares that were transported further afield than on the coarser pottery that was sold locally. Naturally, porcelain for the imperial court was not made till the new regime at Nanking had established itself.

There is some confusion about the date and organisation of the first shipments of porcelain to the Ming court. All the documents agree that imperial porcelain was ordered and supplied from Jingdezhen early in the Ming dynasty, although there are differences of opinion on the actual dates of the foundation of the imperial chang 廠. Two dates are most often quoted: the second year of Hongwu (1369)⁴ and the thirty-fifth year of Hongwu (1402)⁵. The Fouliang county gazetteer published in 1682 and the Raozhou gazetteer of 1684 give no date for its foundation and just say that "wares were fired at the beginning of the Ming [dynasty] and submitted to the palace."⁶ A later work, the Tao Shuo, published in 1774, states that "in the thirty-fifth year of the Hongwu reign, the kilns were opened for firing and supplies delivered to the capital. There was an Imperial Vessel chang, to the east of which were the offices of the Jiujiang circuit."⁷

The fact that the Hongwu reign did not run to thirty-five years has meant that many writers dismiss the latter date completely, and assume that the former (1369) must be correct. The Hongwu reign lasted for only thirty years, ending in 1398, so the thirty-fifth year of this reign was in fact the fourth year of the Jianwen reign (1402). However, the Jianwen

reign has often been ignored by Chinese historians as it was not considered legitimate by later rulers.⁸ The Jianwen emperor, a nephew of Hongwu, was deposed by his uncle after a civil war, and his rule was conveniently forgotten,⁹ so it is not at all clear in which year the chang was established, although it is reasonable to assume that the supply of porcelain would have been easier to maintain in 1402 than in 1369 when the emperor was occupied in consolidating his military position. Nevertheless, imperial porcelain was supplied at the beginning of the dynasty.

"In the first year of Hongwu it was decreed that vessels for the Imperial Ancestral Temple should be changed and made of gold... In the second year it was decided that all sacrificial vessels be made of porcelain."¹⁰

A further puzzle has been the precise nature of the chang. Most writers have interpreted this word according to its modern usage, and have assumed that it was a factory in which porcelain was both made and fired. However, there is reason to believe that what was referred to was a warehouse or storage depot rather than a factory, and chang is used in this sense in other Ming texts.¹¹ Indeed, the dongchang 東廠 and xichang 西廠 in the capital were not factories at all but eunuch agencies investigating treasonable offences,¹² while in the Qing dynasty, a shizhuchang 施粥廠 was the equivalent of a soup-kitchen where rice boiled to a gruel was dispensed to feed the hungry.¹³ It appears that supplies to the court in the early part of the Ming dynasty were irregular, although no detailed records have been found. Wares were supplied as and when ordered, much as in previous dynasties, and spasmodic production such as this seems to indicate a supervisory office and storage depot, rather than a manufacturing plant set up specifically for imperial use. It is known that there was a tax office in Jingdezhen at the beginning of the new dynasty, modelled on the Yuan tax office,

and it is likely that the porcelain depot was associated with this.¹⁴ A government bureau or depot of the same sort was set up in Guanxin - also in Jiangxi - in the Yongle reign (1403-24) of the Ming dynasty to control the production of paper.¹⁵ The only imperial factory that produced ceramics at the beginning of the Ming dynasty seems to have been a brick and tile factory in Nanking which made turquoise coloured tiles for the court, among other things.¹⁶ Some potters worked there as part of their corvée obligations in the fourteenth century, spending the rest of their time working for themselves or their masters in Jingdezhen's private kilns.¹⁷

However, when earlier writers translated chang as 'factory' they were probably using the common eighteenth and nineteenth century meaning of 'a merchant company's trading depot.' An eighteenth-century dictionary, for example, gives the following definition of 'factory': "Any Place beyond Sea where Merchants Factors reside for the Conveniency of Trade."¹⁸ So the confusion seems to lie in changes in the English usage of the word 'factory' as much as in the Chinese usage of chang, which has taken the meaning of 'factory' in the modern sense in recent years.

Imperial porcelain at the beginning of the Ming dynasty was fired in privately-owned kilns, checked and stored at the imperial depot, and transported to Nanking under official supervision. 'Official' kilns at this time were no more than kilns that had contracted to fire this official ware. There is nothing to suggest that they were owned or even controlled by local or central government. An imperial manufacturing plant did not exist till later in the dynasty, and then was only operated from time to time.

During the Hongwu reign, there were twenty of these 'official' kilns,¹⁹ but after a period of expansion in the Yongle period (1403-25) the number had increased to fifty-eight by the Xuande reign (1426-35).²⁰ Kilns outside the

town shut down, and production gradually became concentrated in the town itself.²¹ Official interest in the industry grew, imperial orders became first more regular, and then progressively larger, and government officials began to appear in the town to supervise the production of wares for the court.

Many of the Ming porcelain commissioners were eunuchs,²² the first recorded being Zhang Shan, who served in this capacity from the Hongwu reign, throughout the Yongle reign until the reign of Hongxi in 1425. During his term of office, he had overseen the production of large quantities of imperial ware, but he was executed in 1425 for cruelty to his subordinates and distributing imperial porcelain to his friends, and supervision by eunuchs ended for the time being.²³

During the following reign of Xuande (1426-35) an assistant secretary from the Bureau of Construction of the Board of Works was sent to Jingdezhen with special responsibility for supervising the potteries, and particularly the craftsmen, but he lasted only a year before his post was abolished and the responsibilities handed over to local officials.²⁴ In the 1420s and 1430s a large number of central government officials were sent to the provinces to co-ordinate various activities,²⁵ so the involvement of officials at this stage can be seen as part of a movement to centralise the administration, although this did not take root in Jingdezhen till later. The industry declined, and the depot ceased to function, but some orders were made up with porcelain bought from private kilns. Conditions were so bad that in 1438, over four thousand registered craftsmen tried to abscond, but they were caught and brought back. By 1454, the imperial order had been reduced to a third of its former amount.²⁶

Production was erratic during this period, and the flow of porcelain to the palace diminished between 1435

and 1457.²⁷ The depot was revived in 1458 under a eunuch, but this lasted only until 1486, and it operated again in 1506, also under eunuch supervision.²⁸ The court exercised very little control over the porcelain industry, and in any case Jingdezhen was not the only supplier of imperial porcelain during this period. Cizhou, Junzhou, Chuzhou and Zhending all supplied the palace with wine jars, bottles and flasks of various kinds.²⁹

2. Growth in the Sixteenth Century

Jingdezhen's most impressive development began in the Jiajing reign (1522-1566), a period of tremendous progress for the national economy in general. Markets expanded, agriculture and handicrafts became more commercialised, and the use of cash became more widespread.³⁰ This was particularly so in the Yangtze provinces where the economy was stimulated by the influx of silver from Europe and Japan in the sixteenth century.³¹

Most of the industry's development took place when local officials rather than eunuch commissioners were responsible for the imperial order. The incumbent eunuch official, a man called Liang who had been in office since 1521, was removed in 1530 in response to a petition from the supervising censor maintaining that he was "greatly harming the people." His post was abolished, and the assistant magistrates of Raozhou undertook the supervision in rotation.³² Staffing difficulties and the growing demands of the court on the town prompted the Fouliang magistrate to ask for a permanent manager from the Board of Works, but the request was not granted.³³ From 1564, the magistrates supervised for a year at a time, and from 1582 (during the Wanli reign) they were supposed to live in Jingdezhen.³⁴

The court's demands on the pottery industry increased tremendously during the Jiajing period (1522-66). Palace expenditure in general had increased steadily during the fifteenth century, but now imperial demands became more and more extravagant and production rose dramatically, as the following table shows, from 2,570 pieces in 1529 to 105,770 pieces in 1571, only a few years after the end of the reign.³⁵

			<u>Number of</u> <u>Pieces Fired</u>
Jiajing	8	1529	2,570
	10	1531	12,300
	23	1544	50,000
	34	1555	79,750
Lonqing	5	1571	105,770 ³⁶

In the middle of this upsurge in demand came the floods of 1540. Kilns were destroyed and hundreds of potters killed. With crops ruined, the price of rice rose sharply, and hunger riots forced officials to open government granaries and distribute grain.³⁷ On top of this, two serious fires followed, one which gutted the depot in 1564 and another in 1571.³⁸ Not surprisingly, imperial quotas could not be met. Local officials were reprimanded, and there were several petitions to the emperor asking for orders to be reduced.³⁹

Because of this enormous pressure, local officials were forced to make radical changes in the organisation of the potteries. The normal production of porcelain under the official system was known as Board Quotas, buxian 部限. Only those kilns recognised as official were allowed to fill these quotas. When the kilns could not keep up with the demand, part of the order was put out to non-official kilns under

the Officially Assisted Private Firing, guandaminshao 官搭民燒 system.

"An order was placed [with the private kilns] and those who were able to, produced completed pots. Those who could not, paid a fine, and if they could not manage this, officials put up prices to make life difficult for the private kilns."⁴⁰

The wares produced by this system were known as Imperial Quota, qinxian 欵限 and were paid for item by item.

The system had begun as early as the Zhengtong reign (1436-1449) when 50,000 pieces were bought from the private kilns, but by the Zhengde reign (1506-1521) this had grown to 300,000 still only supplementing the main order from the official kilns. By the Jiajing reign (1522-1566) supplies from the private kilns under the guandaminshao arrangement formed the bulk of imperial orders.⁴¹ The distinction between buxian and qinxian was not a firm one. Buxian ware delivered by the official kilns was sometimes sold to the private kilns to replace unsuccessfully fired qinxian. Although the guandaminshao system put a great deal of pressure on potters and taxed their resources and skills heavily the net result of its introduction was to stimulate the growth of private kilns by providing them with regular and relatively well-paid work.⁴²

A second change that resulted from the same pressures was in the organisation of labour. Before the Jiajing reign, most work done for the court had been done through the corvée system, which was the traditional way. As in many other industries, craftsmen were required to spend some of their time on official work.⁴³ A number of reforms had been carried out, and by the Jiajing period this service usually amounted to three months in a four-year period.

Two systems operated: the Rotating Group, lunban 輪班 which, as the name implies, involved different groups taking it in turn to work for three months at a time, and the Residential Group, zhuzuo 住坐 of permanent craftsmen.⁴⁴ Artisans normally served in the capital (Nanking at first, Peking later on), but apart from a short period when they manned the imperial tile factory at Nanking in the early part of the dynasty, potters were given a dispensation to perform their service in Jingdezhen.⁴⁵

Potters were organised on the lunban system, spending part of their time working on imperial orders, and the rest of their time in private employment. It is impossible to determine the proportion of production that was contributed by corvée labour and that contributed through the guandaminshao system. It has been suggested that officials used corvée as a legal device to get cheap labour.⁴⁶

During the fourteenth and fifteenth centuries, the national economy was becoming more and more commercialised. In 1436, the land tax payable in grain was commuted to a cash payment,⁴⁷ and in the 1560s the whole tax system was rationalised by the 'single-whip' reforms that spread from province to province. An immensely complicated system of land taxes and labour services was gradually overhauled in an attempt to reorganise the collection of taxes into a single cash payment.⁴⁸ The result of this was a much wider use of money, and it became more and more usual to commute corvée into a cash payment.⁴⁹ As this payment, the banyin 班銀 - or jiangyin 匠銀 - became commoner, there was a growth in the amount of labour hired, since craftsmen were taken on to replace those who contracted out of the labour service. Presumably some artisans paid the banyin and were taken on as hired workers. Inevitably, given the prevalence of corruption, some had to pay tax and do the labour service.⁵⁰ Because of the inability of the corvée system to meet the tremendous demands for higher production, and the growing

strength of the money economy, the proportion of labour hired grew, so that by the Wanli period (1573-1619) most labour was hired, although corvée was not officially abolished until the Qing reign of Shunzhi (1644-1661).⁵¹ This "commutation of labour services, which by 1661 had become nation-wide, is one of the eloquent testimonials to the increasing influence of money."⁵²

Similar changes took place in the procurement of less skilled labour which had previously been drawn from the seven xian of Raozhou as corvée. The labour service was replaced by a quota of men for each xian, which paid a tax to cover the notional wages for the number of corvée labourers it was theoretically supposed to provide. These quotas were reduced in 1558.⁵³ As the dynasty progressed, more and more workers were hired from villages in the locality and the town itself, and they were paid a daily wage.⁵⁴ (Presumably the quota tax was used to pay hiring rates, although funds from court were used from time to time.)

There was a large pool of labour to supply the potteries. Concentration of landholding had intensified during the Jiajing period, and vast estates were being formed through imperial gifts, purchases encroachment and a system whereby peasants entrusted their land to a lord in the hope of thereby escaping his taxes.⁵⁵ The number of men thrown off the land in these ways was increased by natural disasters such as the 1540 flood which ruined many peasants in Jiangxi, and farmers from all over the province moved to Jingdezhen to work as hired labourers. There were a great many labour disputes. Fighting between Leping workers and their masters in Jingdezhen is recorded as early as 1528 and there was more trouble in 1539. As the newly developing social groups in the town jostled to establish themselves, there were strikes, sabotage, and even a number of insurrections.⁵⁶

With the growing importance of porcelain production, Jingdezhen became more and more a manufacturing centre as well as a market. Many of the kilns in the area such as those at Hutian and Shijiajuan closed down as production became concentrated in the town itself. By the end of the eighteenth century, there was no trace of kilns or workshops in Hutian although the village and market still existed.⁵⁷

Private production grew steadily during the middle years of the Ming dynasty, when there was a considerable growth in commodity production for expanding markets. In addition to the orders put out to kiln-owners by officials for imperial ware, a large amount of porcelain was being produced specifically for the commercial market. There is little direct evidence of this production, because the officials who recorded local history were more interested in supplies to the court than in commercial manufacture. Some things, however, may be inferred. During the middle years of the Ming dynasty, internal markets developed rapidly, and what had been virtually self-supporting local systems were drawn into regional and national markets. More and more manufactured goods were produced for sale, particularly in the south-eastern and coastal districts and central areas like Jiangxi where river transport was extremely efficient.⁵⁸ Privately produced porcelain from Jingdezhen appeared in local markets throughout China, often under the name of Rao (i.e. Raozhou) ware 饒器. The nationwide commercial network built up in the sixteenth and seventeenth centuries by the Xin'an merchants from Huizhou in Anhui who dealt in rice, timber, cotton, silk, and other commodities, also handled Jingdezhen porcelain.⁵⁹

Imperial orders demanded quality as well as quantity, and Ming potters had to refine their techniques to meet with royal approval. They had the benefit of a long tradition of high class wares, dating back to the Song and Tang dynasties, and the basic technology of throwing on the wheel,

firing, decorating and glazing was well established, but new designs, shapes, colours and glazes did require certain new techniques. As official production expanded, a finer division of labour was introduced which not only increased productivity, but also stimulated the development of specialised skills. The manufacturing process is discussed in detail in Chapter VII, but one or two examples here will illustrate the point.

Before the Ming dynasty, glaze had generally been applied by dipping the piece in a vat of liquid glaze, which often left the pot covered unevenly and with unglazed gaps near the base where it had been held. Ming potters developed the techniques of pouring on or blowing glaze through a tube, which eliminated these faults.⁶⁰ Different effects were also gained by better temperature control and this also cut down losses in firing, and increased productivity. Productivity was also helped by the development of larger kilns.

The most obvious changes, however, were in decoration. The three most important types of porcelain, blue-and-white, underglaze red and polychrome, all required a sensitive use of metal salts and a knowledge of the different results of firing in an oxidising or a reducing flame. High quality salts fused into the glaze and careful control over the quantity of air in the kilns produced the fresh, bright colours for which Ming porcelain is renowned.⁶¹

3. Decline at the End of the Dynasty

As the dynasty drew to an end, official supervision became less close, private kilns grew in strength, and officially organised production became less important. An Assistant Prefect, tongpan 通判 resided in Jingdezhen during 1565, but for the next few years the industry was

managed by officials from various prefectures, till another assistant prefect took over in 1582.⁶² In 1599 Pan Xiang, the Jiangxi Inspector of Mining Taxes, was given responsibility for the potteries in addition to his other duties, and he ran the industry through the local officials. He lived at the provincial capital, except when he moved to Jingdezhen to supervise a shipment of porcelain to the court. He was evidently a hard master, and an uprising in 1602 is said to have been provoked by his excessive demands. According to Sakuma Shigeo, he was trying to monopolise the entire system of production and design. The independent potters rose and burned down the kilns, but such was the solidarity that none was arrested and only one official was blamed. Pan was recalled in 1620 when the mining tax was lifted.⁶³

By the early seventeenth century, the Ming court was becoming more concerned with curbing rebellions and resisting nomad pressure than in developing the economy in general, or Jingdezhen in particular. Imperial orders, which had been so high - 96,000 - in 1583 that the supervising censor Wang Jingming felt it necessary to petition the court to reduce its demands in the interests of economy,⁶⁴ fell rapidly and the potters made their living from private sales, notably from a growing export market.

From the beginning of the Tianqi reign (1621-27), two types of porcelain were made in Jingdezhen for export to Japan. They are most commonly known by their Japanese names, ko-sometsuke and shonsui, and were highly prized by Japanese tea-masters. Early examples were adaptations of Chinese designs, but later the potters were provided with Japanese designs to copy. The early years of the seventeenth century witnessed the final collapse of Ming power. The Manchus took Mukden and parts of Liaodong in 1621. In 1622 there were rebellions in Guizhou and Shandong. The following year the Dutch, in search of trade, made their first landing at Amoy and were repulsed, but only to take

the island of Formosa in 1624.⁶⁵ With political and military affairs in such an unstable state, there was little government regulation of the porcelain industry, and the potters took advantage of this to expand their export trade.

European trade with China began in the sixteenth century when Portuguese traders discovered the long-established network of trade in South-East Asia which was run largely by Arab merchants. They competed with the existing traders and developed new routes for themselves, although they became more interested in local trade than in shipments back to Europe. The breakthrough for European trade came at the very beginning of the seventeenth century. A Portuguese carrack, the 'San Jago', was captured off Saint Helena in 1602. Its cargo, which was seized, included porcelain from China, and this was presented to the town of Middleburgh in Holland. A second carrack, the 'Catharina', was taken in 1604, and its cargo of porcelain auctioned in Amsterdam.⁶⁶

Early auctions such as these revealed a demand for the novel ware from the East, and the Dutch East India Company, formed in 1614, set about satisfying it with great industry. Bases were established at Batavia in Java and Zeelandia on Formosa, where porcelain was transferred from Chinese ships to Dutch ones and shipped to Europe.⁶⁷ Enormous orders were taken, including fifty thousand butter dishes and fifty thousand plates in 1608.⁶⁸ The 'Wapen van Amsterdam' sailed in 1612 with five barrels of porcelain, and the 'Vlissingen' left for Holland in the same year with 38,641 pieces on board. A further 69,057 pieces were shipped in the 'Gelderland' in 1614,⁶⁹ and a published description of Amsterdam in that same year asserted that Chinese porcelain was "in daily use with the common people". Something like three million pieces were shipped to Europe between 1602 and 1657.⁷⁰

Most of the pieces sold were plain wares rather than highly decorative ones, and it is not possible to say exactly how much was made in Jingdezhen as all the trade was done through middlemen in Canton, Fukien and Batavia, but it is fairly certain that a large proportion of the exports did come from the town. Two members of the Dutch East India Company travelled to Peking in April 1656 through Jiangxi, and arriving at Raozhou were told that their porcelain was made just a little way to the east - which is where Jingdezhen lies.⁷¹

The rebellions and invasion that led to the final overthrow of the Ming dynasty did affect the supply of porcelain, and there were many complaints about damaged goods and the difficulty of supply, but porcelain continued to reach Europe.⁷² The export trade to Europe and Japan, combined with the production of plain ware for local use, formed the mainstay of the industry over the long period of disruption in imperial orders that only really ended with the Kangxi reign (1662 - 1722) of the Qing dynasty.

On one level, the progress of the industry during the Ming dynasty can be seen as a gradual build-up, a take-off point in the Jiajing reign, rising to a peak in the Wanli reign and followed by a swift decline towards the end of the dynasty, an ideal example for a cyclical model of Chinese history. The reason for this was the extraordinary importance of imperial patronage and state interference. Jingdezhen relied heavily on imperial orders and finance, and so on one level, the industry did wax and wane with the fortunes of the court, benefiting during the stable years when there was time and money for luxuries - and imperial porcelain was always this - and being ignored when economic and military considerations diverted money and attention elsewhere.

However, this was on one level only. Underneath the superficial picture of a waxing and waning industry can be seen a long-term development that took the industry to the point where it was about as efficient and productive as a handicraft industry could get. Jingdezhen's great strength in these successful years was its ability to respond positively to changing pressures, whether from a vastly increased order from the court, or a complete withdrawal of imperial support. On the one hand, the industry found ways of boosting production, and on the other, when court orders dropped, new outlets were found and advantage taken of the opportunities offered by Japanese and European trade. Jingdezhen was able to adjust to all the changes that occurred; its problems did not really begin till the modern West came into contact with traditional China in the nineteenth century.

Jingdezhen operated in an increasingly commercialised economy, and the industry developed in response to this, turning from *corvée* labour to hiring when necessary and expanding into the growing national markets. A more advanced industry was growing up with an uneasy truce between the potters and local and central government, and even when imperial orders slumped at the end of the dynasty, the potteries maintained a level of efficiency which allowed a second take-off in the early Qing period.

CHAPTER IV

The Qing Dynasty

At first, the new dynasty, like its predecessor, was more concerned with asserting military and political control than with developing a luxury industry. Of course the industry continued over the dynastic change. Imperial orders had stopped long before the Manchu armies came through the passes, but potters were able to make their living from plain pottery for sale in the local markets and export ware for Japanese and European customers, and this continued well into the new dynasty, although fighting did interrupt supplies to some extent.¹ For the first dozen or so years, imperial porcelain was made as and when orders came, just as at the beginning of the Ming and during earlier dynasties; there were no regular supplies.²

The first orders for imperial porcelain came in 1654, and were for large 'dragon jars', over three feet in diameter, and balustrade plaques two feet five inches wide and three feet high.³ Pieces of this size were difficult to make even under the best circumstances, and after such a gap in imperial orders, the potters' technique was clearly not up to it. They were unable to make either the jars and balustrades ordered in 1654 or a further order placed in 1659, and in 1660 the provincial governor Zhang Chaolin petitioned the emperor to allow the work to stop.⁴ The first firings were the responsibility of local officials only, but in 1659, the Superintendent and Secretary of the Board of Works, Gaba and Wang Ricao, are recorded as having been in charge of the firing, through the provincial governor and the prefects of Raozhou, although it is not made clear whether they ever visited Jingdezhen or whether their responsibility was merely nominal.⁵

The industry began to revive during the Kangxi reign (1662-1722). In 1671, the first order successfully completed during the new reign, a batch of ritual vessels, was shipped to Peking. It was paid for directly from official funds,⁶ in contrast to the Ming practice of demanding porcelain as part of a tax liability.⁷ However production was interrupted almost immediately by a long and destructive civil war.

"The Wu [Sangui] rebellion occurred in the 13th year of the Kangxi reign [1674]. The inhabitants of Jingdezhen were ruined and the kilns destroyed. After [the insurrection] had been put down firing was impossible. Then the sons of Mr Wei set about re-laying the foundations of the kilns, working hard to put everything in order and make good the damage. The imperial depot demanded corvée labour and provided twice the normal amount of rations. Afterwards, imperial ware was fired in private kilns, and although corvée had been abolished, Mr Wei once again undertook his traditional calling, rebuilding and repairing [the kilns]."⁸

According to the prefectural gazetteer compiled just ten years after the insurrection,

"Since 1674 when the kilns were burned down in an outbreak of banditry, more than half of the kiln-owners have moved away or turned to a different trade because they had lost their property. Businesses were sold and at present 20% or 30% of the potters are outsiders. It is difficult to meet the demands for labour service or to supply wares."⁹

In 1680, the court tried to start porcelain workshops and kilns in Peking, and even brought men and materials from Jingdezhen. The venture failed completely and although no reasons are given, there is a strong possibility that apart from the practical difficulties involved, vested interests in Jingdezhen did not want their unique position undermined by potters working in Peking.¹⁰

Orders were then sent to Jingdezhen again under the auspices of the Secretary of the Treasury, Xu Tingbi and his assistant, Li Tingxi. Zang Yingxuan, who had been Secretary of the Bureau of Forestry and Crafts of the Board of Works, was sent to Jingdezhen with a label-writer, Zhe Erde, a Manchu, in 1680, to supervise imperial production and make an annual delivery of porcelain to the court. Wages, materials and expenses were paid for out of official funds and even transport costs were defrayed, where previously the cost of hiring labourers had been met by the xian belonging to Raozhou.¹¹ With this support from public funds, standards improved and corruption was reduced. Zang Yingxuan was in overall charge of production, but recent Chinese research suggests that his part in the design of Kangxi ware has been exaggerated by art historians and that most of the credit for these designs should go to Liu Yuan, an artist. Nevertheless, the imperial porcelain produced during his tenure is always referred to as Zang ware.¹²

The industry received great encouragement from the Kangxi emperor and recovered quickly from the rebellion. Zang Yingxuan's period of supervision ended in 1688,¹³ although firing had stopped in 1686,¹⁴ and the next important set of wares, those known as Lang wares, were produced between 1705 and 1712 and probably named after the provincial governor Lang Tingji who held office during this period.¹⁵ They are usually referred to as semi-official, as it is not known whether they were fired privately or as part of the official system, though some of these wares were certainly sent to the court.¹⁶

The distinction between official and private kilns and their products was as usual blurred in this period. In an examination of a collection of porcelain from the Kangxi period to the end of the Qing dynasty, E.T. Chow and F.S. Drake concluded that "the ware made in 'peoples' kilns' [minyao 民窯] does in fact often rise to very great heights so that it is sometimes nearly indistinguishable from that made in Imperial kilns [guanyao 官窯]"¹⁷ The main difference was that the official kilns, guanyao were under permanent contract to supply the court while the private kilns supplied only on an irregular basis.

Two other well-known directors followed Zang Yingxuan: Nian Xiyao and Tang Ying, who were both involved with the porcelain industry during the Yong Zheng reign (1723-35). In 1726, Nian, an official from the Imperial Household, was transferred to the Huaian customs barrier with responsibility for supervising porcelain production as well as collecting customs duties, and stayed there till 1736 when he was removed on charges of corruption.¹⁸ Tang Ying was sent to work under Nian at Jingdezhen in 1728 and took over responsibility both for the potteries and the Huaian customs in 1736 when Nian left.¹⁹

Tang, a native of Manchuria who came from a family of Chinese bannermen, made a much deeper impression than either of his predecessors on the history of the porcelain industry. During the eight years that he spent in Jingdezhen, before taking over at the Huaian customs, he studied the art and techniques of porcelain manufacture in great detail, so that when asked by the Qianlong emperor in 1743 to write a commentary and description of the manufacturing process to go with twenty illustrations that belonged to the palace, he was able to provide a full and detailed narrative, the Explanation of the Illustrations of Pottery Manufacture, Taoyetushuo 陶冶圖說,²⁰ which remains one of the most important sources of information on porcelain technology

during the eighteenth century. Tang also wrote the Record of Pottery Manufacture, Taochengjishi 陶成記事, and the Summary of Pottery Business Taowuxulue 陶務敘略.²¹

After three years at the Huaian customs, Tang Ying was moved to Jiujiang in 1739, had a short spell at Canton customs from 1750 to 1752, then moved back to Jiujiang where he died in 1756. Although he never lived permanently in Jingdezhen after 1736, he was responsible for the potteries while in charge of Huaian and Jiujiang Customs, so his influence on the town covered a total of twenty-seven years.²²

For a description of early eighteenth century Jingdezhen and its industry, we are indebted to two letters written by Père Francis d'Entrecolles, a French Jesuit missionary who was stationed at Raozhou. The letters, addressed to one Père Orry, the Procurator of Jesuit Missions to China and India, were written in 1712 and 1722 and subsequently published in Lettres édifiantes et curieuses, an invaluable series of letters written by Jesuit missionaries in China.²³ From time to time d'Entrecolles visited Jingdezhen "to attend to the spiritual needs of his converts," and took the opportunity to learn about the manufacture of porcelain, as it occurred to him that "a detailed description of everything concerning this sort of work might be of some use in Europe."

These letters are particularly interesting since they are the first full account of Jingdezhen by a foreign observer, and are worth quoting or summarising in some detail. In the first letter, from Raozhou and dated September 1st 1712, d'Entrecolles explains that as well as having learned about the potteries from Christians working there, he has studied the available Chinese books on the subject, including the Fouliang county gazetteer which contains a section on porcelain. He summarises the gazetteer, touches briefly on the early history of the town and the quality of its

porcelain, then discusses the attempt by the Kangxi emperor (1662-1722) to start an imperial porcelain factory in Peking, which was mentioned above.

"The reigning emperor [i.e. Kangxi], who likes to be ignorant of nothing, had porcelain workers and everything needed for their work sent to Peking. They omitted nothing in order that the work should succeed under his eyes, but I understand that they failed. It may be that vested interest or political reasons had something to do with this lack of success, but whatever the reason, it is Jingdezhen which has the honour of sending porcelain to all parts of the world. Even the Japanese buy from there."²⁴

He then goes on to describe the town, its inhabitants and geography:

"There are 18,000 families in Jingdezhen. The establishments of some of the larger tradesmen occupy a vast area, and contain an enormous number of workers. It is generally said that there are more than a million souls here, and that ten thousand loads of rice and a thousand pigs are consumed daily. It is over a league long, on the banks of a beautiful river, and not a heap of houses as you might imagine; the streets are as straight as a bowstring and intersect at regular intervals. All the land is occupied and the houses are too close and the streets too narrow. Crossing them, one might be in the middle of a market. The cries of porters trying to get past

can be heard on all sides. There are a lot of temples built at great expense...

"Jingdezhen is more expensive than Raozhou because everything needed has to be brought from elsewhere, even the wood to keep the furnaces going. In spite of the high cost of living, Jingdezhen is a refuge for a great many poor families who have no way of making a living in the surrounding towns. Youngsters and the weakest are all found employment. Even the blind and cripples earn their living grinding colours. The Fouliang gazetteer says that in the past there were only three hundred porcelain kilns, but now there are a good three thousand. Not surprisingly, fires are frequent, and so the god of fire has several temples. The current mandarin has erected one dedicated to this god and in consideration to me has exempted Christians from the corvée duties which the ordinary people are bound to fulfil when this sort of building is put up. The worship and honours offered to this god do not make conflagrations any rarer; it is not long since eight hundred buildings were burned down... They must have been restored very soon, judging from the multitude of carpenters and masons who were working in the area. The profit from the rent of these shops makes people very quick to repair damage of this sort...

"It is astonishing that a place so crowded, with such wealth, with so many boats coming each day and yet not surrounded

by walls, should be governed by a single mandarin without the least disorder.

"In truth, Jingdezhen is only a league from Fouliang and eighteen leagues from Raozhou, but it must be acknowledged that the policing is admirable. Each street has a Head, appointed by the Mandarin, or several if it is at all long. Each Head has ten subordinates who are each responsible for ten houses. They must see to good order, hasten to quell the first sign of trouble, and warn the Mandarin, on pain of being beaten, which is done liberally here...

"Also, strangers are rarely allowed to sleep in Jingdezhen. They must spend the night in their boats unless they stay with people who know them and can vouch for them. This policing keeps everything in order and maintains complete security in a place whose riches would stir the greed of an infinity of thieves."²⁵

After this lively description, the letter returns to its original purpose, an examination of the manufacture of porcelain. D'Entrecolles prefaces this examination by saying that certain designs and shapes that cannot be made successfully in China "might perhaps be made easily in Europe if the same materials could be found there."²⁶

First of all he discusses the two elements that go into the making of the clay, china clay (kaolin) and china stone (petuntse), giving details of their extraction and purification, then gives information about the preparation of glaze materials before proceeding to the making of the porcelain. (More detail about the manufacture will be found in Chapter VII).

"I will begin with the work, which is done in the less frequented parts of Jingdezhen. Vast sheds have been built there, surrounded by walls, where can be seen layer upon layer of jars filled with earth. It is in these enclosures that innumerable workers live and work, each with their allotted task. A piece of porcelain, before it is ready to go into the kiln, passes through the hands of twenty people, and without any confusion."²⁷

He then describes the preparation of the clay, the throwing of the body on the wheel, the forming of larger pieces, moulding, decoration, glazing and firing, and goes on to tell how he was asked to get "new and curious designs from Europe" so that local officials had something unique to give the emperor. However, his Christian converts begged him to do nothing of the sort since the officials could not easily be convinced by the workmen that something was impracticable, and they were in danger of being beaten.²⁸

The first letter concludes with some general remarks about the town and its Christian community. The second letter, written on the 25th of January 1722 in Jingdezhen contains twenty points, adding to or revising technical details that d'Entrecolles had set out ten years previously, saying that no matter how much trouble he takes in teaching himself about the porcelain industry, he never seems "to have exhausted the subject."²⁹

The skill of the potters reached its height in the Yongzheng (1723-35) and Qianlong (1736-95) reigns which followed the Kangxi period (1662-1722) described by Père d'Entrecolles, and large orders continued to be made for the imperial court. In Tang Ying's time during the early eighteenth century, the annual quota was sixteen or seventeen thousand pieces of first class round ware (dishes, bowls,

cups, plates etc.) and six or seven thousand second class pieces which were sent to the capital along with the imperial order for ordinary use.³⁰ Porcelain was despatched to the capital every six months and boats and porters were hired specially for the occasion. In addition, a considerable overseas trade had been built up, and Jingdezhen supplied high quality wares to Japan, Russia and Europe, the latter through the East India trading companies which had been formed in the late seventeenth and early eighteenth centuries.³¹ French, Dutch and English traders at first bought porcelain in traditional shapes and designs, but later on pieces were specially commissioned to suit European tastes, and these were often decorated in Canton.

The porcelain industry reached its zenith in the Qianlong reign which was noted for a great interest in antique collecting, resulting in a demand for imitation Song and Ming porcelain among other things, but it soon began to decline. The deterioration started soon after Tang Ying left Jingdezhen in 1749. In 1786, the post of resident assistant was abolished completely.³² The superintendent of the Jiujiang customs was put in charge of the potteries, and the Raozhou prefect and an official stationed in Jingdezhen were made responsible for transport. This was the arrangement till the end of the dynasty. Financial control had effectively passed to the customs in 1727 when tax from the Huaian customs barrier was used to pay for imperial orders, and in 1740 tax from Jiujiang was used.³³

It seems from Père d'Entrecolles' account that during the tenure of the three directors, Zang Yingxuan, Nian Xiyao and Tang Ying, most of the porcelain required by the court was produced and fired in the large manufacturing units which can be regarded as factories in the modern sense of the word, but it is not clear when this arrangement began. For the rest of the dynasty, however, the industry was declining and most of the imperial quota was supplied

through the guandaminshao putting-out system that had been used in the Ming dynasty.³⁴ Imperial orders became smaller and smaller and in 1806, so many items of porcelain were in stock because the orders exceeded the needs of the court, that the Jiujiang customs had to petition for the surplus to be sent to Peking, and the emperor ordered that the quota should be reduced by half.³⁵

Overseas sales of porcelain had not been wholly beneficial to Jingdezhen. Many painters lost their jobs as fashion turned towards European designs, and others were forced to move to Canton where these designs were executed. By the early part of the nineteenth century, exports were beginning to decline. The fashion for Chinoiserie had died out in Europe, and the techniques for manufacturing hard-paste porcelain were now known to potters in France and Italy.³⁶ The opening of the Treaty Ports after 1842 paved the way for a complete reversal of the direction of trade.

By the 1850s, the industry was in a very poor state indeed, and the Taiping rebellion did nothing to improve it. The whole of North East Jiangxi was crossed and re-crossed by rival armies, and Jingdezhen suffered badly because it occupied an important strategic point at a river crossing on the route from Anhui and Zhejiang into Jiangxi. In November 1854, Taiping armies held Jiujiang and had boats stationed on Lake Poyang, and in the early part of 1855 the rebels were in control of the eastern shores of the lake and had captured a number of towns in the Raozhou area. By the end of the year, Taiping armies under Shi Dakai had established control over Jiujiang and the whole of eastern Jiangxi including Jingdezhen.³⁷

Government forces attacked Jingdezhen early in 1857:

"In the spring of 1857 there was a hard-fought battle in the eastern area resulting in the loss of a very promising Hsiang Army Officer from Yunnan, Pi Chin-k'o. Tseng Kuo-fan had sent Pi to reinforce Provincial Treasurer Ch'i-ling in Jao-chou. Ch'i-ling, a Manchu and a mediocre official, was jealous of Pi, whose reputation was growing very fast for a general still only twenty-five years old. Ch'i-ling therefore laid down the arbitrary condition that Pi must capture Ching-te (an important town near Fouliang) before any funds would be allocated for the support of his detachment. With the impulsiveness and assurance of youth, Pi led 1,000 of his men to Ching-te after Chinese New Year's Day, and for some reason then proceeded to enter the town ahead of his troops in the company of ten select bodyguards. Immediately surrounded by numerous Taipings, the small party was totally annihilated in hand-to-hand combat. His tragic death greatly saddened Tseng Kuo-fan, who considered Pi Chin-k'o second only to the deceased T'a-ch'i-p'u in bravery. Chu Hung-chang, Pi's deputy commander, took over the division and remained at Jao-chou for two years, under the constant harassment of Ch'i-ling."³⁸

Jingdezhen did fall to the government forces that year, but was retaken by Yang Fuqing for the Taipings on the 19th of November 1858,³⁹ taken again by the government on July 13th 1859,⁴⁰ and lost again to the rebels on April 9th 1861. The town was finally taken by the imperial army on April 15th 1861 and then held continuously till the end of the rebellion.⁴¹

Almost ten years of war had taken a heavy toll. By 1864, when the last rebels had been driven out of Jiangxi, the town was completely devastated. Houses and kilns had been destroyed, the imperial factory was burned down in 1855, and thousands of potters had been killed or had fled.⁴²

"Trade flowed back slowly, but by 1869, there were 110 furnaces at work [compared with about 300 in the Daoguang period 1821-51 and many more in the early 18th century] employing about 150,000 workmen. The special kilns, however, for the manufacture solely of imperial chinaware, were never rebuilt, so that from the time of the Taipings till the establishment of the Republic, the Palace was obliged to entrust the execution of its orders for porcelain to the better class private kilns."⁴³

One of the advantages of the pottery industry is that it requires little capital to set up kilns and workshops, so it was relatively cheap to rebuild the kilns but not so easy to ensure that the manufacture and firing were carried out with the same skill as before. There was an attempt to revive the industry in the Tongzhi (1862-74) reign in 1864 when Cai Jinqing had seventy-two new buildings erected,⁴⁴ but no attempt was made to modernise the manufacture, as was typical of the reforms of this period.⁴⁵ It was simply an attempt to strengthen and improve the traditional handicraft methods of production. The reconstruction was financed by taxation from Jiangxi and Zhejiang and also from the State Treasury.⁴⁶ By the early seventies, Jingdezhen had crept back into first place as a producer of everyday pottery, but the high quality pieces of previous years were hardly ever seen.⁴⁷

In addition to the physical destruction in the town, which was worsened in the early Guangxu period (1875-1908) by the Chang river overflowing and damaging a third of the street market and a quarter of the kilns,⁴⁸ the porcelain industry suffered badly from the economic disruption and particularly the interruption of trade that resulted from the fighting. During the rebellion, a new tax, the likin 厘金, had been introduced to provide revenue for government military operations. Basically it was a tax on articles of consumption payable at customs barriers. It was first collected in Jiangsu in October 1853, and gradually spread throughout the country, being adopted in Jiangxi in September and October 1855.⁴⁹

"In the next year, a central office was organised for the whole province, and the rate fixed at 2% ad valorem for all collectorates. Each collectorate had to make one levy at that rate, and goods were taxed at every point they passed."⁵⁰

This was later changed to a two-levy system, 3% being paid at the first collectorate, 2% at the second, with examination only at subsequent points, but after 1860 collections were also made at the third and fourth points. The system was altered after the Boxer rising of 1900, and for certain products, including Jingdezhen porcelain, the four Jiangxi levies were combined in the tongchuan 通串, a total of 10% payable at the first collectorate.⁵¹

Likin provided revenue for local and central government, but it was a severe restraint on trade. Tax barriers, both legal and illegal, proliferated, and as the tax paid on items being transported to markets was increased, so naturally the price rose. The burden fell not only on the merchants, but also on the small handicraft producers and on the people in general, through higher prices.⁵²

Attempts were often made to evade or avoid customs barriers, but the effect of the tax can be seen from the fact that a rise in the tax on the porcelain going from Jingdezhen to Canton cut trade dramatically from 105,142 piculs a year in 1903 to 59,070 in 1904, as traders preferred to go out of business rather than use an alternative sea-route.⁵³

The tax put Jingdezhen at a serious disadvantage by comparison with foreign manufacturers exporting porcelain to China. Since the opening of the Treaty Ports - including Jiujiang, the most important porcelain market, in 1861 - foreign traders had been extending the range of commodities exported to China, and by 1903, a considerable amount of porcelain was being sent, particularly from Hong Kong, Great Britain, Japan and the Netherlands. No imports are recorded before this date, but the figures for 1903-6 are set out below:

Foreign Porcelain Imported into China (Excluding Re-exports) ⁵⁴

Value in Haikwan Tael

1903	361,914
1904	347,087
1905	570,435
1906	564,257

Porcelain from Jingdezhen sold in Chinese markets was taxed at a number of likin barriers on the way, so the selling-price was high. Imported porcelain, however, paid only one or two import taxes and could be sold for much less. The fact that the imports were machine-made made them cheaper in the first place. This so hampered native trade that by the twentieth century, Japanese porcelain was being sold in Jiangxi, only a few miles from Jingdezhen.⁵⁵ The distortion

of trade went even further than this, however. Total exports of porcelain dropped, as can be seen from the table below, and these exports were mainly to Hong Kong, Siam and Malaya.

Total of Porcelain Exported from China 56

Value in Haikwan Taels

1903	2,204,786
1904	1,663,921
1905	1,721,474
1906	1,579,204

The pattern of handicraft exports in the late nineteenth and early twentieth century altered considerably. Western industrialisation and changes in fashion had reduced sales to Europe, and this market was replaced by one among the growing overseas Chinese community, particularly in South East Asia.⁵⁷

The industry was in desperate need of reform. Modernisation had been advocated during the 1860s, but the changes in the potteries then did not go beyond the revival of the handicraft industry. It was not until 1907 that the first attempt to establish a modern, mechanised plant was made. In that year Sun Dinglin

"a former Superintendent of the Imperial Chinaware kilns, organised, with the help of official funds, a company known as the Kiangsi Porcelain Company, and obtained from the Peking Government sanction to have the products of this company passed free of internal taxation under a 5% excise conveyance certificate to be issued by the first

provincial tax office passed, which in this case meant the Ching techen likin or t'ung shui office."⁵⁸

However this concession was soon withdrawn, because of opposition, principally from tax collectors, and the company was sold to a private concern, the Jiangxi Porcelain Limited Company.

The Draft History, and Xiang Zhuo's Record of the Pottery Industry in Jingdezhen give details of a Jiangxi Porcelain Company that was formed in 1910 based on the concentration of kilns and workshops that had supplied the Qing court, with capital drawn from the provinces of Hebei, Hubei, Jiangsu and Anhui as well as Jiangxi. Only half the hoped-for capital of 400,000 yuan was collected, and this came mainly from civil and military officials. The company, and it seems to be the same one mentioned by Stanley Wright, was one of seven modern factories built in China between 1904 and 1910. It operated within both the traditional and modern sectors of the economy. On the one hand, the founders planned to make porcelain using modern machinery, while on the other, capital was drawn from local military officials; the first manager was one Kang Tezhang from Qimen, who had had a completely traditional education.⁵⁹

Although the company intended to mechanise, it also kept up traditional production methods as a precaution against failure. The new mechanised factory was to be built at Poyang where it was hoped that new and experimental techniques could be developed, since Jingdezhen was so conservative that reforms would be resisted solidly. However the new concern also maintained a traditional handicraft plant in Jingdezhen to keep the business going. This latter progressed but the new factory at Poyang had hardly started production by the time the Qing dynasty and the Chinese Empire collapsed in 1911.⁶⁰

In the opinion of contemporary Western observers, the industry in general was in a sorry state at the time of the 1911 revolution.

"The great product of Kiangsi according to popular notions is chinaware, and undoubtedly this was so at one time, but the industry has much declined both in extent and in the quality of the product since the Taiping rebellion when the 'Imperial' furnaces were destroyed and have not since been rebuilt. The manufacture of 'tribute' porcelain is still carried on but the furnaces are chiefly engaged in the humbler task of turning out common household china. The centre of the industry is Kingtehchang [sic] though the place produces neither of the two earths from which chinaware is made... Kingtehchen is carefully screened from European eyes, though the caution is quite unnecessary as the artists in chinaware have far more to learn than they can teach."⁶¹

CHAPTER V

The Republic

After the Wuchang uprising of October 1911, the ailing Qing dynasty finally collapsed, and with it the whole imperial system. For the time being there was no strong central government in China since the establishment of republican Provincial Assemblies shifted power into the hands of sections of the local gentry and merchants backed by modern armies.¹ These men were the fore-runners of the war-lords of the 1920s and 1930s and the extent of their power in the provinces grew steadily so that even by the 1930s when a central government had been set up it did not govern all of China or even all activities in the provinces most closely controlled by it.

For the porcelain industry, the immediate result of this fragmentation of power was the closure of the experimental factory at Poyang. After 1911, the funds from other provinces dried up, and Jiangxi alone financed the industry. The Jiangxi Porcelain Company maintained an independent existence although running on a much smaller budget, but the school which had been part of the company was taken over by the provincial authorities under its new name, the Jiangxi Province Pottery School at Raozhou (i.e. Poyang).² Close contact was still maintained between the school and the industry though, and when Zhang Hao, who had studied in Japan, became head of the school in 1911, he developed an experimental coal-fired kiln and set it up in the Poyang factory which he re-opened. This development continued in spite of the problem of finding kiln-bricks that were strong enough to stand the higher temperatures produced by burning coal, and a down-draught coal-fired kiln was planned in Jingdezhen itself.³

Like many other industries in China, the porcelain producers were able to expand during the First World War since hostilities gave a temporary respite from foreign competition. Total imports dropped considerably. In 1913, their value was 1,107,885 Haikwan taels, but by 1920 this had been reduced to 772,474.⁴ The planned coal kiln was finally built in 1916, on the basis of experiments made with the Poyang kiln, but on a smaller scale than that at Poyang. Technical problems took some time to solve. The porcelain could not be made as white as in the pine kilns because of the yellowing effect of the smoke, and work was also hampered by the refusal of the local police to allow a smoke stack to be built on land behind the police station. Negotiations took place over a long period, but the police were adamant and the plans had to be altered. The results of firings from the new kiln were disappointing, and after a number of heavy losses, the operation was compelled to close down.⁵

A number of people associated with the pottery school attempted to develop the industry in the area. Zhang Hao's younger brother Zhang Yi and Xu Jinzhuo who later became a revolutionary set up the Revive China Porcelain Factory, Xinghua Ci Chang 興華瓷廠 at Ma'an shan, one of the sources of china clay.⁶ However, the bulk of porcelain was still produced by traditional handicraft methods, and this sector of the industry was given a boost in 1916 when Yuan Shikai declared himself emperor. As part of an attempt to legitimise his rule he had placed an order for the firing of imperial porcelain as emperors had traditionally done. It was for 40,000 pieces at a total cost of 1.4 million yuan. The kilns, under an expert in antique porcelain⁷ whom Yuan appointed as customs superintendent at Jiujiang, only worked for Yuan for about five or six months and there is no record of the amount actually produced, but the quality of the wares did improve.⁸

It is interesting to see how readily the industry, which was beginning to modernise, went back to traditional production. The modern factories were still only a tiny proportion of the industry. Most porcelain was made by hand, and buying and selling, guilds and merchant companies were all organised in the traditional way. Two American travellers, John Knight Shryock and Harry A. Franck visited Jingdezhen in this period, and their graphic accounts give a clear picture of the state of the industry and the town immediately after the First World War. Chinese industry in general during the Republican period was in transition and was a mixture of cottage industries, workshops and modern factories.⁹ The vast majority of industrial undertakings in Jingdezhen were workshops, and on a very small scale.

"In Kingtehchen there are approximately 2,000 manufacturers of porcelain, 1,500 artists' shops, and about 200 firms that handle the business of ordering, selling and shipping. The factories are mostly small, sometimes merely a family working in the home. Each factory usually makes only some certain kind of porcelain or some one article, such as teapots or rice bowls. A single kiln, as a rule under independent management, burns the porcelain of more than ten factories."¹⁰

The town itself was crowded, bustling and completely filthy. Harry A. Franck on his arrival by boat:

"The ancient city of porcelain stretched out of sight in either direction along the concave shore of a curve in the river, compact as only a Chinese town can be, the backs of the first row of its at most

two-storied buildings casting their refuse down upon the waterfront. Broad stone stairways, slimy with the sloppings of water-carriers, and the garbage that oozed out among them, ran at intervals sidewise in long slopes up the high bank, which seemed to be made entirely of broken and ruined pottery, ranging from masses of badly kilned clay to all sizes of what had once been brilliantly colored porcelain bowls, plates, even huge costly vases...

"The shrieks of the boat people, of streams of carriers jostling one another on the stairways, of bedraggled policemen berating and even striking coolies at every ghost of provocation, of venders loudly announcing their wares in the town beyond, of children at play or in pain, the pounding of gangs of men building or repairing boats, piling up or tumbling down the heaps of half-grown logs that lay at sharp angles here and there along the bank, the barking and yelping of curs foraging for garbage along the waterfront, the grunts and squeals of pigs similarly engaged, all mingled together in a Chinese chorus that left the ears weary...¹¹

"No wonder our Shanghai consulate requires a certificate of disinfection on all Kingtehchen ware destined for the United States; the whole town was as utterly crapulous as any I had seen in China; no-one, nothing, could really be called clean. The stench of human excrement,

of never-washed people living in sty-like dens, the mangy scalps and ulcerated skins, and all the other filth-diseases with which China, particularly its southern half, swarms, were everywhere. As almost everyone, the fair sex above the foot-binding age only excepted, was naked to the waist, the community ailments were of course more in evidence than in our own more circumspectly dressed society. Utterly ignorant of the most elementary rules of hygiene, they lived in hot dens succeeding one another endlessly along the narrow streets, with no breathing-space anywhere even by day, and by night their hovels as tightly closed in any weather as mud bricks and crude carpentering can make them."¹²

In spite of the dirt and disease, the town was considered quite well-to-do by Franck. There were no beggars, as even the oldest and most infirm found some sort of employment in the potteries,¹³ and although the quality of the porcelain was not as high as during the better years of the Ming and Qing dynasties, there was a brisk trade in the coarser pottery for everyday use. What is particularly interesting is the similarity between the accounts of Franck and Shryock and the description given by d'Entrecolles two hundred years before. Very little had changed, either in the manufacturing process, the conduct of trade or the life of the people, in spite of the length of time that had passed and the changes foreign investment had caused in the pattern of trade and the type of porcelain produced.

Jingdezhen was deeply affected by the revolutionary upheaval in China that began around 1926 with the Northern Expedition to unify China and bring provincial warlords under a central government. The Expedition brought potters

in Jingdezhen into contact with the rapidly growing labour movement. Nanchang came under the control of the Expedition in September 1926, and when Jiujiang was taken two months later, the first Trade Union, the General Union, was formed in the area, and in the following year, plans were made to organise a federation of Trades Unions based on organisations being formed in Nanchang, Anyuan, Jiujiang and Jingdezhen.¹⁴ Embryo Communist groups were also being formed, and one of these, led by Fang Zhimin, was involved in a strike for better food supplies that took place in Jingdezhen in 1929. Between 1930 and 1933, the Red Army occupied the town a number of times, and many local men joined them, but in September 1933, the Army withdrew to the Soviet Base Areas.¹⁵

The introduction of modern labour organisations accompanied the breakdown of the traditional trade guilds. The traditional forms of economic organisation were breaking down under pressure from rising imports of foreign porcelain, and general economic chaos. Imports rose steadily, as the following table shows, and these were much higher than immediately after the First World War.

Total Imports of Porcelain into China¹⁶

Value in Haikwan Taels

1927	2,148,662
1928	2,511,033
1929	2,730,082
1930	2,649,389

The value of imports in 1920, for example, was 772,474 Haikwan taels.¹⁷ The economy as a whole was in a very bad way in the 1920s and 30s, with mass starvation, in rural areas particularly, and then rampant inflation.¹⁸

The potteries suffered badly from taxation and foreign competition as well as from the worsening economic conditions. Machine-made ceramics were put on the market by Japanese- and British-owned firms in Shanghai,¹⁹ and these were in direct competition with firms in Jingdezhen who were attempting to spread their production into the electrical and chemical ceramic fields.²⁰ The plight of the industry attracted the attention of many officials, journalists and others, and a number of investigations were carried out and plans made for the modernisation and improvement of the potteries. While Sun Yat-sen was President of the Republic it was suggested that a new harbour be built in Poyang, on the Lake, and the industry moved there from Jingdezhen, and a detailed plan was drawn up for the years 1929-35 for reform and modernisation. A large number of newspaper and magazine articles examined the industry's decline,²¹ and in 1929 a Jiangxi Pottery Bureau was established to carry out the reforms.²² Some new processes were tried out in the Industrial Laboratory founded in Nanchang in the same year, but little in fact was done to revive the industry.²³

The most interesting and fullest of the reports and investigations produced in the 1930s was one written in 1934 by Du Zhongyuan (1895-1943), a liberal journalist. In 1928, he had set up a mechanised pottery factory in Liaoning, where output rose from 500,000 pieces in that year to ten million in 1931. When it was seized by the Japanese in that year, Du fled to Shanghai where he wrote for the liberal press before moving to Jiangxi in 1934.²⁴ He was asked to investigate the porcelain industry and published the report which is given in summary below - it indicates the problems of the industry in the 1930s and some of the measures that were being considered to improve the situation. Du was instructed by the Jiangxi provincial authorities to go to Jingdezhen and investigate the decline of the industry. His report was produced to give his findings and suggest reforms.

Black smoke, he said, was visible several miles from the town, but as they neared Jingdezhen the party could see for themselves how much the industry had declined; only ten or twenty per cent of the chimneys were smoking. Du's companion, Mr Yang, told him about the size of the industry in its most successful period, and the process of manufacture in the town had been explained to him before his visit. A new-style pottery that he examined was making both the saggars and porcelain bodies by machine as well as by hand. It was divided into six sections: raw material; saggars; body; glaze and decoration; firing; checking and packing; but in smaller concerns the kilns and workshops were still separate. There were still saggars specialists, decorators and packers. Materials were bought through middlemen, and this supply was monopolised by four families, the Wu, Li, Liu and Rao families.

The body makers worked three men to a team, and each team made something like 170 pieces a day. This was the traditional organisation. For the firing, potters rented space in somebody else's kiln and a 'fuel fee' had to be paid beforehand, but the kiln owners took no responsibility for the success or failure of the firing, often leaving only a few men in charge. The kiln owners combined to restrict the number of firings and to keep hiring fees as high as possible, so the bodymakers suffered. The number of bodymaking firms dropped from 4,000 to 1,000 in the few years before 1934, and the number of men employed in them from 200,000 to 40,000.

The town in general, he felt, was in a very bad way. Roads were in bad repair. The people were cadaverous and suffered from all kinds of diseases. Opium addiction and prostitution were rife. Sanitation was abominable. There were tens of thousands of illiterates. His description agrees closely with Franck's account quoted above.

To relieve the town's distress, Du called for the government to do a number of things:

- (1) Found a specialist body to manage the potteries.
- (2) Set up a specialised raw material plant to regulate prices and quality in supplying the kiln owners.
- (3) Start a model factory on co-operative, profit-sharing lines with modern methods and a coal kiln.
- (4) Organise a commercial co-operative for sales and transport costs.
- (5) Reform communications, particularly in developing rail transport and combining porcelain marketing with outlets for Qimen and Wuyuan tea.

Du concluded his report by asking that the education and hygiene of the workers should also be examined, and gave estimated costs for the projects he had outlined.

	<u>Yuan</u>
Raw Material Plant	100,000
Model Factory	200,000
Co-operatives	150,000
Educational Grant and Research Plant	50,000
Official Organisation	20,000

An attempt was made to implement the recommendations of the report. The Jiangxi Pottery Management Bureau was set up in 1934 with Du Zhongyuan heading it. A number of tasks were assigned to it, but the most significant was the founding of a modern factory in Jiujiang, which was thought to be a better site than Jingdezhen as communications and

commercial organisation were more satisfactory. 220,000 yuan was spent on constructing the factory for the new company which was known as the Jiangxi Guangda Porcelain Company 江西光大瓷業公司, and 179,621 yuan on machinery. The installations were completed, but Du was imprisoned in 1936 because of his articles in New Life, and in 1937 the plant and machinery were seized by the Japanese. The factory never started production.²⁵

This was really the last attempt to modernise the pottery industry before 1949. The anti-Japanese war and the ensuing Civil War prevented further reforms. There were a number of strikes in the early forties, but no progress at all was made. When Agnes Smedley passed through Jingdezhen in 1943, she was struck by the backwardness of the town; her account of labour conditions will be found in Chapter XI.

As the nationalist regime came to an end, a tide of economic chaos swept the country. Inflation, which had begun before the war, had reached alarming and uncontrollable proportions by the 1940s.²⁶ None of the progressive ideas or plans for modernisation stood the slightest chance of implementation.

PART II

CHAPTER VI

Raw Materials

The essential raw materials for porcelain manufacture are china clay (kaolin), china stone (petuntse), glaze materials, colouring, and fuel for firing the kilns. Both china clay and china stone are formed when certain crystalline igneous rocks known as feldspars (or feldspars) are decomposed by the action of sun, wind and rain.

"Igneous rocks are so called because they were formed deep in the earth among the fiery regions. They owe their crystalline structure to the great length of time which elapsed between their molten and their solid state. Quartz, orthoclase and plagioclase took aeons of time to separate themselves and grow into the interwoven pattern of crystals, which form an igneous rock.

"The sun, wind and rain, acting upon these rocks, dissolve the less stable ingredients. So the feldspars, orthoclase and plagioclase are gradually reduced to a powder which consists of minute crystalline particles of alumina and silica. This powder is washed by rain from the hillsides down to the valleys, where it lies to mature and become kaolin, or china clay. The quartz crystals, being more stable, are left behind. So, to state the case simply, kaolin is decomposed igneous rock from which the free quartz has been removed."¹

China stone is the same substance, but collected earlier, before the quartz component has been deposited, and the two mixed in the correct proportions form the porcelain body.²

China Clay

China clay, which is also known as white earth, baitu 白土, porcelain earth, citu 瓷土 or kaolin, gaolingt 高岭土, is a white sticky earth with traces of grey or yellow. A seventeenth century gazetteer describes it as a "firm, sticky earth, uniform in consistency, containing black streaks and sugar-like specks of white."³ It is

"white-firing plastic clay first discovered and used by the Chinese potters. Compounded of silica (50%), alumina (30%), potassium (2.5%), approximations only, the rest being made up of iron oxides, manganese oxide, lime, magnesium and sodium, as well as water, which is lost in firing. The proportions of the constituents especially those of iron oxide, manganese oxide and sodium vary from one source to another."⁴

China clay is the plastic component of the body, and renders the mixture malleable. The common name 'kaolin' is a corruption of gaoling - Kao-ling in the Wade-Giles romanisation - the name of a village in Fouliang where the clay was originally discovered.

"Kaoling is in origin the name of a hill to the east of the city. Here they take earth to make into briquettes. Originally this business was confined to four families - the Wangs, the Hos, the Fengs and the Fangs. Today the Wu township supplies most of the workers."⁵

However, this source was eventually replaced by clays from Xingzi xian, which was opened during the Qing dynasty and remained the most important supplier right up to the twentieth century.⁶ In 1958, an economic geography of the area stated that china clay was found in the counties of Fouliang, Xingzi, Poyang, Yugan and Leping in the north, and Pingxiang in the south.⁷

The following table shows the percentage composition of a sample of clay taken from Xingzi county and analysed in 1958:

	%
SiO ₂	53.78
Al ₂ O ₃	34.74
Fe ₂ O ₃	1.16
CaO	0.19
MgO	0.2
KO	3.88
NaO	0.29

and about 5% impurities.⁸

Of these, the most important are the first two, silica and alumina, which are usually represented as a compound containing water: $Al_2O_3 \cdot 2SiO_2 \cdot 2H_2O$

After the clay has been mined it is washed to remove traces of quartz and mica and then precipitated again to be made into bricks for sale.⁹

China Stone

China stone, cishi 瓷石, also known as petuntse, baidunzi 白石子 or white briquettes, from the form in which it is sold, is the "feldspathic, non-plastic, vitrifying ingredient essential for the manufacture of white porcelain and of the glazes used for this type of ware," the part of the mixture that fuses the body at high temperature.¹⁰ It is found as a white rock with traces of yellow, green grey or even dark red colouring. The analysis of a sample of china stone taken from Qimen in 1958 is given below, but the composition varies greatly, and this influences the fusability and thus the firing temperature.

	%
SiO ₂	74.64
Al ₂ O ₃	14.79
Fe ₂ O ₃	0.39
CaO	1.96
MgO	0.39
KO	3.93
NaO	0.62 ¹¹

The china stone used in Jingdezhen is found at various sites in Fouliang xian such as Sanbaopeng and Dongliu, and also at Yugan and Wuyuan further away. Because it occurs as a rock, rather than a deposit like china clay, it must be powdered before use, usually by water-powered hammers. The powder is washed and dried, and the resulting precipitate is made into briquettes, the 'tuntse' (dunzi) which are stamped with the mark of the producing firm and sold to the brokers who supply the potters.¹²

China stone is also the mineral component of glaze. The stone, powdered finely and known as glazefruit, yuguo 釉果 is mixed with a solution of glaze ash. The ash is produced by burning layers of limestone and fern together, and is mainly calcium carbonate, although it does contain some quartz and sodium. Leping, 140 li south of Jingdezhen, was traditionally one of the most important producers of glaze ash.¹³

"In the third year of Jiajing (1524) this material was also produced by nearby Leping district. The Wus put up sheds where they pounded it and made it into briquettes, which were larger than those made at Yaili (Macang). Potters who tried them found them rather good. At first the producers shipped [the material] to Nanjiakou and bribed the men living to the east of the town to load it onto boats in the Eastern Harbour for shipment to Jingdezhen. There it was sold in place of Yaoli 'glaze fruit'. Today [1815] it is sold openly to the potters."¹⁴

In the 1950s, glaze material was found in the eastern part of Fouliang and the northern part of Poyang.¹⁵

Colouring Materials

There were a large number of sources for colouring materials, depending on the pigment required. The Taolu lists sixteen different glaze pigments and gives the method of preparing each one. For example, a pure white glaze was obtained by mixing glaze water and purified ashes, and a kingfisher coloured glaze from a mixture of copper and saltpetre solutions.¹⁶ However the most famous porcelains, blue-and-white and underglaze red for example, were decorated

with solutions of metal salts under the glaze. The colour was produced either by oxidation or by reduction of the chemical salts during firing, so the temperature had to be carefully controlled to produce the correct flame. An oxidising kiln could contain a higher proportion of oxygen, but in a reducing flame the amount of air had to be restricted. The blue in blue-and-white was produced by converting cobalt oxide in a reducing flame to cobalt silicate.¹⁷ There were some local sources of cobalt, but these were generally of low quality and up to the Xuande period (1426-1435) all cobalt for blue and white wares was imported. To meet the demand for high quality colouring, cobalt oxides were imported through the East Indies and were known as Mohammedan Blue, huiqing 回青 or Sumatra Blue, Suniboqing 蘇泥渤青, although some may well have come from as far away as the Middle East. This blue material was very costly and was generally reserved for official and imperial wares. Some however did get stolen, in spite of strict security measures, and found its way onto the open market.¹⁸

Underglaze red decoration needed copper oxide salts which were reduced to free copper in the furnace. The quality of the finished decoration depended on the purity of the material used, and the type of flame in the kiln. For example, iron oxides were often present as impurities, and if they were oxidised by a furnace being opened too early, pots might turn yellow.¹⁹

Fuel

The fuel was almost as important as the material that went into making the pots. It was essential to have kindling that produced high, easily controllable temperatures and did not damage the porcelain. Potters consider that light, resinous woods are best, as they produce a long flame and contain none of the impurities, such as sulphur,

that can discolour pots.²⁰ Jingdezhen was fortunate in that it was surrounded by thickly wooded hills which produced enough pinewood and brushwood, for fine and coarser ware respectively, to last for centuries. By far the larger part of these forests was "made up of coniferous trees, notably cunninghamia fir and pine."²¹ Large quantities of fuel were used, one firing consuming up to 180 loads of pine fuel, each load weighing about 133 lbs.²²

However, by the end of the Qing dynasty the local hills were so seriously depleted that timber had to be brought from further afield.²³ By the 1920s the wood was so precious that people in the town were fined if they burned pine for domestic purposes,²⁴ and since 1949 reforestation has been one of the most important tasks in North East Jiangxi.²⁵ In addition to supplying the kindling for kilns, the forests around Jingdezhen have constantly been drawn on for ship-building, barrowmaking, potters' wheels and the general carpentry needed by the potteries.

At the end of the Qing dynasty, and the beginning of the Republic, a number of experiments in coal-firing kilns were started. Most of the coal for these early trials was taken from the Dongjiashan mine near Wuyuan which was just being developed. It was highly suitable for porcelain as it had a very low proportion of sulphur, and in 1955 it was estimated that the proposed conversion to coal kilns would save the industry 20% a year on costs.²⁶

The pottery industry began in the Jingdezhen area mainly because of this abundant supply of suitable clay, glaze material and fuel in the surrounding hills, and the high quality of the materials made possible the development of stoneware and fine porcelain as well as the coarser, everyday pottery. During the Tang (618-907) and Song

dynasties, although a great deal of high quality porcelain was made, the potteries were only a secondary occupation. Agriculture was the main source of income and potters were scattered about, living on their own or their landlords' farms. Because the manufacture of porcelain was on such a small scale and was so decentralised, it was not necessary to organise the transport of materials over long distances so local sources were used and kilns built near them.²⁷ Examples of this type of kiln have been excavated at Shihiwan, Nanshan, Sanbaopeng and Liujiawan, all in the area immediately surrounding Jingdezhen.²⁸

As the industry expanded and became more specialised, it became possible to make better use of the available resources. During the Yuan dynasty a number of new sources of clays were developed, although only one of these, that at Ma'anshan, has been worked right up to the present day.²⁹ The pattern of the usage of raw materials was changing rapidly, but particularly so during the middle part of the Ming dynasty, the fifteenth and sixteenth centuries, when the industry, and indeed the whole economy, was undergoing a radical transformation. Porcelain manufacture had become highly specialised and was no longer simply an adjunct of agriculture, and the older kilns were falling into disuse as production became concentrated in Jingdezhen itself. The success of the industry stimulated a demand for the highest quality pieces, both for imperial orders and commercial marketing, so the potters had to look for raw materials of an appropriate standard. For example, during the Wanli period (1573-1619), clays were brought from Wumentuo and the Qimen to supplement the main source at Ma'anshan, which was in any case thought to be failing.³⁰ However, sites in the Ma'anshan area were still considered to be producing good material in the late seventeenth century.³¹ Potters could now afford to look further afield and pay the higher prices and transport costs for the clays and glaze that they needed. As new and better sources were found,

the area of supply expanded, reaching its maximum size by the middle of the Qing dynasty.³²

Although the clays were used to make official ware, none of the raw material supplies were controlled by the state. An attempt by brokers in Wanli 32 (1604) to have kaolin declared official property failed. The local officials decided that since all the earth was owned by the emperor anyway, no special designation was required for clays, and the supplies remained in private hands.³³

Only the coarsest clay, used for making saggars, was found near Jingdezhen. For the better material, the nearest site was about 70 li away, and the furthest over four hundred. Clays were brought in from Wuyuan to the east, Yugan near the southern tip of the Poyang Lake, and Qimen, over the border in Anhui, but most of the sites were in the eastern part of Fouliang xian.³⁴

Jingdezhen was endowed with a number of natural advantages, the availability of fine raw materials locally being one of them, but it was the pottery industry's ability to adapt to the changing patterns of demand, to find new sources as old ones wore out, that enabled it to develop so rapidly in the Ming dynasty. However no real innovations were made in the use of materials or methods throughout the whole imperial period; there was no attempt to mechanise the extraction and processing of the clays or the mixing of the colours. Highly efficient use was made of the resources, within the traditional handicraft framework, and it was only in the twentieth century that experiments began with coal and mechanised methods.

CHAPTER VII

The Manufacturing Process

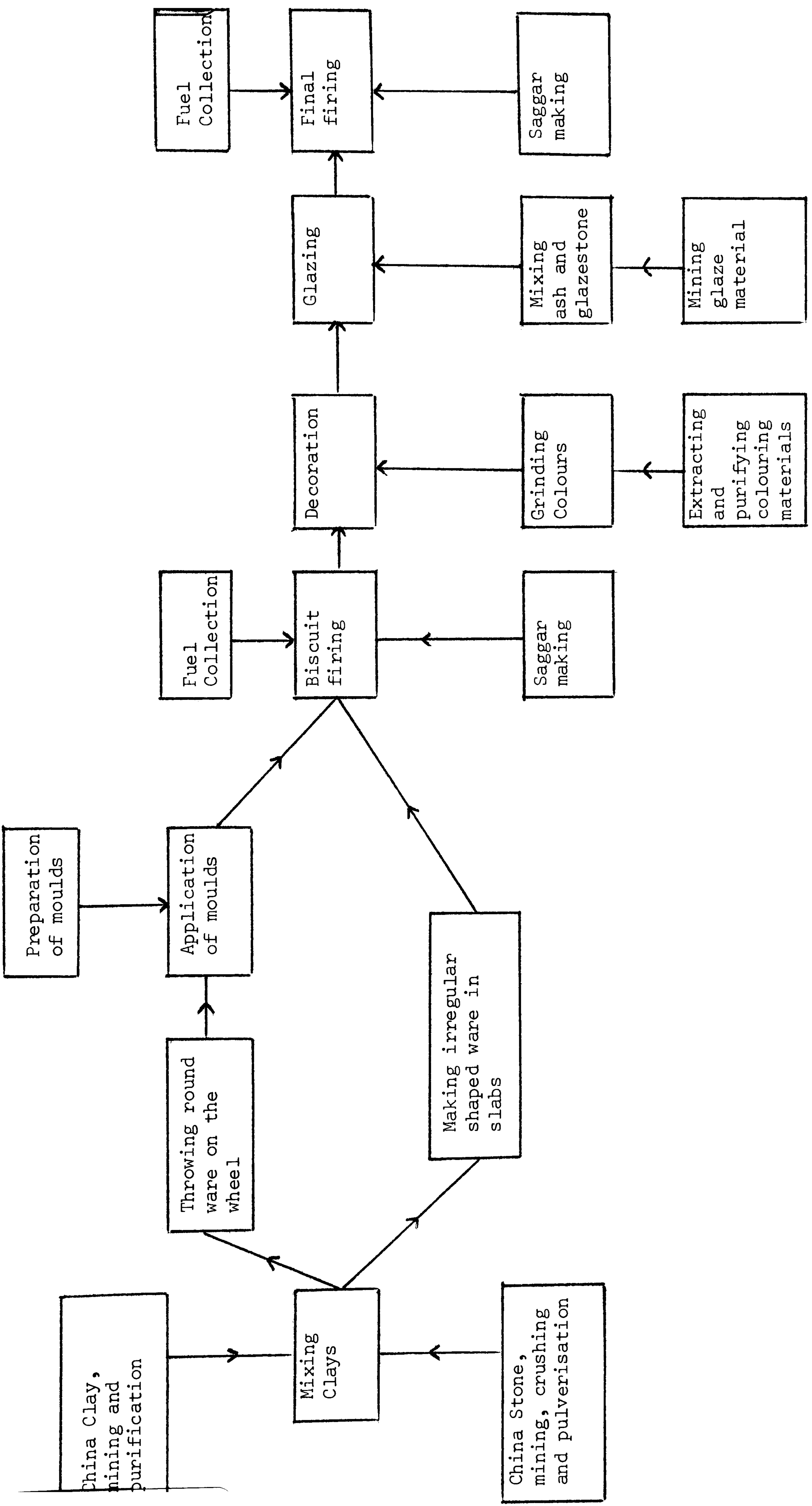
"The present methods of manufacture at Chingtechen appear to be the same in all essentials as we may imagine they were during the Ming dynasty. There is no noticeable change since the publication of the T'ao-lu, in the eighteenth century, if we may judge by its woodcut illustrations, and the description in the text seems to describe almost exactly the present-day methods."¹

So wrote A.D. Brankston in 1938, after a visit to Jingdezhen. There were of course modifications in the methods of manufacturing porcelain, but these were generally minor alterations, refinements of traditional technique or new additions, rather than fundamental changes. Right up until the twentieth century, it remained a handicraft process, and the most important changes were in organisation, notably in the development of a fine division of labour, rather than in technique. An outline of the process as it was for at least six hundred years is shown in the diagram below. As will be shown, the potteries reached a high level of efficiency from the point of view of handicraft technology, but serious attempts at modernisation were never made till the present century, and even then, modern methods did not predominate till after 1949.

1. Preparation of the Clay

The nature and formation of porcelain clays are discussed in Chapter VI and will only be summarised here, but the methods

Outline of the process of porcelain manufacture



of extraction will now be discussed in more detail. The porcelain body, as made in Jingdezhen, is essentially a mixture of kaolin and petuntse which are also known respectively as china clay and china stone. Kaolin is the element that makes the mixture plastic, whereas the non-plastic petuntse is the vitrifying or fusing agent.

The seventeenth century prefectural and county gazetteers of Raozhou and Fouliang hardly discuss the manufacturing process at all; the Raozhou gazetter just says that very deep mines were dug and that many people were killed when they tried to make money out of mining clays.² The following description of the collection of raw materials is taken from the Explanation of the Illustrations of Pottery Manufacture, written by Tang Ying in 1743 at the command of the Qianlong emperor:

"The local people take advantage of the streams flowing down the mountain side and set up water wheels to power crushers. The stones are finely powdered, washed clean, and made up in the shape of clay bricks, which are called pai (white) tun [白不]"³

The process was very similar in 1937:

"Petuntse is obtained outside the town, probably in several districts. Near Hu-t'ien a suitable rock is obtainable, and bricks are made within a few yards of the Sung dynasty kiln sites. The pulverising plant is most primitive. Fragments of rock are placed in rough mortars, which are little else than holes in the ground, and wooden hammers rise and fall by water power until the

rock is crushed to powder. The powder is mixed with water, stirred in tanks and then allowed to settle. The top of the sludge is removed and moulded into bricks which are dried and taken into Chingtechen by wheelbarrow; a slow and tedious process."⁴

The mines were as primitive as the pulverising plant; at Sanbaopeng, china stone was extracted near the top of a hill by digging a horizontal tunnel into the earth and chiselling out the rock which was then roughly broken up before being sold to the crushers."⁵

Relying on the power of nature did, of course, present certain problems.

"In the spring when there is a lot of water each shed can operate all its pestles, but later in the year when there is less water and power is reduced, several pestles are cut out. When the force of the water is even, the pounded earth is dense and fine, but when the water runs slowly and the power is light, the pounded earth tends to be coarse. Consequently the best 'tun-yu' (brick glaze) is that produced in the spring. The raw clay vessels made at that season are also better than later in the year."⁶

Mining the clay was seasonal work. According to Xiang Zhuo and also to Zhang Renren writing in 1918 the work used to begin early in the new year and porcelain was supplied from the third month till the eighth. In later years the supply exceeded the demand and the price fell, so the season was shortened. Pounding the stone

then began in the third month, and clay was supplied from the fifth to the seventh month.⁷

The potters bought the clay from the crushers through brokers, and mixed the kaolin and petuntse in ratios ranging from equal proportions for the finest quality to one of kaolin to three of petuntse for the coarsest.⁸ The mixture then had to be purified; after being pounded for a day it was placed in a large water jar.

"The fine particles suspended in the upper part of the water column are poured into a second jar, whereas the coarse particles settle on the bottom of the first jar. The particles in the second jar are further classified to result in a suspension of superfine material, which is poured into a third jar. The particles that sink to the bottom [of the second jar] are called medium-sized material. After decantation, the fine-sized clay pulp is poured into an oblong ditch built of bricks beside the kilns, so that clay pulp can be dried with the help of the [surplus] heat. The dried clay is again mixed with clear water to form a paste, which is used for making the body of porcelain ware."⁹

The Ming ditch was replaced during the Qing dynasty by a 'horsehair sieve' and a 'bag made of two thicknesses of silk.' The water was then drained off and pressed out by placing the clay between bricks in wooden boxes.¹⁰ Before the shaping of the clay, it had to be:

"pounded and kneaded till it is of an even plasticity and the air bubbles are removed. Then it is made into loaves and passed on to the potter who sits by the wheel."¹¹

The preparation of the clays, like nearly all of the manufacture, was virtually unchanged between the writing of the Tiangongkaiwu in 1637 and A.D. Brankston's visit in 1937; it was a long, tedious process, done throughout by hand.

2. Preparing Moulds

Fine, accurately proportioned pieces could be made directly on the wheel by a skilled potter, but to ensure uniformity, especially in sets, it was necessary to use moulds, which were made out of coarse clay, either "whole or in two sections, cut vertically or across."¹²

In 1743 Tang Ying described their use:

"In the manufacture of round ware, each several form has to be repeated thousands or hundreds of times, and without moulds it would be most difficult to make the pieces all alike. The moulds must be made after the pattern required, but the size cannot be exactly measured, because the paste, which before the firing is expanded and loose in texture, contracts and solidifies during the process till it be only seven- or eight-tenths of its original volume. This follows from the laws of nature. The proper proportionate size of the unbaked porcelain depends upon that of the moulds, therefore the moulders use the term fix,

not that of make. If each mould be not repaired constantly, the size and form of the pieces as they are taken out will certainly vary indefinitely. A good practised knowledge both of the length of firing and of the nature of the paste is required, before it be possible to estimate the amount of decrease in size, so as to fix the proper form of the moulds. Only three or four of the workmen throughout the whole district are reckoned really clever hands."¹³

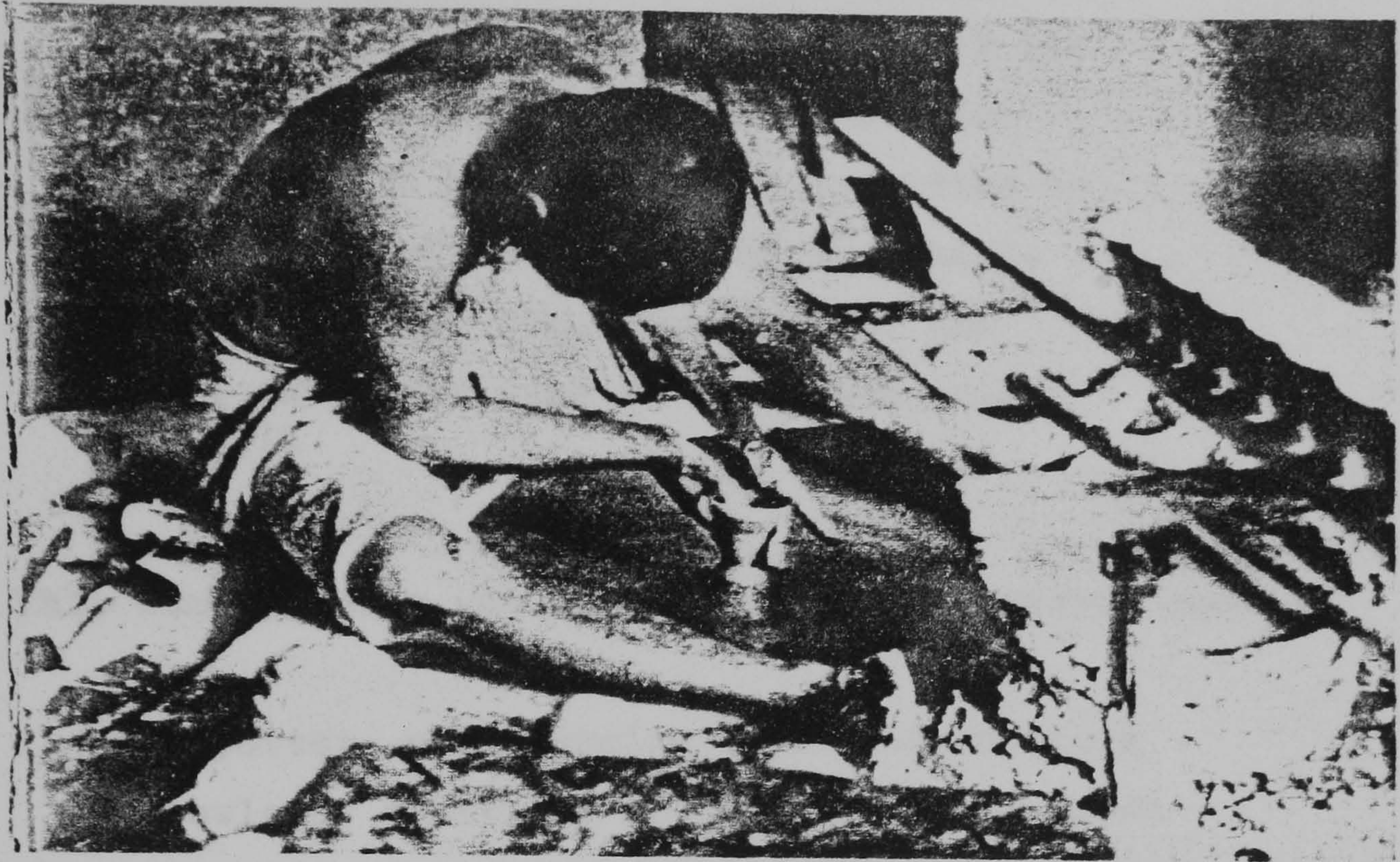
Preparing the moulds was clearly a skilled job, and moulds often had to be corrected several times before a finished article of the right size could be produced.

3. Throwing Round Ware

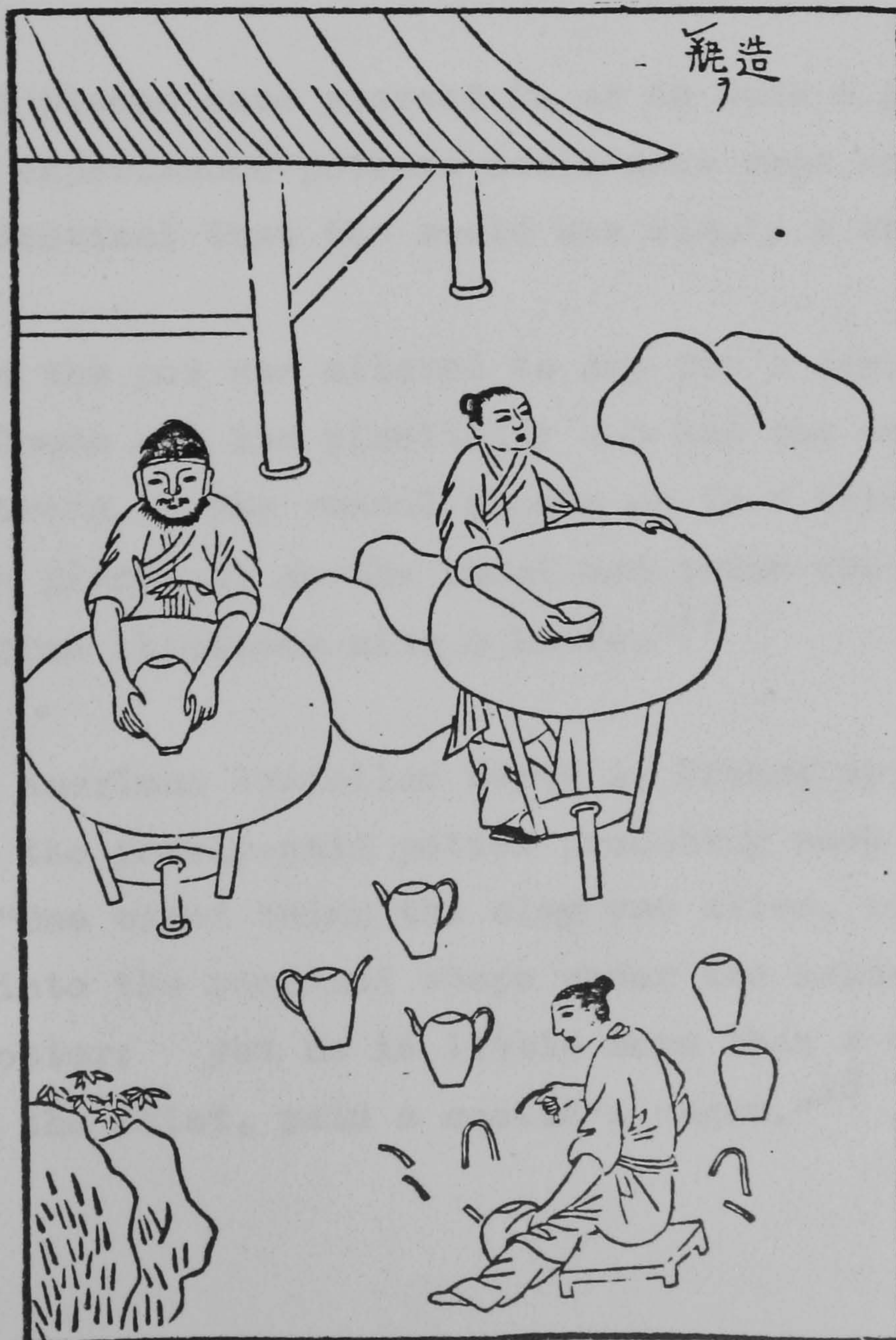
Round ware has always been more common than non-uniform, angular pieces. In Ming times, it was estimated to have constituted "nine-tenths of all porcelain made, and consisting of dishes, cups and the like in everyday use."¹⁴

According to Tang Ying,

"The round dishes, bowls, cups and plates are divided among two classes of workmen, one of which takes the large pieces of one to three feet in diameter, the other the small pieces measuring less than a foot across. The wheel, which is like a round wooden plate, is fixed so as to turn on a perpendicular axle and revolves continuously for a long time, so that the paste is turned properly without becoming too thick, too thin, flattened or misshapen. There is a



Throwing Cups in the 1930s



Ming Potters
Making Jars

carpenter at hand to repair it when necessary. There are also workmen to knead the paste to a uniform consistence and put it on the table. The turner sits upon the frame and turns the wheel with a bamboo staff. After the wheel has been set in motion he moulds the paste with his hands, and according to the rapidity of the motion of the wheel, and the heavy or light pressure of the hands, the round ware is fashioned into shape."¹⁵

This same process was still used in the present century:

"The potter, with amazing skill, throws cups or bowls of identical shape and size in quick succession. These he places on a long plank which is then carried to a second man who presses the vessel over a mould of the exact shape required."¹⁶

All round pieces were pressed in or on such a prepared mould, although experienced potters could make cups and bowls so nearly identical that the mould was simply a check.

Then the pot was allowed to dry for a day, "by which time it loses all its plasticity and has the consistency of shortbread. The vessel passes on to a third worker who again places it on the wheel and trims the surface to the required thickness with a knife."¹⁷

The American traveller Harry A. Franck appreciated the irony of the poorly-paid potter producing such high quality work. "One might think the clay was alive, to see it come up into the required shape under the expert hands of the potter; yet he is little more than a coolie, naked to the waist, paid a coolie's wages."¹⁸

Franck's description of the throwing is more vivid than Brankston's:

"From these [vats] the potter takes a lump of the size needed for what he is making, slaps it upon his "wheel", gives it a whirl by means of a stick thrust into a hole, lays aside the stick, and sets to work. So great is the centrifugal force of the flat, round, whirling platform down a kind of pit in which hang the potter's bare feet that he often has the vessel shaped with his hands, shaved smooth with a stick or some other simple implement, and ready for the kilns before it stops whirling."¹⁹

4. Ornamental Ware

"Square, polygonal, ribbed and angular pieces are worked into shape by joining, by chiselling, by moulding, and by carving... [The paste] was wrapped up in cotton and pressed with boards into slabs, which are cut with the knife into sections, cemented together with some of the original paste mixed with water."²⁰

This method of manufacture was one of the rare Qing innovations, though some pieces were still made by the Ming method of casting the clay into moulds. "Such articles as vases, jugs, incense burners, boxes and the like which are not uniform in shape,"²¹ were made in this way.

These large angular pieces posed the greatest problems for the potters as they often came out of the kiln "misshapen or fractured, and rarely quite perfect."²²

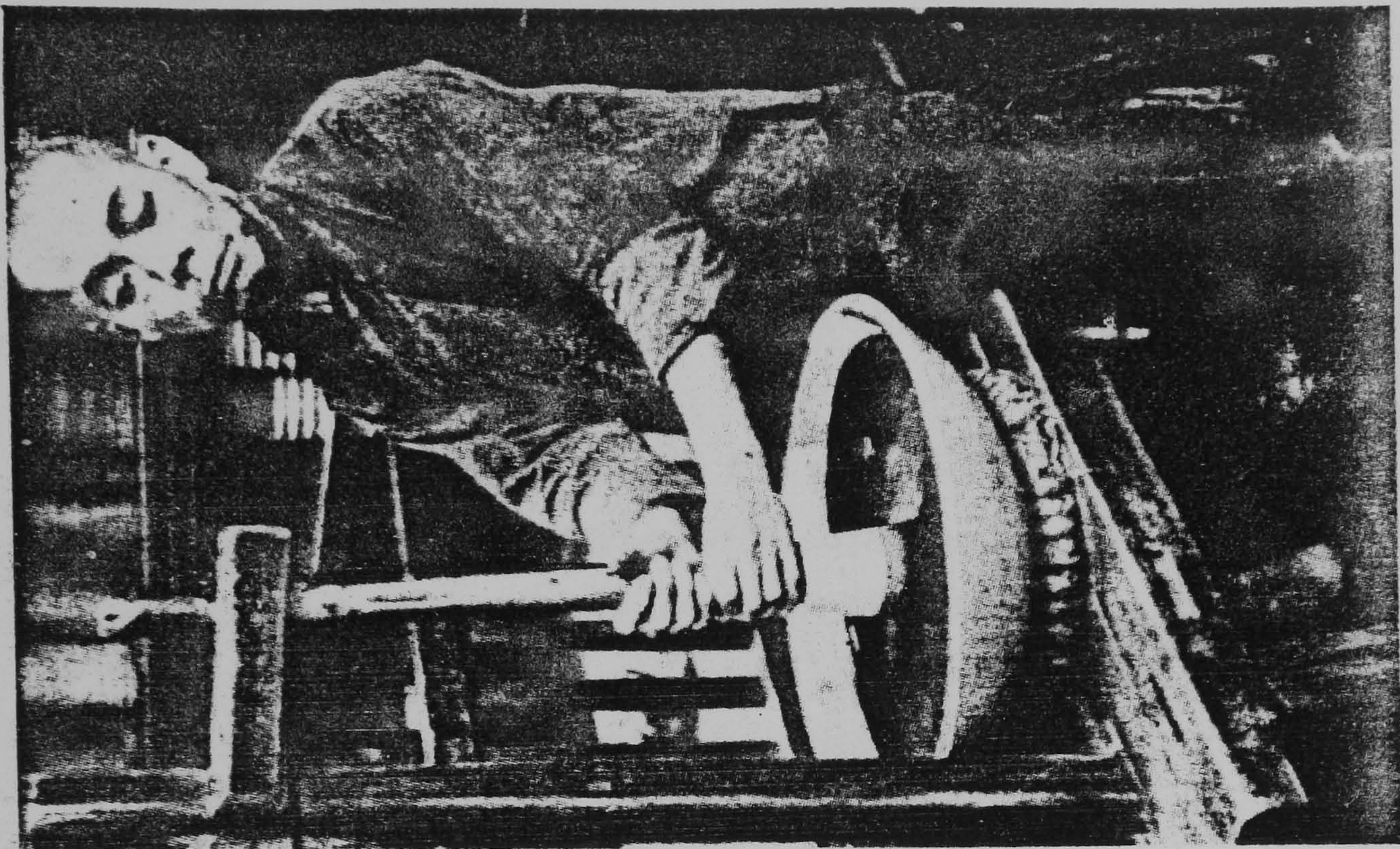
It was much more difficult to keep the same consistency and thickness of clay than in round wares made in one piece on the wheel, so unequal expansion could easily lead to cracking. However, these ornamental wares were greatly prized, particularly at court.

"In the yihai year of the Shunzhi reign (1659) an official of the Department of Works was sent to have made balustrades, dragon bowls and other pieces. Because a long time was spent on them without success, governor Zhang petitioned the emperor to be allowed to stop the work. This was agreed."²³

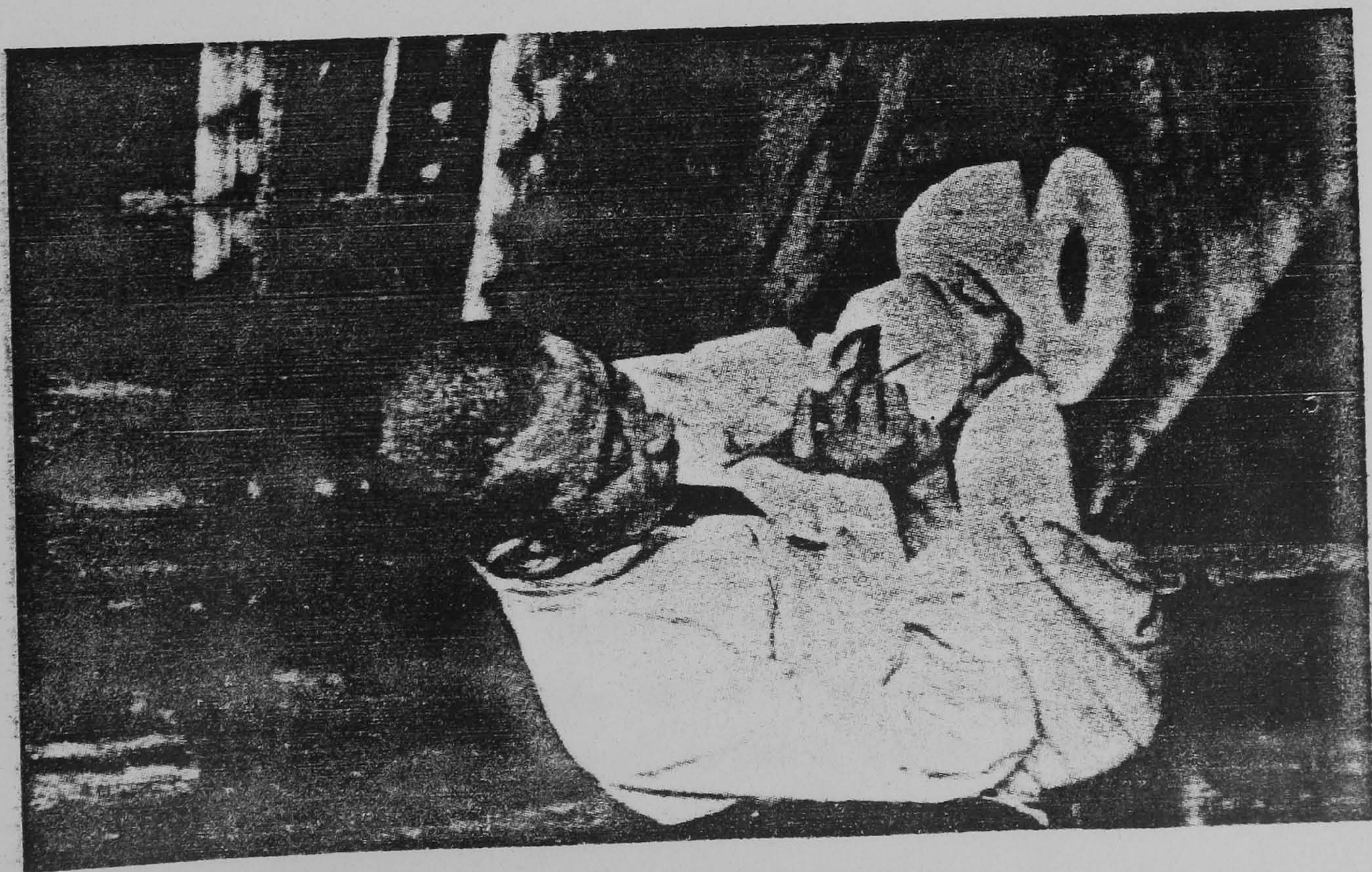
Even experienced potters found difficulty with these orders, but dragon jars were later made successfully.

5. Decoration

Many different types and styles of decoration have been used in Jindezhen over the years, and the details of the different colours and the methods used to obtain them are more the province of the art historian than the student of industrial history. Some pieces were glazed and fired then decorated and fired again; others were painted under the glaze, and some porcelain was embossed, white paste being "attached to the pieces and worked in relief into the desired shape with the brush,"²⁴ or engraved, the design "cut upon the pieces before baking, with the graving tool."²⁵ An examination of one type of decorated ware - probably the most famous, blue-and-white ware - will



Grinding Cobalt Blue



Engraving on a Dish

suffice to show the kind of technique involved.

Blue-and-white was not a Ming innovation as it had been used considerably during the Yuan dynasty, but by the Ming dynasty it had largely replaced the monochromes that had been popular since the Song.

Song Yingxing in 1637 recorded that three grades of cobalt oxide used in the blue colouring were readily obtainable in the area; a high quality pigment from Zhejiang, and less good from Jiangxi and Guangdong.²⁶ However the best material of all was imported, cobalt salts which were used under the name of Mohammedan blue, often in combination with locally acquired material.

"If the Mohammedan blue were used on its own, the pigment would run, but if too much local blue were used, the colour would not be bright enough,"²⁷

so the two types were used in various mixtures to produce bright and stable pigments. /

The quality of blue-and-white porcelain depended very much on the availability of imported cobalt salts and the highest quality comes from the periods when Mohammedan blue was available, such as the Xuande reign (1426-35). Supplies of cobalt came via Sumatra and other places through Arab and Chinese traders, a by-product of the voyages of Zheng He at the beginning of the fifteenth century. By the Wanli reign (1573-1620), supplies of this finer material had dried up, although occasional consignments did get through, one arriving via the governor of Yunnan. Imported cobalt and the better quality local salts went, not surprisingly, to produce imperial wares. The Wanli private kilns got poorer quality salts and in smaller quantities.²⁸ When the supply failed

underglaze red decoration was often used instead for imperial porcelain as in the Chenghua reign (1465-87).²⁹ Blue pigment was extremely expensive, and elaborate precautions were taken to make sure none was stolen or misused. In the Kangxi reign (1662-1722) of the Qing dynasty painting was done twice a day, in the morning and afternoon, the workers were gathered together and the materials distributed with a careful check being made on the quantities issued.³⁰

A special group of workmen was responsible for the selection and preparation of the blue material.

"Ten ounces of the material are put into each mortar and ground by special workmen in the mortars for a whole month before being fit to be used. The mortars employed for grinding are placed on low benches. To the benches are fixed upright wooden poles, which support the horizontal pieces of wood pierced to hold the handles of the pestles. The men seated on the bench hold the pestles and keep revolving them."³¹

Much the same method was employed in 1926, and provided a living for many of the local blind and disabled who were always found some work in Jingdezhen.

"They sit in rows, usually four or five of them on one side of a wide-open shop given also to other forms of commerce, and crush rock-crystals soaking in water in mortars like large stone wash-basins with a heavy pestle fastened at the top. Obviously it needs arms or sight to run a treadmill from dawn to dark years on end in the dough-kneading part of porcelain-making."³²



Painting with Cobalt Blue



Decorating with Cobalt Blue in the Ming Period

All the painting was done by hand with a solution of the ground material and done by specialists either in outlines or in filling-in, so that the men became highly-skilled craftsmen but never artists who could plan and execute a whole design. Nevertheless, the work reached a very high standard, for example in the copying of designs for imperial porcelain from pictures sent down from the court. But Brankston in 1937 concluded that

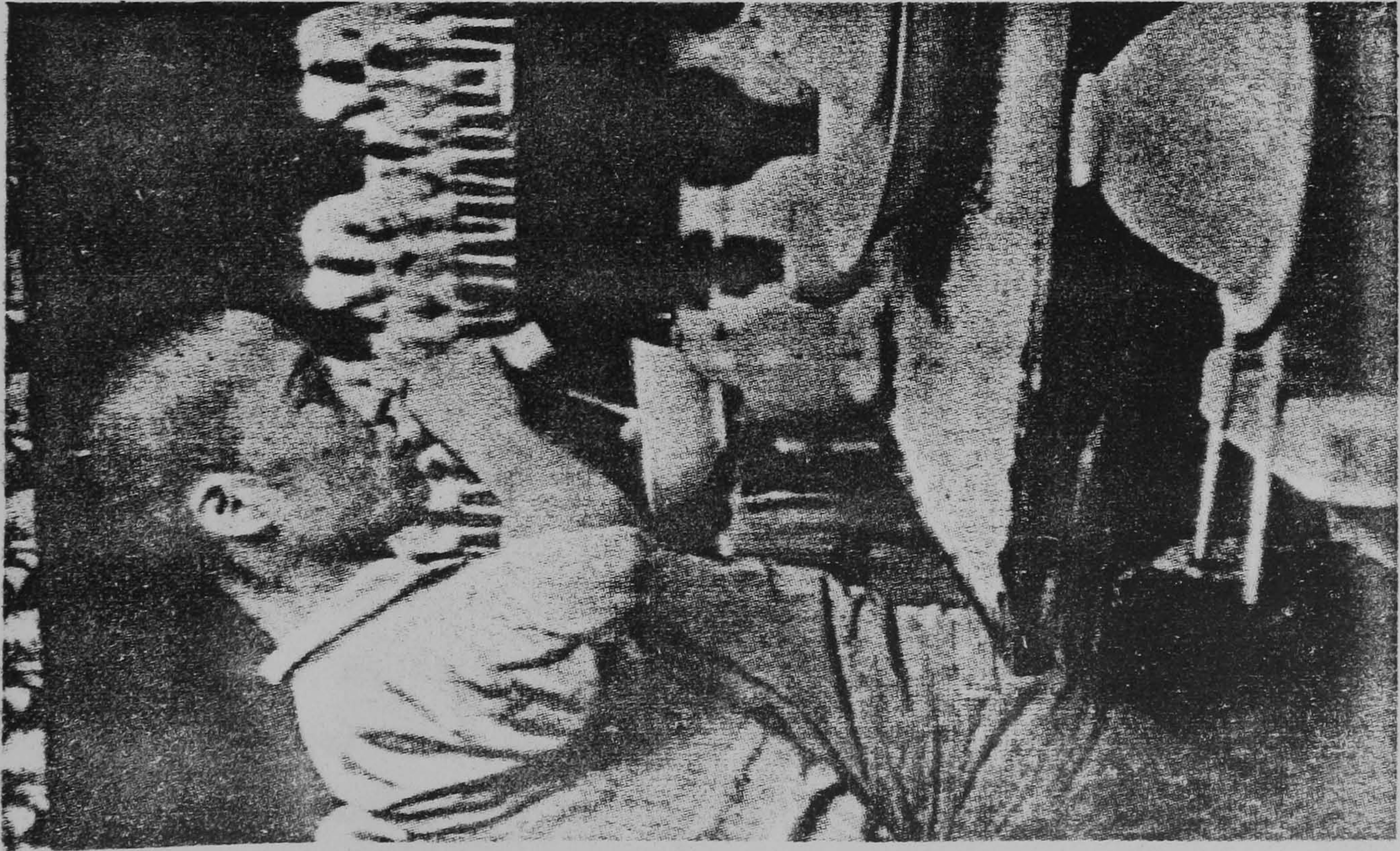
"the decorators are essentially workmen. Their work is obviously laboured and lacks pleasure either in creation or contemplation. They draw with short, careful strokes which could more easily be compared with embroidery than painting."³³

Like all the other parts of the process, decoration was long, tedious and done entirely by hand. There are no records of using transfers or any printing methods to produce multiple designs.

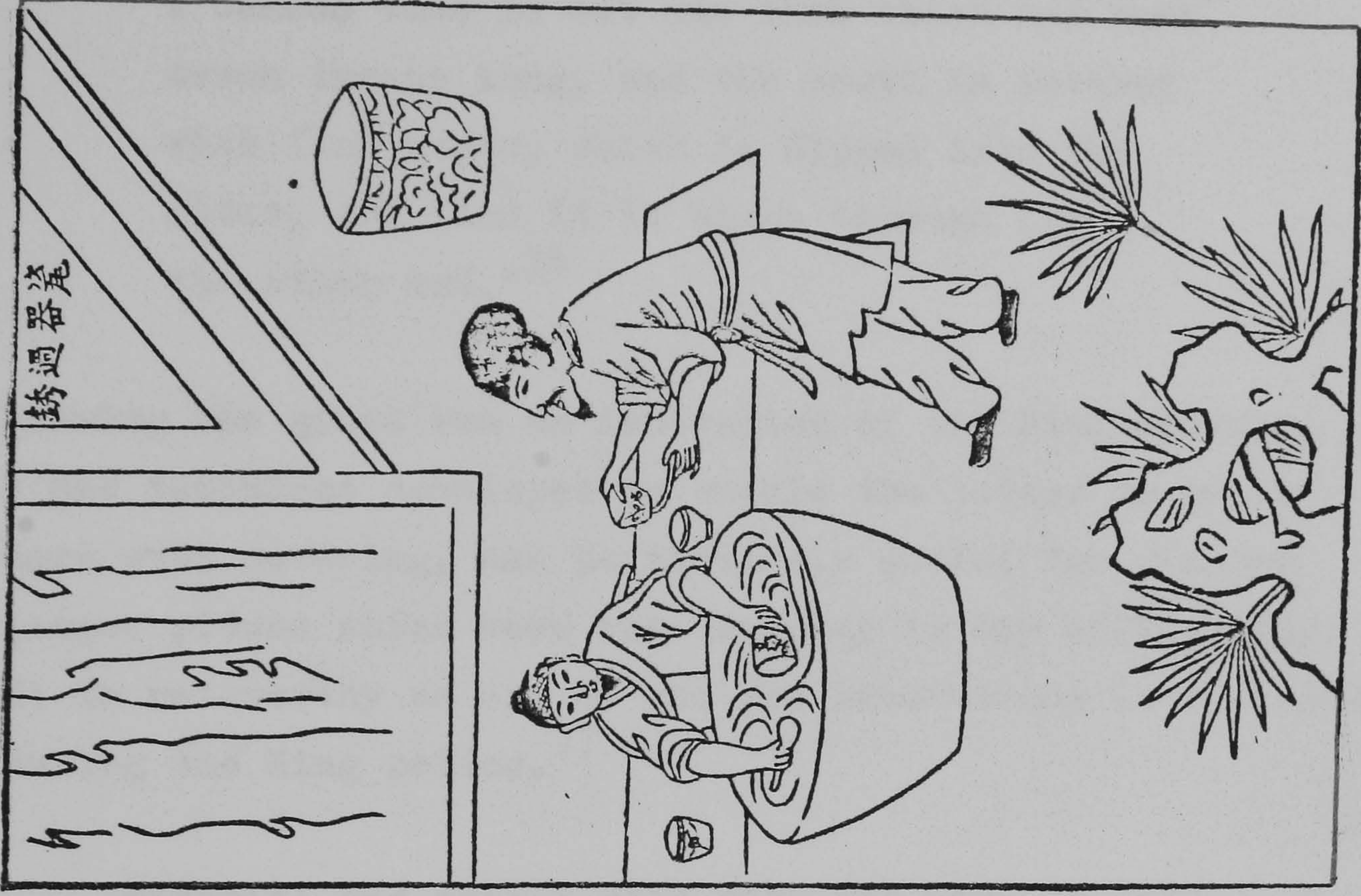
6. Glaze

Glaze provides the protection and lustre for porcelain. That used on white porcelain during the Ming dynasty was made of water, glaze clay, and "the ash of the leaves of the peach-bamboo." First, this liquid was used to rinse out the inside of the vessel, and then the outside was glazed by applying a certain amount of the liquid with the fingers so that it flowed and spread to cover the entire surface.³⁴

According to the Tao Shuo, ashes for the glaze in Qing times were made by burning "a grey-coloured limestone with phoenix-tail plants (ferns)"³⁵ The residue was washed and made into a paste with water and fine petuntse earth stirred up in a large jar.



Spraying a Bowl with
Turquoise Glaze



Dipping Ming Porcelain
in Liquid Glaze

"In the present day [1743] the small round pieces are still dipped into the large jar filled with glaze, but the vases and the larger round vessels are glazed by blowing. A bamboo tube is cut one inch thick and some seven inches long, and the mouth is covered with fine gauze, which is dipped into the glaze, and then it is blown through from the other end."³⁶

Blowing the glaze was an innovation of the Ming dynasty, a new technique developed to enable the potter to get a more even covering, and particularly useful for glazing larger pieces which were too unwieldy to dip efficiently. It is noteworthy as one of the few innovations in technique during the Ming period.³⁷

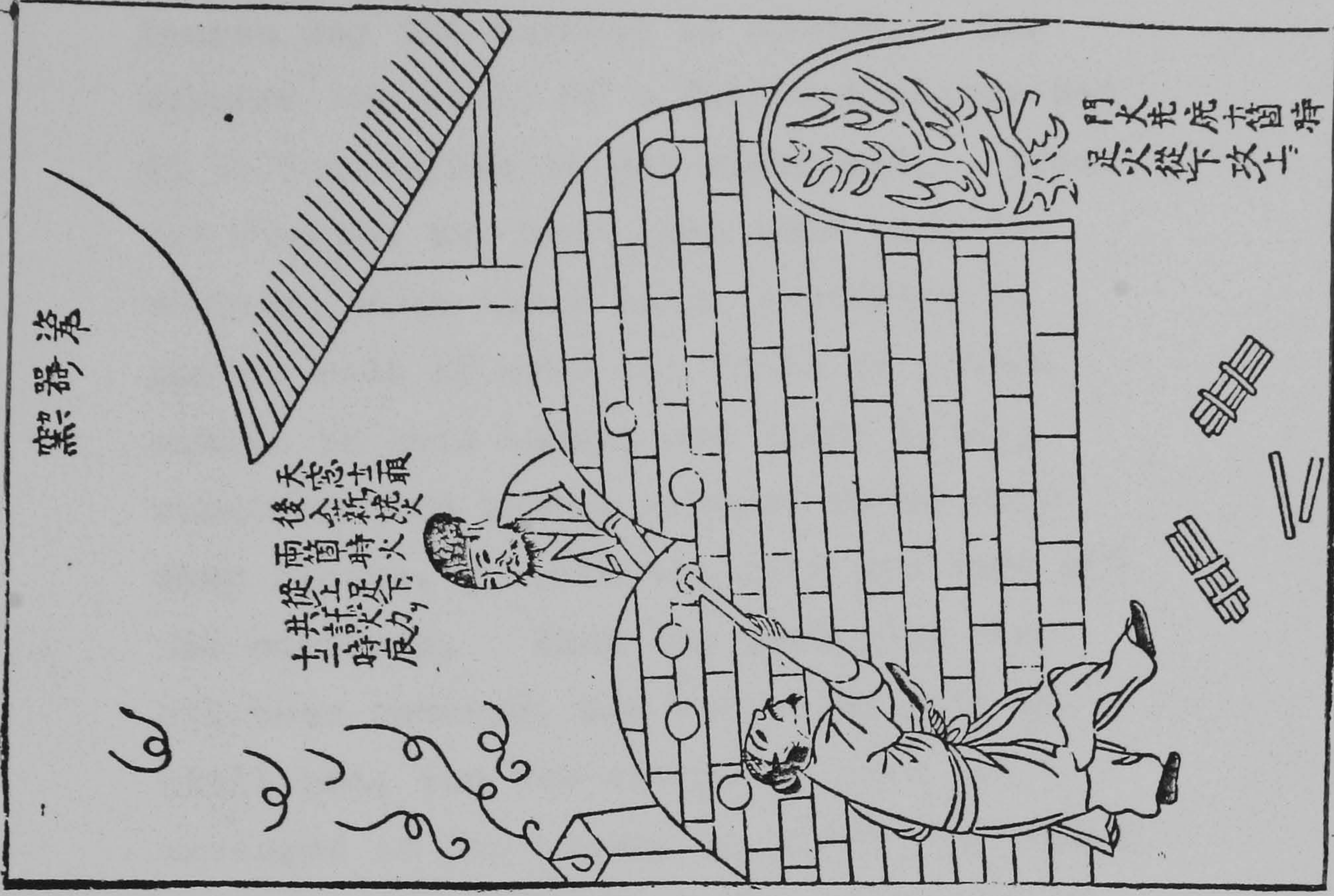
Material and method were much the same in 1937. A "creamy solution of petuntse with the addition of a little lime and wood ashes,"³⁸ was used. Smaller pieces were still dipped or a fine spray of glaze was blown onto the porcelain through a hollow bamboo tube with one end covered with gauze, just as described in the Tao Lu and Tao Shuo.

Firing

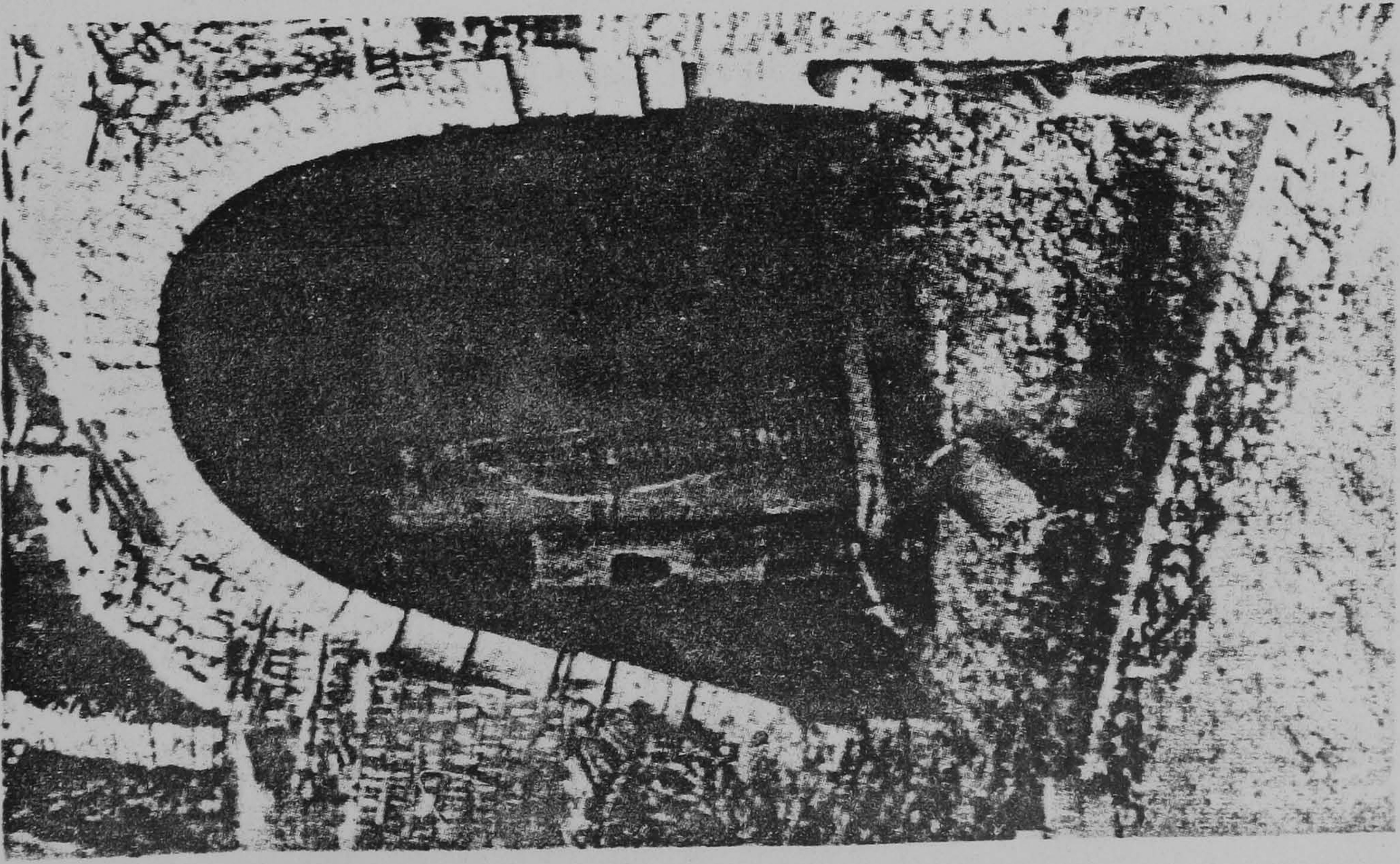
"The skill of the potter and vision of a designer may melt overnight into a twisted heap of clay and glass if the furnace is not kept in control. The most prominent feature at any kiln site, and often the only remaining evidence, are the mounds of waste material; broken saggars, twisted bowls and shapeless lumps of clay and earth."³⁹

Putting the pots into the kiln is the crucial part of the manufacture, and a great deal of time and thought seems to have been spent over the years in controlling it, although the process has remained basically the same for centuries. Tang Ying described this stage as follows:

"The kiln is made long and round and resembles in shape a large water-jar (weng) turned on its side. It is some ten feet in height and breadth, more than twice as much in length. It is covered with a tiled roof like a house, and this building is called the kiln-shed. Behind this is built the chimney, which rises to a height of twenty feet outside the kiln shed. The ware when finished is packed in the seggars, and given to the workmen, who put it in the kiln. They place the seggars in lines, leaving a small interspace for the passage of the flames. The fire is distinguished as front, middle and back, the front fire being fierce, the middle less intense, and the back fire gentle. According to the character of the different kinds of porcelain their place is arranged in the furnace. After it has been charged, the fire is lighted and the entrance of the kiln bricked up, a square hole being left, through which billets of fir-wood are thrown in without intermission. When the seggars have obtained a silvery-red colour (white heat) the firing is stopped, and after the lapse of another twenty-four hours the kiln is opened...



A Ming Porcelain Kiln



A Kiln Being Rebuilt

From the time of putting in to that of taking out of the kiln it takes generally three days, and early on the fourth day the furnace is opened. The seggars are still of a dull red colour and it is impossible to get close yet. After the furnace has been open some time the workmen, with their hands protected by gloves made of over ten folds of cotton soaked in cold water, and their heads, shoulders and backs, wrapped round with damp cloths, go into the kiln and take out the contents. When the porcelain has all been removed, and while the kiln is still hot, the new charge of ware is arranged in its place, in order that being damp it may be dried by the heat, and be less liable to be broken into pieces or cracked by the fire."⁴⁰

Underglaze decorated porcelain had to be fired twice. After the first, 'biscuit', firing, the wares were decorated, glazed and fired again before they were finished.

Ming potters developed larger kilns with greater capacity so that small pieces could be produced more quickly, and larger pieces like 'dragon jars' and 'fish bowls' could also be fired, but the design and method seem little modified by the twentieth century.⁴¹ As in the case of many of the other trades connected with the porcelain industry, the building and repair of kilns was a monopoly, and the techniques passed down from father to son.

"The Wei family, local people, have built kilns for generations, since the Yuan and Ming dynasties. Their technique, which is quite unlike

ordinary bricklaying, is masterly and should be copied."⁴²

A family monopoly such as this militated against technical innovation, so by the twentieth century, kilns were still much the same.

"The kilns are about fifty feet long by twelve feet broad, with a full arched roof eight feet from the floor. At one end is a round chimney, the width of the kiln at its base but tapering considerably towards the top. Several layers of bricks form the body; the chimney, however, is built of a single layer. The end of the kiln where the fire is made is some ten feet higher than the end where the vessels stand, so that the flames shoot downward through piles of porcelain-laden trays and up the chimney, the top of which is cut off at an angle of forty-five degrees to increase the draft. A kiln is used for sixty burnings a year and is then rebuilt.

"When everything is ready for the firing, the end of the kiln is walled up, leaving an opening about two feet square for draft and fuel. For twenty-four hours wood must be supplied continuously; a big kiln uses 150,000 pounds a day. The fire is very fierce, causing a temperature from 1,600° to 2,000°. Seven hours are allowed for the cooling; but the actual length of time that the pieces remain in the furnace varies with the weather. At the far top of the kiln and in the

chimney are holes a foot square, into which a man, who acts as a human thermometer, looks in to determine the heat. His method is simple. He spits into the hole, and if the spit turns to steam, the temperature is not sufficient. When the heat is so great that the saliva is shot back at him with a little explosion, everything is all right.

"Of the porcelain put into the kiln, an average of one third is spoilt in the burning. After cooling, the remaining two-thirds go to the artists."⁴³

There is little difference between this description and the eighteenth century account above.

The seggars were necessary to protect the porcelain from the smoke and to keep it at an even temperature. They were always made in cylindrical cross-section from coarse local clays, and were stacked one on top of the other so that lids were unnecessary. The actual firing took twenty-eight hours for a large kiln burning eight hundred piculs of firewood, or ten to twelve hours for a small one with a load of two hundred and eighty piculs.⁴⁴

The evidence given above easily justifies Brankston's statement about the lack of change in the methods of manufacture which was quoted at the beginning of the chapter. The most important techniques such as the potter's wheel, decorating, glazing and kiln designing were well known long before the Ming dynasty and the only innovations were minor ones such as the techniques of blowing the glaze on.

The reasons for this lack of innovation during the time that Europe was developing into an industrial society with appropriate technological developments are complex and will be discussed in the concluding chapter as will the reasons for the failure of the attempts at mechanisation which took place in the latter part of the Qing dynasty.

CHAPTER VIII

Transport

"The world is composed of people and goods from different localities, yet among them there is constantly a process of journeying back and forth and mutual exchange. If all things remain for ever in the same spot, how is each to find its proper place in the world? There are people who must embark on travels under difficult conditions even though they are men of high rank; and there are things, cheap and common though they be, that are needed by people who must obtain them through commerce."¹

The availability and efficiency of transport is crucial to the development of an industrial centre and the economy in general.

"Good roads, canals and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those in the neighbourhood of the town. They are upon that account the greatest of all improvements."²

Improvements in transport in the Jingdezhen area permitted both the extension of the use of materials, widening the area from which raw materials could be taken, and the expansion of the market for local products, increasing sales and stimulating demand. Both of these consequences were of particular importance in the spectacular development that

had taken place before this development began, notably during the Song dynasty.³

Transport in pre-modern China was a combination of a highly developed water transport system, so efficient that nothing short of the introduction of steam could effect a major improvement, and a road system largely neglected and underdeveloped because of the cheapness and accessibility of the rivers.

In South China, it is the rivers that are the main arteries of communication. Song Yingxing stated that "in our empire, southerners rely on the boat and northerners the cart as the chief means of transportation."⁴

North-east Jiangxi was always typical in this respect, and if the rivers were the lifeblood of the region, Lake Poyang, into which all flowed, was its heart. Nearly all the raw materials for the porcelain industry in Jingdezhen came in by water, and most of the finished pots were shipped out. In contrast, in Peng Cheng, a pottery town in the northern province of Hebei, it was much more usual to employ a wheelbarrow or mulecart to take goods over the twelve miles to the railway.⁵

Of course this division between northern and southern transport was never absolute; Jingdezhen has always used some road transport. However it is an accurate description of the state of communications in Jingdezhen and China in general from as far back as the Han dynasty to the present day, and it is certainly true to say that

"the level of development in those areas without water transport was usually far below that of those areas which had water transport. The difference was so pronounced that we can regard it as a case of pre-modern economic dualism."⁶

1. Road Transport

"The facility of water transport...and the mountainous nature of the country are two of the main reasons why Kiangsi [Jiangxi] is so deficient in roads. Like the people in Europe during the middle ages, and the colonists in the north-east of the United States at the beginning of the last century, the traders of Kiangsi have followed the line of least resistance in relying on their waterways for transport, and in neglecting the development of land routes, except in the few cases where they were absolutely necessary for communication with adjoining provinces. Even the so-called main road from the capital Nanchang to Kiukiang, over which thousands of laden barrows used to creak to and fro, was at its best little more than a flagged pathway, while today [1920] it can scarcely claim to be even that."⁷

It has been estimated that ninety per cent of finished porcelain has always been moved by water;⁸ there was no real incentive to develop road transport, but some land routes were kept up.

The most important of these land routes, as far as the transport of porcelain was concerned, were the road to Canton across the Meiling Pass, and the mountain route over the border into Zhejiang. According to Stanley Wright, the road to Canton was first cut in 713 AD, during the Tang reign of Kaiyuan, and was enlarged by the Chenghua emperor in 1465, during the Ming dynasty.⁹ There is no detailed evidence about the amount of porcelain carried

over this route during the Ming dynasty, but it became very important to the trade, and for embassies from Europe to the court of Peking, in the transport of tea from Jiangxi, Anhui and even Fujian to Canton and in the penetration of Central China by opium traders.¹⁰ It was particularly significant in the development of the export trade in porcelain, being the main supply route for the decorators of Canton. The road was mountainous, with a high point of one thousand feet, and a laden man took about eight or nine hours to get across the pass. Most of the cargo was carried on a pole over the shoulder or between two men. One of the reasons the route was developed at all was that as well as being a land route, part of it served as a portage for the Gan River route to the south.¹¹

Zhejiang traditionally received its supply of porcelain through the other important route which left the Guangxin River at Yushan and crossed over the provincial boundary to Changshan. Richtofen described it as a "convenient route across a low pass," and estimated its length at twenty-four miles.¹² According to Wright, thousands of barrows full of porcelain travelled each season on this route, which was described as a good, broad road, "being twelve feet wide, paved with granite slabs and free from weeds." It was still in good use in 1920, and had recently been repaired.¹³

Apart from these two routes which were well kept up because they were used in part as portages for river trade, the majority of roads in the province were "mere tracks or pathways, not to be ranked even with an ill-kept English country lane," even in 1920.¹⁴ Rudolph Hommel compared the tracks he found in China during the early days of the Republic with the wide roads described in records originating before the Ming dynasty. These tracks around Jingdezhen linked the town with the sites of raw material in the locality.¹⁵ Jiangxi is again typical of South China

LAND TRANSPORT IN THE 1930s



China Stone for Jingdezhen



Glaze Materials Brought from Hutian

in that transport overland has always relied almost entirely on manpower. Hebei potters used wheelbarrows and mule-carts,¹⁶ but even as late as the 1920s beasts of burden never seem to have been used to move raw materials, although ox-carts carrying grass were a common sight on the plain surrounding the Poyang Lake.¹⁷ Because the population was high, and labour was easily available and cheap, manpower was probably cheaper than using animals. The kind of transport can be seen from the photographs of men pushing barrows of clay, or carrying baskets on shoulder poles.¹⁸ The shoulder pole was the most important implement for land transport. A man with a five-foot long bamboo pole notched at the end to take a rope could carry 100-120 jin (135-160 pounds) with an upper limit of 150 jin (200 pounds) for between twelve and fourteen hours a day.¹⁹ Hermann judged that a man with a pack could carry ninety pounds for up to thirty miles a day, but whatever the figures it was hard work and inefficient. A frame designed in the Jingdezhen area was also used to carry firewood for the kiln on the back.²⁰

The development of land transport was held back by the problems of road building in mountainous terrain, the high cost, and particularly by the presence of a cheap, efficient alternative in the form of water transport. It was not until the nineteen-thirties that the first serious attempts were made at constructing new roads, and even then, the first considerations were military rather than economic, and roads were built for transporting troops to suppress the Soviet Areas, not for moving porcelain.²¹ Nevertheless, road transport did develop, and in 1934, three major construction projects were being undertaken, new roads linking Jingdezhen with Hukou at the northern end of Lake Poyang near Jiujiang, Yugan near the southern end of the lake, and Qiupu in Anhui. However, development was slow because the new motor transport was very inefficient, there were few cars or lorries, and thus little freight carried. Porcelain was not moved by road to any great

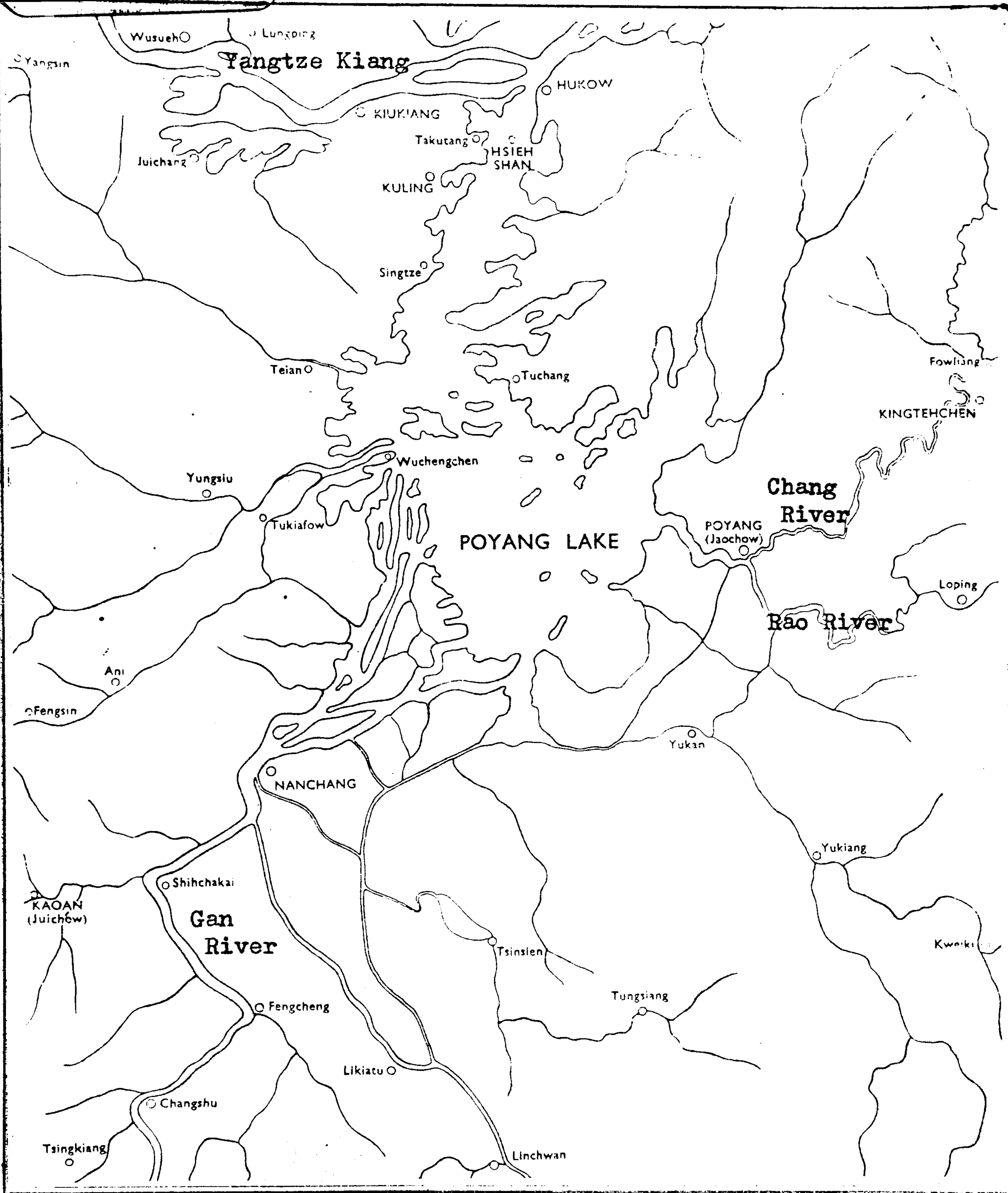
extent, because costs and breakage rates were high.²² It was not till after 1949 that major building work met with any success, when five new roads joined Jingdezhen to Qimen and Nanchang (for transport of raw materials, fuel, and finished porcelain) to Leping, Wuyuan and Poyang (all sources of raw material and fuel) and to the new coal mine at Dongjiashan.²³

2. Water Transport

"So numerous are the waterways of Kiangsi, both natural and artificial, that it is possible at certain seasons of the year to go from one large city of the province to any other entirely by water; but towards the end of the summer the water is often so thoroughly drained from the canals by irrigation channels to the rice fields as to leave their beds dry. During the winter the greater part of the lake consists of sand banks, more or less uncovered, through which passes a meandering channel of about three cables width. This channel is navigable for junks drawing two to three feet at all seasons of the year. In the summer, however, the whole area is covered..."²⁴

"This vast network of waterways served to bind the province together and make boat communications a matter of comparative ease."²⁵

Shipping to and from Jingdezhen all depends on the Poyang Lake. Jiujiang, a Yangtze port which became a Treaty Port with a British concession in 1861, lies at the northernmost point of the lake, and was a staging-post



Waterways of the Poyang Lake and its Region

(from G.R.G. Worcester, Junks and Sampanns of the Yangtze p.385)

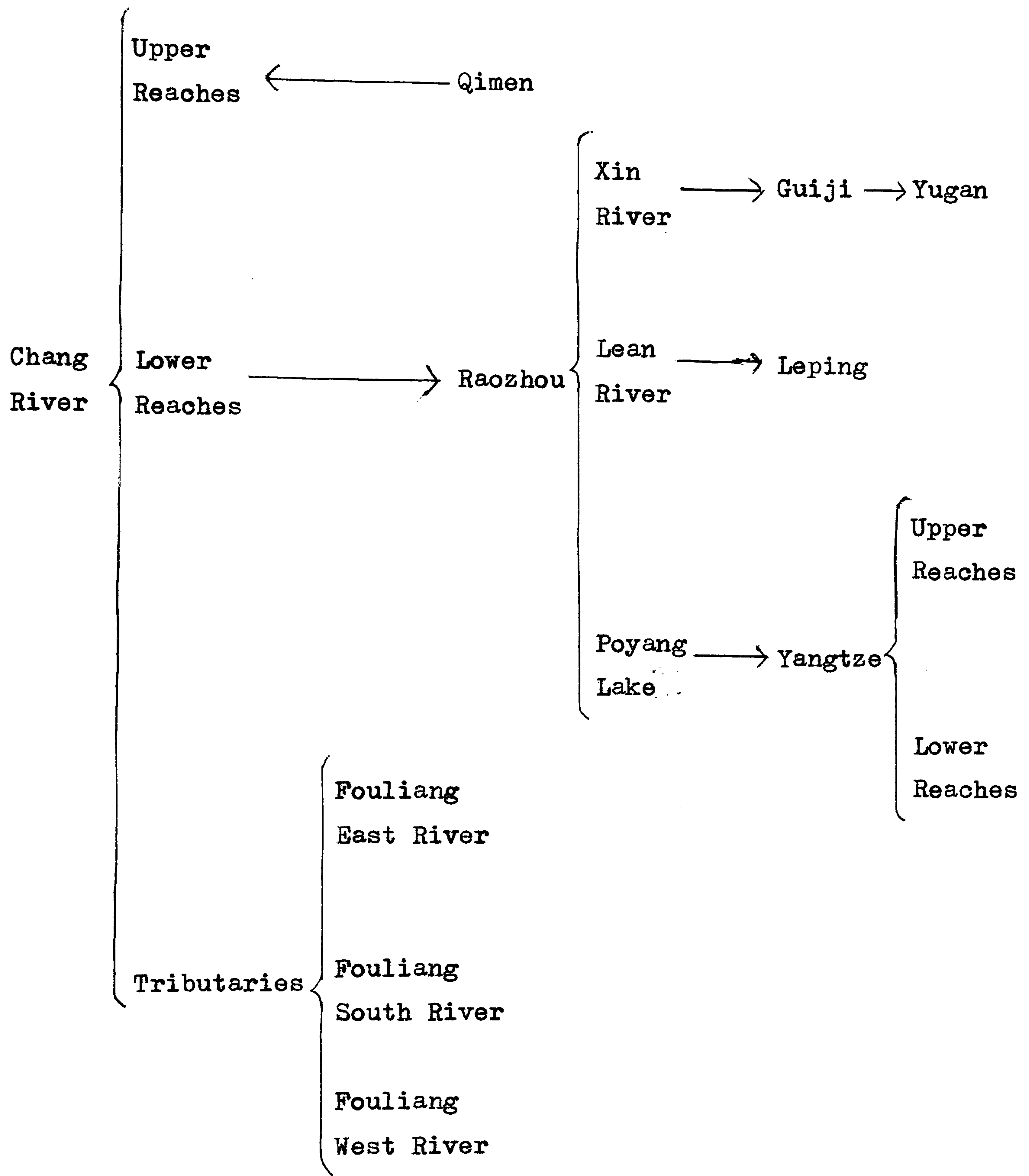
for imperial porcelain on its way to the capital, as well as a market for commercial Jingdezhen ware. Jiujiang was and still is the gateway to Jiangxi province. It became a great commercial centre during the economic expansion of the Ming and Qing dynasty, specialising in the tea and rice trade as well as having a large traffic in porcelain.²⁶ Into the lake's south-east corner flows the Chang River which comes down from Qimen through Jingdezhen, joining the Rao river just before it flows into the lake. The Poyang Lake is also the best method of communication with the provincial capital Nanchang which lies just south-west of it, and thence south to Canton via the Gan river.

Apart from a short period during the Ming dynasty, transport of porcelain was always by water. In the Raozhou gazetteer of 1680, it was reported that

"in the past, all pottery reached the capital by water transport; transport by land began after the post of eunuch director was abolished. Eunuch Pan re-established transport by boat [about 1600] as it was more convenient."²⁷

But this transport by road was exceptional. Generally the porcelain was shipped down the Chang River to the Poyang Lake and then across the lake to Jiujiang, a journey always difficult and often dangerous.

The flow of shipping through Jingdezhen and the Chang River is shown on the diagram below.



Diagrammatic Representation of Transport Through
Jingdezhen via the Chang River²⁸

For the journey down the shallow River Chang, small vessels had to be used.

"The entire carrying trade of the Poyang Lake was, until comparatively recently, in the hands of the junks. There are several types specially constructed to negotiate the shallows and rapids. The fu-shao-tzu 富梢子 plying between Kingtehchen and Fouliang is a long, lightly-built vessel, incapable of navigating the lake in bad weather. the Tuchang 都昌 junk, sailing between Tuchang and Kingtehchen is engaged chiefly in importing foodstuffs and exporting porcelain on its return trip. The Hsikwang junk always carries coal and firewood to the Kingtehchen kiln burners. The shao-ya-tzu hailing from Jaochow, visits the town only in the high water season. The jao-hua-tzu, a comparatively deep-draught junk, carries both goods and passengers between Kaoan and Kingtehchen."²⁹

The cargoes were transferred to larger boats at Raozhou for the late crossing. The transshipment added to the cost as many pieces were broken, just as happened during customs inspections. The journey took about a week in spring and summer with the river full, but during the winter low water period, a further transfer was often necessary at Longkou at the mouth of the lake, some sixty li from Poyang.³⁰ This was still necessary even after steam traffic had been introduced. Large paddle steamers had to stop at the lake in winter, and the cargoes were put into large sailing boats,³¹ then back into a steamer at Zhuwushen. During the spring and summer high waters, steamships were able to ply right through from Jingdezhen to Jiujiang.³²

This route was used both for imperial shipments of porcelain and commercial trade through the centuries, and other pottery for sale also went through the Poyang Lake, then either down the Gan River to Canton or along the Leping River to Hangzhou via the Yushan pass.³³ In the opposite direction came raw materials and fuel supplies via the East and South tributaries of the Chang and the river itself in its lower reaches. When the area to the north of Jingdezhen began to supply the industry during and after the Ming dynasty, earth and fuel from the Qimen area came down the West tributary and the upper reaches of the Chang river.³⁴

Jingdezhen seems to have changed very little since Père d'Entrecolles recorded seeing large numbers of boats full of petuntse and kaolin lining the banks of the Chang in 1712.³⁵ Harry A. Franck's description of his visit in 1926 sounds very similar:

"Hundreds of boats - from one-man sampans to craft as large as tugboats, their rounded mat tops giving them a resemblance to prairie-schooners, all unpainted and crude as the ferry that had sculled us across - lay in compact masses below the bank. Many were heavily loaded with pine cut and split in stove-wood lengths; scores were sunk deep with cargoes of paddy, or unhulled rice, huge squashes, and all the country produce of Kiangsi Province; by far the majority were unladen, the homes of the large floating population, or waiting for new cargoes, or both."³⁶

An enormous variety of craft have always sailed the waters of Jiangxi. According to the Tiangongkaiwu in 1637,

"nowadays, as in ancient times, boats are known by hundreds, even thousands of names,"³⁷ classified by their shapes, capacities or quality of construction, and Wright in 1920 listed eighteen major types.³⁸ The main reason for this variety was the different types and depths of water that had to be sailed, but the differences were often in

"the number and placing of the masts, the shape of the bow or stem, the build of the deck houses, the arrangement of the hatches, and the general lines of the hull."³⁹

Some of the junks sailing the Poyang Lake in the present century were mentioned earlier, but there were a large number of different kinds in the area, including a porcelain trader known as the Luolongzi 羅籠子.⁴⁰

South China was the home of the best timber and the best boatbuilders. Even during the Song dynasty,

"In the upper reaches of Kiangsi, it has long been customary for carpenters to gather and establish shipyards. They collect pine and juniper, cut medlar and catalpa, while their nails are numerous as grains in the granary, and their oil overflows into the streams."⁴¹

There were departments of boat-building listed as belonging to the imperial porcelain establishments in the Ming and Qing dynasties and the craft persisted till the present century, with a well-known yard at Fuzhou in Jiangxi.⁴²

There is not a great deal of information about the organisation of shipping in Ming and early Qing Jiangxi, but it seems fairly likely on projecting back from twentieth century information and comparing this with Song commerce⁴³

that it was highly decentralised, with individuals arranging the transport of their own purchases privately, hiring boats and men as and when required.⁴⁴ The links in the system were the shipping brokers (rather than the merchant or captain) who arranged the sale of the cargoes, filled the ships, provided the warehouses and acted as middlemen for chartering.⁴⁵ They acted through junk operators and other brokers, and were supplied with labour by the gang bosses. As well as being agents for local distribution, brokers acted for local government officials.⁴⁶

"Between twenty and thirty shipping agents are concerned in this trade. A consigner hands one of these agents his invoice, and the latter charters the junk and loads the cargo. All responsibility devolves on the laodah [老大 - shipmaster] for accident or pilfering. The freight charges are based on the tan system, a flexible term which may apply to six, four or even only two pieces of porcelain, according to size and value."⁴⁷

The main disadvantage of the system was that supplies were disjointed. It was not possible to organise a continuous or regular supply to markets, and this kept down the efficiency of trade in porcelain. There was an additional seasonal difficulty, in that winter shipping was often interrupted or halted altogether because the traditional craft could not sail when the water had dropped.⁴⁸

Transport reached a relatively high level of technological and organisational efficiency during the Ming and Qing dynasties, such that there were to be no significant advances till the introduction of steam traffic.

"The Poyang lake was opened to steam navigation in 1896. At first the few invading launches contented themselves with the passenger trade and towing cargo-boats, while at the same time cargo continued to come in by junk. In 1911 however, the foreign-type wooden cargo-boat developed rapidly and later a dozen or more steel lighters began to make their appearance and the number of launches rose from eleven in 1901 to forty-nine in 1917. The climax came with the appearance of motor launches in considerable numbers, and oil-tank lighters."⁴⁹

The first launches were just used for passenger traffic and cargo was not carried by them until 1909. In 1901 there had been eleven steamers on the Poyang Lake, and forty-nine by 1917, but it is not clear how many of these were used for carrying porcelain.⁵⁰ The number of vessels used was not very large though, and Jingdezhen saw little of a modernised transport system before 1949, when serious attempts were made to introduce a modern shipping system. The priorities were the restoration of existing craft and waterways and the introduction of all-year-round steam traffic; many improvements were made, but as late as 1961 there were still problems over a system of locks capable of giving a year-round service.⁵¹

Transport, like the availability of raw materials was one of the crucial factors in the development of the pottery industry in its early days. Handicraft centres in south China are typically in mountainous areas, and served by streams and rivers which are the key to the movement of goods and supplies, and Jingdezhen was just one of these centres.⁵² Not only was the system of water transport

sufficient for the industry in its early stages, it was also efficient and flexible enough to permit the expansion of production and trade that took place in the middle years of the Ming dynasty. For example, when the demand for raw materials had grown large enough to stimulate the development of the Qimen area as a source of clays, shipping expanded on the upper reaches of the Chang sufficiently to transport the clays to Jingdezhen.⁵³ Shipping was also able to accommodate the increased trade in official, local commercial and export wares that developed in the same period, and in general the system of river transport seems to have been very effective and as efficient as necessary for the development of a traditional handicraft industry. It was also extremely cheap. Even as late as 1943, as the following table shows, junk was the cheapest form of transport, and it was cheaper by far than anything except railways which only served a very small part of China.

Comparative Transport Costs
in Japanese Cents per Kilometre⁵⁴

Junk	1.2
Railway	2.0
Narrow Gauge Railway, Donkey, Horse	2.4
Wheelbarrow	19.0
Motor Vehicle	30.0
Porters	34.0

Consequently junks carried by far the largest weight of goods as the following figures for Central China show:

Proportion of Goods Carried by
Different Forms of Transport in Central China⁵⁵

Junks	85%
Steamers	8%
Trains	5%
Other	2%

So there was little or no stimulus to improve the system from the Ming dynasty till the beginning of the twentieth century, and consequently no necessity to develop road transport at all.

It was only in the late nineteenth century that the system began to appear inadequate. Among the many complaints made about the progress of the industry during the first three decades of this century were those about transport facilities, and the lack of a modern system was keenly felt by those who saw the industry competing unsuccessfully with foreign manufactures.⁵⁶

"One of the chief difficulties in connection with this industry has been the problem of water transport, involving to some extent the importation of necessary clays but concerned principally with the exportation of the finished wares to the outside world, via the port of Kiukiang. The most difficult part of the journey was at Hungkiang, about 60 li downstream from Kingtechen. Here there are numerous rapids, and on the other portions of the river the level of the bed has been raised by an accumulation of the debris of broken porcelain which, for hundreds of years has been thrown into the river, with the

mistaken idea that it would be washed away in the flood season. In some places there are only a few inches of water and junks are continually grounding. In such an event the crew jump into the water and lever the craft along with poles through the shoal water. When, as often happens, even this method fails, the cargo is removed, and the vessel is partly lifted and partly pulled along. The sound produced by the rubbing of the bottom of the boat over the broken porcelain underneath is quite loud. This section of the river, although only 60 li long takes a junk two days to get over. In the low water season only small craft can be used in these reaches,"⁵⁷

The length of time taken for the journey and the dangers of rapids and grounding in low water were nothing new, but they began to matter much more when the industry, already suffering from high taxation and trying to rebuild after the physical destruction and economic disruption of the Taiping rebellion, found itself in competition with pottery imported from the West and Japan. In addition, the physical condition of the waterways was deteriorating throughout the whole region.

"Centuries of steady deforestation are now having their inevitable consequence in canals and rivers rendered dangerous to navigation by beds choked with shoals and sandbanks. The Poyang Lake, perhaps the greatest natural asset that Kiangsi can boast of, has lost much of its value as a tradal highway through the detritus which the heavy rains have washed down from the encircling mountains. In winter the lake bed is now a veritable waste of sand, threaded by narrow and shallow channels in the navigation

of which junks have often considerable difficulty."⁵⁸

Some improvements were made during the Republican period, for example the marketing of porcelain was helped by the rail link between Nanchang and Jiujiang opened in 1917 and by the Zhejiang-Jiangxi railway which opened in 1937,⁵⁹ but these were too little and too late, and significant modernisation was not carried out till after 1949.

CHAPTER IX

Marketing and Distribution of Porcelain

The porcelain industry at Jingdezhen was part of a complex marketing network. Fuel and raw materials were bought, and finished pottery put on the market or supplied to court. As Jingdezhen made little other than pottery and porcelain or things associated with their manufacture, all the town's other requirements such as food and clothing had to be brought in from outside. Cloth was bought from other provinces and there are records of material being sold to Raozhou and other parts of Jiangxi.¹ There is no information on the supply of food, but there were a number of rice growing areas in the vicinity.²

It is convenient for most purposes, including discussions of distribution, to divide porcelain made in Jingdezhen during the Ming and Qing dynasties into two groups, official guanyao // 官窑 and private minyao 民窑, although, as will be shown, the dividing line was by no means as definite as the terms seem to imply.

Official ware was in general of the highest quality, and was designed and produced specifically for the court, either for palace decoration, gifts to high officials, or to use in exchange for tribute from abroad.³ Official porcelain was not normally marketed in the commercial sense; it was produced when an order was sent from the Imperial Household and relayed to the potteries by the Board of Works, and supplied by a specified deadline.⁴ The method of financing changed over the centuries, but when the order was a levy, as in much of the Ming dynasty, or purchased from central funds, as in some periods during the Qing, prices, quantities and qualities were fixed by the court, and it was more a question of quality control, maintaining production and organising shipping than marketing a commodity

in the strict sense. This was the case both when pottery was made directly under the auspices of officials, and when it was contracted out to private producers.

The court had maintained some sort of a supervisory depot // in Jingdezhen as early as 621 A.D. during the Tang dynasty. In the Song and Yuan periods, the supervision was more regular and formal,⁵ and by the Ming dynasty it had developed into a fully-staffed depot responsible for regulating the supply // of imperial ware, checking, storing and shipping it in accordance with orders from the court.

Although these imperial or official wares were not originally intended for commercial use, some of them did eventually find their way onto the market. Some of the pieces exchanged for tribute from abroad were sold, and some pieces made originally for imperial use under the buxian // system were handed over to private kilns in payment for special qinxian// pieces which had been required quickly and which could not be made by the official kilns.⁶ During the Qing dynasty when most imperial ware was put out to private producers, even more found its way onto the market one way way and another. The commonest source of official ware on the private market however was the consignment of rejects sent to the capital "for ordinary use" at the same time as the shipment of court porcelain.⁷

It was the privately produced wares or minyao which were marketed in the conventional sense as they were produced specifically for sale, whether they were fine porcelain and antique reproductions made for officials and the rich, or coarser ware intended for the common people and everyday use.⁸ Traditionally, wares were sold inside the town, although there were no large-scale commercial enterprises. Very little porcelain was transported out before it was sold. Instead, prospective buyers would come to the town. "Between the merchants and the porcelain manufacturers were the brokers

who acted as middlemen," and no trade could be carried on without the licensed brokers, hangjia 行家 or yahang 牙行⁹. There were fifty or sixty brokerage firms organised into groups known as bang 幫, each bang dealing with buyers from a specific area, who belonged to the travelling merchants' association, kebang 客幫 for their area.¹⁰ So, a merchant from, say Zhejiang, would make contact with a broker who dealt with his province, stay at the broker's home, as there was no inn at Jingdezhen, and arrange all his dealings through him. The brokers would send for samples and arrange the details of the sale, quantities and prices, then packing and transport, usually for 25% deposit, the balance to be paid later.¹¹

"Dealers wishing to buy porcelain are introduced by brokers. The price is discussed, a future purchase is arranged, and the transaction is complete. On the prearranged date when taking delivery the dealer must, by way of proof, hold a ticket showing the number of articles ordered. If any of the goods to be carried away have blemishes or confused colours they are nonetheless reckoned among the number recorded on the ticket, and on being handed to the potter will be exchanged for sound ones. This is called 'an exchange ticket'. The porcelain ticket and the 'exchange ticket' are both made of plain paper. They will either be stamped with the name of the potter's establishment, and the number of the pieces will be added in writing; or the whole thing will be written in ink"¹².

Although trading was very decentralised, the brokerage system ensured a great deal of control over buying and selling and over strangers entering the town, since no-one except a broker licensed by the government was allowed to trade directly with the potters.

Merchants from all provinces with large and small businesses operated in Jingdezhen. Some were said to have come armed only with a large basket to pick up a few cups or bowls to sell outside the town for a small but quick profit,¹³ but there were also much larger firms involved, some of them part of a national commercial network. Fujii Hiroshii has made a study of one such large commercial group, and its activities during the Ming and Qing dynasties, the Xin'an merchants, who with another group from Shanxi carried the greatest weight in the commercial world in these periods.¹⁴

The Xin'an merchants originated from Huizhou (formerly Xin'an and often known by that name even in the Ming and Qing dynasties) in south Anhui, and made their money in the first place as licensed salt traders under the government monopoly from the Song dynasty onwards. There were radical changes in the Chinese economy during the middle years of the Ming dynasty, the fifteenth and sixteenth centuries,¹⁵ and it was in this period that the Xin'an merchants began to trade in commodities other than salt and expand their businesses. More and more silver came into circulation, and with this, markets for commodities developed. As the Xin'an traders already had a great deal of influence in certain areas as salt merchants, they were able quite easily to extend their trade, and soon began to deal in money, rice, timber, cotton, silk, tea and porcelain.¹⁶

A funerary inscription referring to one such merchant, Pan Cijun, shows how trade was built up. Pan, whose father had also dealt in porcelain, first built up his business by travelling as a licensed salt trader in the Yangtze and Huai river areas, then sold grain in Guangdong and cotton cloth on the lower Yangtze. He was always one step ahead of the other merchants, and just when everyone thought he was bound to lose money, would make a sudden profit. At that time, traders on the Chang river, that is at Jingdezhen, used to

make their orders up with some poor quality goods, but when Pan started dealing with them, he gave a huge banquet for the local worthies at which it was agreed that this practice would stop. Then, in a particularly bad year when the potters were reduced to stealing food from the local people and fighting had broken out, Pan took over a lot of local debts and extended the periods of loan or even burnt the contracts. He also bought up all available pottery irrespective of the quality. Everyone wanted to sell to him because of his generosity so he cornered the market and when he eventually resold the goods, made a three hundred per cent profit.¹⁷

Trade generally in late Ming and early Qing China was on a very large scale, consisting mainly of staple commodities such as grain, salt, fish, drugs, timber, hardware, pottery and cloth and a number of luxury goods and objets d'art for the ruling classes. The extent of this trade impressed Jesuit visitors to China in the seventeenth and eighteenth centuries.

"The inland trade of China is so great that the commerce of all Europe is not to be compared therewith; the provinces being like so many kingdoms, which communicate with each other their respective production."¹⁸

This growth in trade naturally stimulated industries such as the potteries.

As their businesses grew, merchants were able to trade further afield, and the existing porcelain trade from Jingdezhen through Raozhou quickly came under their control.¹⁹ Porcelain from Jingdezhen began to appear all over China as the existing trade routes were extended during the late Ming and early Qing dynasties. The Jinan prefectural gazetteer from Shandong, written in the Daoguang reign (1821-50) records that all fine porcelain was brought from Fouliang

(i.e. Jingdezhen) by traders but that by then there were only ten shops selling it in Jingdezhen, as against twenty previously.²⁰ "All those who deal in porcelain or lacquer ware go to Raozhou or Huizhou [respectively]."²¹ It was largely due to the connections and activities of the Xin'an merchants that Jingdezhen ware found its way onto the national, and later the international market, when at the beginning of the seventeenth century, the merchants began to take part in overseas trade.²² People associated with the group acted as travelling merchants, keshang 客商, storekeepers and also as middlemen in the traditional pattern. In the later part of the Ming dynasty the Xin'an merchants began to invest in private kilns, and they also dealt in cloth and other products that Jingdezhen and the rest of Jiangxi needed.²³

This complex and highly decentralised system of marketing persisted well into the Qing dynasty as can be seen from the Tao Lu quotation above. The system in fact changed little till the 1930s, and Xiang Zhuo's description of trade in 1917 is strikingly similar to earlier accounts:

"Porcelain trade in the town can be divided into two parts: retail shops for the customer, and branches of wholesale buyers."²⁴

Retail customers came all year round to buy from the hongdian 紅店 decorators' shops. They were generally small family businesses, who could not afford the highest quality wares, and dealt with the traders on Porcelain Street, a street devoted entirely to the sale of porcelain, although in 1917 "what was sold there was all rough and inferior ware."²⁵ The street market was an old institution, although if we compare the description above with the early nineteenth century account in the Tao Lu we can see that it had declined.

"'Porcelain Street' is fairly broad - some two to three hundred paces, and is half a 'li' or more distant from Huangjiazhou. Strung out on both sides of the street there is an unbroken line of porcelain shops. They display every sort of vessel all of it picked up by miscellaneous traders, put in order, and laid out for sale. Here too some are fine pots, some coarse, some superior, some middling and some inferior."²⁶

Huangjiazhou, or Huang family island, which was near the river was another trading area during the Qing dynasty.

"It is the place where the small traders spread out their stalls, a large open space, in fact, and a market at the water's edge having in the middle a square of some two 'li' and more in extent entirely occupied by stalls selling porcelain. Here the whole countryside can come and go freely to buy odds and ends no matter whether they are sets or single pieces."²⁷

Xiang Zhuo does not reveal whether this market was still operating in 1917.

From the point of view of the manufacturers the wholesale trade was obviously much more important. Because wholesalers were buying in quantity, they had to order in advance from the decorating shops,²⁸ and these orders often took up to three or four months,²⁹ so buyers found it convenient to deal with brokers in the town.

When a travelling merchant first arrived in the town, because there was no hotel (right up to 1929) he would go immediately to the members of the guild associated with his province and would stay there. When John Knight Shryock

visited the town in 1920, there was still no hotel and he estimated that there were two thousand buyers there who lived either "in the quarters of the provincial guilds or the exchange houses."³⁰ All the orders, introductions, and arrangements for packing and checking would be made for the merchant till he got to know the town better. Later on when he was well known as a client of a particular brokerage firm, and his credit established, he could go out on his own, negotiate prices and quantities for himself with kiln owners and painters, settle the dates of payment and arrange for packing and transport.³¹ The brokers of the porcelain guild were his guarantors, an insurance for the manufacturers and decorators that they were dealing with a reliable man. Presumably if word went round from the guild that a particular trader was unreliable, the potters would refuse to deal with him. In this way, the guild could control trade firmly. Some merchants set up a small branch of their own business in the town to keep an eye on their interests between ordering and delivery, and there were close contacts between these branches and the relevant provincial bang of the porcelain guild.³²

Hermann describes the activities of commission houses in the 1920s which still specialised in dealing with buyers from the same dialect area and could establish their credit. The buyer dealt through the commission house with wholesale firms, often branches of larger shops in Poyang, Nanchang or Jiujiang, which bought direct from kilns or decorators. The commission houses charged 1-2% for a new buyer, and in return the buyer got the services of expert examiners, packers and carriers engaged by the house.³³

Trade in the early twentieth century was quite extensive as can be seen from the table below which lists the annual value of Jingdezhen pottery and porcelain in yuan sold to various areas in 1917.

Annual Value of Trade in Yuan by Province³⁴

Guangdong	600,000
Hunan	500,000
Hubei	500,000
Jiangxi	500,000
The North	400,000
Ningbo	300,000
Shanghai	300,000
Sichuan	100,000
Lanqi	100,000
Fujian	100,000
Nanking	100,000

Similar arrangements were found in the Hebei potteries of Peng Cheng in the 1930s, where all trade was carried on through commission houses.

"They are houses which are run by brokers who combine the business of entertaining merchants from the big cities with their business of brokers. Originally only a nominal charge was made for entertainment, but now small fees are demanded. The visiting merchants come from Peiping (Peking) and Tientsin in the north, and from as far as Hankow in the south, and the marketing area includes, of course, a large section of intervening country. One of the houses is run by the chief of the Tientsin merchants who also supplies the potters with some of their needs, particularly an imported colouring matter. Some of these are run by

the leading pottery firms, others are run by local people, not directly connected with the potters. The commission they charge is 3%"³⁵

But the old ways were beginning to change, and the bang declined as trade decreased.

Marketing was always an important factor in the development of Jingdezhen, and the town was a market before it was an industrial centre. In the Tang and Song dynasties, it served as a distribution centre for the various kilns scattered around North East Jiangxi. The development of rural markets in Jiangnan during this period and particularly during the Song dynasty laid a solid foundation for the industrial as well as the commercial development that was to come. There was a proliferation of linked rural markets which replaced some of the officially controlled markets, and the guilds hang 行 were transformed from "officially sanctioned quarters consisting of merchant shops in the same trade"³⁶ to autonomous trade associations of brokers, wholesalers and warehousemen. It was in this period that brokers developed their mediating role and began to specialise,³⁷ A flourishing, though sometimes illegal, North-South trade included porcelain.³⁸

The commercial network thus developed proved to be flexible enough to cope with the vast expansion in production that took place in the Ming dynasty. Although Jingdezhen became an industrial centre, it retained its function as a market, and was the most important market for porcelain because of the control of the guilds and brokers. The complex marketing network served the industry well enough in its developing years, but began to fail when Jingdezhen found itself in competition with foreign pottery in the late nineteenth and early twentieth centuries. By the 1930s, guild control was seen as one of the factors preventing the potteries from modernising, and the combination of

this and declining trade brought about the collapse of the system.³⁹

Various attempts were made to modernise commerce, including the introduction of Western organisations such as the Chamber of Commerce shanghai 商會 .

"It was set up in the 34th year of the Guangxu reign [1908] and about 1,000 firms joined. There were 52 directors, one chairman and two vice-chairmen."⁴⁰

In 1915, the chamber exhibited at the Panama-Pacific Exposition where they were awarded a gold medal.⁴¹

Obviously these reforms were not enough to revive the declining commerce of the town, since marketing was one of the aspects criticised by many writers in the 1920s and 30s. Du Zhongyuan's report discussed earlier called for a marketing co-operative to organise both buying and selling, but as with many other things, nothing could be done as China went through the mill of inflation, civil war and revolution.⁴²

CHAPTER X

Management and Ownership

It is usual to divide porcelain into that made for official or imperial use, guanyao, and that made for ordinary people, minyao. Because the same word - yao 窑, 窑 - is used for "ware" and "kiln", it has often been assumed that all official ware was made in official kilns, and all private ware in private kilns. The truth, however, is rather more complicated. It seems reasonable enough to divide the pottery into guanyao and minyao in this way, and to say that the industry was partly managed by officials and partly owned privately, but it is not the case that all guanyao was made in officially run kilns and all minyao in private ones. In fact a great deal of official ware was made in the private kilns, particularly during the Qing dynasty, as a result of the guandaminshao putting-out system.

Official kilns, in the sense of workshops and kilns run specially to make and fire porcelain for the palace and other official uses, did of course exist, but they only operated during certain periods, for example in the middle of the Ming dynasty, and during the eighteenth century when the industry was under the supervision of pottery directors sent by the court. Even when the official kilns were in production, they did not produce all the official ware needed; a great deal still came from private kilns. Neither were they owned and run by officials. An official kiln was simply a kiln under contract to fire porcelain for the court. For most of the history of the industry however, porcelain for the court was simply the cream of the produce of private kilns.

It is obvious that the dividing line between the official and private sectors was far from clear, and the relationship is made even more confusing by the tendency of official records

to gloss over the differences, ignoring the methods and organisation of production and just concentrating on the quantity and quality of the finished product. Official interest did develop and increase from being concerned simply with supply to a more active involvement in the finance and running of the industry and the affairs of the town, but as Ray Huang has put it,

"the size of the industries under government control and the huge quantities of raw material, goods and manpower mobilised by the Ming state were apt to impress and mislead the observer. In reality these financial resources were accumulated in an irregular and disorganised manner. The higher offices which controlled them had neither the authority nor the capacity to integrate the operations of their subordinate units."¹

The Qing state became more involved but irregularity and decentralisation were still the pattern.

1. Ming Administration 1368-1644

There has been some sort of administrative structure in Jingdezhen ever since the potteries began. Before the Ming dynasty, officials in the town were concerned simply with ensuring the supply of court porcelain, and taxing private kilns. There was no management as such, no direct involvement in the industry. A thirteenth century record shows that this situation persisted throughout the Yuan dynasty, and things did not begin to change till well into the Ming dynasty.² At the beginning of the new dynasty, production of porcelain for the court was supervised by officials who ran a depot in Jingdezhen. The depot was

associated with the tax office that took over from the Foulaing Porcelain Bureau which had functioned during the Yuan dynasty. The confusion over this depot or chang 廠 has been discussed in Chapter III, where it was shown that what was thought to have been a manufacturing plant was much more likely to have been an official depot, having "offices which with their storage facilities were placed at convenient centres in relation to the very large number of kilns spread through the countryside." The industry had not yet become concentrated in the town itself, and there was no question of official management or direct control.³

The only officially-run kilns in the early years of the Ming dynasty were in the capital, Nanking, and produced glazed bricks and tiles. Sakuma Shigeo quotes a regulation dated 1393, taken from the Wanli Huidian:

"Whenever vessels have to be made to supply [the court] the pattern must be determined and the cost of labour and materials calculated. If it amounts to a lot, craftsmen are fetched to the capital to set up the kilns and start work; if it is little [the work] is transferred to Rao [zhou], Qu [zhou] or somewhere else."⁴

There was no officially-run factory at Jingdezhen during this period, and in fact Jingdezhen was only one of a number of areas that supplied the capital with pottery and porcelain.⁵

Reference has already been made to the officials who were given responsibility for maintaining porcelain supplies at various times during the Ming dynasty.⁶ A number of them were eunuchs, directly under orders from the court, but local officials also served as supervisors of the potteries. Official control and influence in the porcelain

industry were irregular; not only was supervision exercised by different kinds of officials at different times, but there were also long gaps when no official presence is recorded at all. As has been shown in Chapter III, a eunuch, Chang Shan, was sent to Raozhou during the Xuande reign period (1426-35), but after his execution in 1425, no other official was sent till 1433 when an assistant secretary from the Department of Building was given special responsibility for supervising the craftsmen. His stay lasted only one year and local officials were given the job of maintaining supplies, but the flow of porcelain to the palace seems to have diminished considerably between 1435 and 1457/8 when another eunuch was appointed. Eunuch supervision lasted till 1486, then another took office in about 1506, according to the local gazetteers.⁷

The eunuch officials who were sent to Jingdezhen were usually known as taijian 大監, a term translated by Hucker as 'directors'.⁸ However the term 'commissioner' seems more in keeping with their function, and this is the designation that will be used here. Taijian were sent as special commissioners for such purposes as supervision of military defence and the collection of special revenues, and in the 1590s they were sent out to manage local business taxes. 'Procurement missions' for porcelain or silk were quite common throughout the Ming dynasty, and for these they were entitled to statutory labour and requisition of materials.⁹ Eunuchs and permanent civil officials were frequently in conflict. The eunuchs were inclined to demand larger and more extravagant orders which the bureaucrats resisted. The demand for materials and labour for the eunuch procurement missions "cut into the incomes of the Ministry of Revenue and the Ministry of Works."¹⁰ There is no evidence at all to suggest that these commissioners took any active part in managing the industry, its supplies and production; on the contrary, they were simply the agents of the court in Jingdezhen, carrying the

imperial order with them and ensuring that it was fulfilled. In spite of the fact that officials from the capital were given the responsibility for supervising the potteries, "the court remained dependent for supplies of wares made on a contract basis,"¹¹ and even after the Xuande period (1426-35), "control of the ceramic industry seems to have been exercised mainly through control of the craftsmen."¹²

During the period of its most spectacular growth, Jingdezhen was not under the control of eunuchs at all. In 1530 the eunuch commissioner Liang, who had been in office since 1521, was removed on the petition of a censor and his post abolished. Local officials were made to take over the responsibility of supplying the court, the various assistant magistrates of the area acting in rotation a year at a time. They made a request for a permanent manager from the Board of Works, but this was not granted, so the industry, as before, remained only loosely under official control. A great deal of imperial porcelain in this period was supplied by the guandaminshao putting-out system, an innovation devised by the officials as the only possible way of maintaining orders.¹³

As the dynasty drew to a close, the potteries once again came under eunuch control in 1599, when Pan Xiang, the Jiangxi Inspector of Mining Taxes, was given overall responsibility for the porcelain industry as well as mining. He was withdrawn in 1620 having provoked at least one uprising. In contrast to his predecessors, who acted only as agents for the government, he tried to play a more positive role in the management of the industry, attempting to control designs and the quantity produced. With the country near civil war, he was never replaced.¹⁴

The characteristic of the Ming dynasty's influence in the potteries was one of loose control over supplies and the direction of labour, but no direct management of

what remained almost exclusively an industry dominated by small, privately-owned concerns. There is no evidence of planned development, certainly no planned investment, and no consistent policy except that orders transmitted from the palace should be fulfilled.

2. Qing Administration 1644-1908

The new dynasty began, like its predecessor, with irregular orders for court porcelain, sent from the Board of Works through the local officials.¹⁵ Very soon more serious attempts were made to control and develop the industry. The new interest in porcelain can be measured by the attempt to set up an imperial factory in Peking in 1680. This failed, however, and the court fell back on Jingdezhen for its supplies. Three of the officials sent by the court to Jingdezhen during the century that followed were later to become famous for their running of the potteries. They were Zang Yingxuan from the Board of Works who sent to Jingdezhen in 1681, stayed till 1688 and was in overall charge of production, Nian Xiyao who was in charge of production from 1726-1736 while running the Huaian customs post,¹⁶ and Tang Ying, the best known of the three, who worked under Nian and took over from him in 1736. Tang was connected with the potteries for over twenty-seven years and wrote a number of works on them.¹⁷

Although Nian and Tang were never resident in Jingdezhen for long periods, they seem to have exerted far more influence on the potteries than any of the Ming commissioners. They were not eunuchs, but career officials who seem (particularly Tang Ying) to have taken a great interest in the industry. It is in this period that a functioning Imperial Factory can first be spoken of with any meaning at all. Craftsmen may well have been gathered together in the Ming dynasty either as corvee labourers or on hire specifically to

produce imperial ware, but there is no evidence of any large workshops for that period as there is for the early Qing dynasty. One of the crucial factors in strengthening the influence of the directors was the changing pattern of financial control, which was passing into the hands of the customs, which Nian and Tang also controlled (this is discussed in more detail in Chapter XII).

The imperial kilns were certainly not the only important producers in the Qing dynasty. Even at the height of the influence of the directors, some imperial wares were produced by the guandaminshao putting-out system, and after the directorate was abolished in 1786, virtually all porcelain for the court seems to have been contracted out in this way. So the management of the "imperial factory" even at this stage was not as impressive as it sounds. The Tao Lu, written in 1815, lists the factory staff who drew wages as

"The Controller General of the Jiujiang Customs Barrier, Jiujiang guan zongguanshi 九江關總管事
(The Jiujiang Customs Secretary)

Two confidential secretaries, Neidangfang shuban
內檔房書辦

The foreman of the porcelain selection department, Xuancifang zongtoumu 選藝房總頭目

His assistant, Fuzong tou 副總頭 (working at the customs barrier)

Seven chargehands, Toumu 頭目 (one resident, the rest sleeping in one night in ten)

Two lapidaries, Yuzuo 玉作

One clerk, Tiexie 帖寫

One pattern designer, Huayang 畫樣

One head of the round ware, Yuanqi tou 圓器頭

One head of the carving, Diaoxiao tou 雕削頭

One head of the blue-and-white, Qinghua tou
青花頭

One kiln filler, Manyao 滿窯

One guard for the raw clay room, Shoupifang
守坯房

One porter, Tiaofu 挑夫

One office attendant, Tingchai 聽差

One buyer, Maiban 買辦

One doorkeeper, Bamen 把門 18

There are no potters, artists, or labourers on the list, which strengthens the impression that the organisation was still nothing like a factory in the modern sense, but more of a depot with offices and warehouses. Neither is it clear precisely what jobs the management did and it does not seem that their control of the industry was particularly tight, and private potters continued to run their own businesses.

Official control became even less firm towards the end of the Qing dynasty and according to Abbe Huc the potteries did not get the pick of the officials. Jiangxi "offers few resources. Everything is dearer than in other provinces and it is the practice of the government only to send here Mandarins whom it wishes to punish."¹⁹ However even when there were resident officials in Jingdezhen responsible for porcelain, the relationship between officials and craftsmen was not that between employer and employee. It was rather a contractual arrangement with the responsibility for producing the required quantities of imperial ware assigned to private potters. A similar arrangement is found in silk manufacture from the Shunzhi period onwards, when private silk weavers

"fulfilled their contractual obligation in two different ways. They either contracted to have the stuff woven in their own places (by themselves or with the additional hired workers) and delivered the finished product to the Silkworks [the Imperial Silkworks], or they undertook to supply the Silkworks with skilled artisans to do the weaving on the government premises. In either case the wages were paid out of government appropriations."²⁰

3. Private Kilns

Quite a lot is known about the official presence in Jingdezhen. Gazetteers and other official documents go into some detail about which officials did what and when, but much less is known about the running of the private kilns which made up the bulk of the industry and provided a large proportion of the porcelain which was supplied through official channels. Different types of high-quality porcelain are credited to private potters but it has not been possible to find any evidence of the way their enterprises were run. The more detailed records of private production in the early part of the twentieth century do however give some clues as to its development.

Private potters owned either a workshop, a kiln or sometimes both. Workshops were small and often served as the house for the owner, his family and employees. Kiln masters, yaohu 窯戶 either owned and rented a kiln, and would require money to cover fuel costs, but many also owned a workshop so that they fired their own porcelain as well as taking in work from other workshops.²¹ As far as can be seen, they ran their businesses independently of the officials except insofar as they were liable to pay tax

or supply porcelain. They were responsible, either individually or through their guilds, for prices, wages, hiring and firing of employees and taking on apprentices.

For a large part of its history, the private sector of the porcelain industry in Jingdezhen was firmly under the control of the guilds. The importance of brokers and guilds in trade has already been discussed in Chapter IX, but their influence went much further than this. For example, the supply of raw materials depended on the agreement of the Clay Guild, baitu hang 白土行 :

"if the kiln-owners disagreed with them they are boycotted by the traders and no-one dare sell them anything. If the brokers' guild disagrees with them, they are boycotted..."²²

The development of the guilds in Jingdezhen is not properly documented, but they appear to have developed gradually till by the twentieth century they had a great deal of power in their hands. In 1920, an official of the Chinese Customs Service declared that:

"the porcelain industry at Chingtechen can never hope to attain full development until it shakes itself free from the trammels imposed upon it by the Chinaware Guild. This guild dictates in the most arbitrary fashion the types of ware to be produced by any given kiln. An owner of a furnace is required to manufacture those articles and only those articles which that furnace has always produced, and for the production of which he had originally obtained the authority of the guild. Thus makers of plates are restricted to plates, of tea-cups to tea-cups and so on; although it may happen

that the one kiln may be allowed to turn out two or even three categories. A newcomer wishing to start a kiln must, before obtaining the sanction of the Guild, state what type or types he intends manufacturing and agree to conform to guild regulations. A recalcitrant aspiring to greater individual liberty would be quickly convinced of the error of his ways when he found himself without workmen, or his kiln boycotted. The evils springing from this Guild interference are deplorable. Production is restricted, and prices raised to the detriment of both producer and consumer."²³

These employers' organisations had several functions. They set and maintained standards, organised the demarcations between various trades, and had various ritual and religious duties.²⁴ There were more than twenty different she 社 or societies in and before the 1920s, each representing a different trade, although these seemed to do little other than hold annual ritual meetings. After 1927 the position changed and five larger groups emerged:

1. Pottery Industry Aid Society, Taoye weichi hui 陶業維持會 which embraced different groups of bodymakers
2. Precious Combination Research Society, Yuhe yanjiu she 玉合研究社 makers of extra-fine bodies
3. Ornamental Ware Research Society, Zhuoqiye yanjiu she 琢器業研究社
4. Painting and Drawing Society, Tuhua gonghui 圖畫公會
5. Huang Family Island Porcelain Society, Huangjia zhou ciye gonghui 黃家洲瓷業公會²⁵

The Jiangxi Pottery Bureau 江西陶務局 tried to bring all the employers' organisations under its control so that it could plan and direct the industry as a whole, but never managed to do this completely.²⁶

4. Modern Management

The symbiosis of officialdom and private potters described so far continued almost to the end of the Chinese empire. Although local officials had petitioned for a full-time manager in the sixteenth century, nothing was done, and the potteries were run more or less in this way till the twentieth century. After the mid-nineteenth century period of Western encroachment and internal rebellion the porcelain industry in common with the rest of the economy was in decline. There was an obvious need for reform and modernisation. In 1862, Zheng Guanying advocated

"the reorganisation of porcelain factories, making great efforts to model the fine products of Jingdezhen on the designs of foreign porcelain, skilfully painting them in many colours to sell in Europe. This would enable us to fight against their 'toys and curios'."²⁷

However no reorganisation took place. Some rebuilding of the kilns was carried out in the 1860s and 1870s, but little else, and it was not till the first decade of the new century that anything resembling modern commerce or management was tried in Jingdezhen. The Jiangxi Porcelain Company was founded in 1910 with 200,000 yuan collected from various provincial officials with the aim of using modern machinery to manufacture porcelain. The first manager was Kang Tezhang who held the degree of gongsheng 貢生 or senior licenciate and was closely

connected with the men who collected the capital. The imperial government in its decline took little interest in the company or the industry, but after 1911, the new republican administration took a more active part in its affairs and those of the school attached to it.²⁸

In 1920 the company was still operating, with a capital of 300,000 yuan and "owned by a stock company in which many leading officials, including the governors of several provinces" had shares. It owned two kilns and carried out all the processes within its own walls. The vast majority of work, however, was still carried out by people working at home in small-scale old-fashioned workshops, and the Jiangxi Porcelain Company was only a small part of the industry.²⁹

The government was not very deeply involved with the industry. The Jiangxi Pottery Bureau was set up in 1929 in Jingdezhen and in 1934, a Jiangxi Porcelain Industry Administrative Bureau was set up under Du Zhongyuan with the intention of reforming the industry, but neither seems to have had very much influence on the running of the industry.³⁰

It is difficult to be certain about the ownership of kilns and workshops during the Ming and Qing dynasties, but it seems probable that almost all were owned privately, and that some, designated as official kilns, were responsible for supplying the court regularly with high-quality wares, buxian. The private kilns, those not designated as official, also produced official ware, known as qinxian, but this was made to order with no regular contract. In the middle of the Qing dynasty, there was an organisation which was something like an imperial factory, with craftsmen gathered in one place and paid out of official funds, but there is no definite evidence for such a factory in the Ming period.

All this indicates a loose, highly decentralised organisation, rather than the impression often given of an imperial factory run as a unit and producing especially for the court. The chang set up in the Ming which ran throughout that and the subsequent dynasty was mainly a depot and warehouse set up to store and control supplies for the court rather than managing the industry. Management was only a small-scale affair, with kiln-owners running a family workshop or kiln and hiring extra labour as and when required. In the 1940s a master potter might have ten or fifteen apprentices.³¹

Official intervention was sporadic and during the Ming and Qing dynasties concentrated simply on supply. All the organisation was done by mutual agreements and intermediaries and there was no overall control. In the republican period, there were more serious attempts to manage the industry as a whole, but these came to nothing.

This loose, decentralised organisation proved adaptable enough to take the expansion of the mid-Ming, the diversification of the dynasty's decline and the production of high-quality Qing wares. However it was not sufficient to compete with the invasion of foreign porcelain in the late nineteenth century and it was at this point that the system began to break down. Serious reform was never attempted during the Qing dynasty, but a joint-stock company was started in 1910. Even modern management and commercial methods could not save the industry which was in dire straits when the nationalist government collapsed in 1949.

Supply and Organisation of Labour

"Jingde is a large town on the right of the river and belongs to the district of Fou [liang]. It manufactures pottery for the whole country and men flock from all over to earn a living by their skills. Out of every ten inhabitants, seven or eight are potters or connected with the industry, but only two or three are local people."¹

Jingdezhen's porcelain industry provided employment for the majority of people in the town. An investigation of the size of the labour force carried out in 1928 revealed that a total of 112,550 people were involved either directly or indirectly in the industry, over 70% of the total population of 153,750 and the same proportion as in the early nineteenth century record quoted above.² The industry also occupied a great many people from outlying areas. The work was seasonal, carried out mostly between April and November, and because people moved into the town during the busy season, the winter population was considerably less than during the rest of the year.³ The height of summer was the busiest period. Labourers particularly were drawn from all over the region, for example workers from Leping appear in the records for 1528 because they fought with the kiln-owners. The Jiangxi provincial gazetteer of the Wanli period (1573-1620) records that labourers came to Jingdezhen from Poyang, Yugan, Dexing, Leping, Anren, Wannian, Nanchang and Duchang.⁴ In the early nineteenth century men came from Duchang, Poyang, and other areas,⁵ while a hundred years later most labourers were still drawn from Duchang.⁶ It is not clear what these men did when not in the potteries, but some may have been farm workers or itinerant labourers moving with the work, and others just unemployed, living off their last

wages or on credit in anticipation of the next season's work. Labour, especially unskilled, was seasonal right up until the twentieth century, and other industries were organised in the same way; leather workers in Suanhua in 1925 were mostly natives of other districts who were engaged to work for only seven to nine months.⁷ There were, however, a great many resident workers, in family businesses or associated with the official kilns, who lived in Jingdezhen throughout the year. These were the more skilled members of the labour force. People were employed either in the thousands of small family workshops or in a smaller number of larger concerns, and in addition there were a great many working in ancillary trades such as boatbuilding, carpentry and transport.

The organisation of labour, particularly labour used to meet official orders, changed considerably over the years and improvements in organisation together with a finer division of labour made important contributions to the development of the industry. Private kilns were operated mainly by the family of the owner, with additional workers receiving either wages or simply board and lodging. There is little information about their wages and conditions, but much more is known about the arrangements made for labour on the production of imperial orders. Generally speaking men were taken on irregularly as and when orders were placed. Skilled men were drawn from amongst all the workers in the various businesses of the town, who would then work for the state either in their own workshops and kilns or in special premises set aside for the purpose, as part of their *corvée* liabilities. This at least was the case before hiring became common in the sixteenth century.

In the Yuan dynasty (1271-1368), official orders came very irregularly, and most of the time the potters worked privately, often farming land belonging to the kiln-owners as well as making pots. As far as the government was

concerned, they were not "government artisans" in state factories, but "civilian artisans" working for themselves, who were however liable to have a proportion of their produce requisitioned or to be assigned tasks. This distinction was not entirely rigid, however. Civilian artisans in the Yuan dynasty were often used to supplement the work of government craftsmen in factories (although there was no state pottery at that time) and government artisans apparently had time to do some private work. However the status of the potters established a principle which was to continue for some centuries. Apart from their corvee liabilities, they remained independent of government control. Porcelain and pottery production was only a secondary occupation in this period. Agriculture was by far the most important, even in the Jingdezhen area, and kilns were scattered among the fields in a number of small villages around the town.⁸

At the beginning of the Ming dynasty (1368-1644), the position was much the same, but imperial orders became more regular, and for the larger kilns at least, labour costs were met by the local people as part of their tax liability. Each family was liable for two forms of taxation, land tax and labour service or corvée. The ordinary family would provide so many days of labour a year in the workshops or in transporting clays, but families registered as artisans, jiang 匠 had to fulfil their corvée obligations by making and firing pots. This was the general rule during the Ming dynasty and the necessary materials and funds were requisitioned from all provinces by the Board of Works.

"While unskilled labor was provided by the general population, skilled labor was levied from those households which were registered as artisans. The weavers of South Chihli and the porcelain workers in Kiangsi fell into this category, as

did the artisans of numerous trades in the maintenance area within the Imperial City."⁹

Normally, families that were registered in the Yellow Books¹⁰ as artisans had to provide skilled labour at a government factory in the capital.

"The artisans working for the manufacturing and processing plants in the palace compounds included carpenters, blacksmiths, tailors, leather-workers etc. In accordance with the regulations laid down in the early years of the dynasty, these duties were performed without pay by persons registered as artisans in the respective trades, who in this way fulfilled their service obligations. Some of them reported for duty annually, and others at two, three, four or five year intervals. The service, performed in Nanking or Peking, usually lasted for three months. Travel expenses were provided by the workers themselves. Though the government paid them no wages, food allowances were provided."¹¹

However, potters were given a special dispensation later in the dynasty to do their service in Jingdezhen¹², obviously because the resources and equipment could not be provided in the capital (Nanking, later Peking). In the early years, potters had fulfilled their corvée obligations in the capital at a tile and brick factory.¹³ Artisans on official duty were classified in two ways: resident artisans, zhuzuo 住坐, as the name implies, lived and worked in the capital, while 'rotating' artisans, lunban 輪班, were drawn from all over the country and served for three months every four years. Although potters in Jingdezhen lived on the job, they were

considered to be part of the latter group and only served in rotation.¹⁴ Contemporary Chinese historians consider this new system a partial release from the official slavery of the Yuan dynasty, particularly since potters could work for themselves when not on duty.¹⁵

Exactly how the corvée system operated is not clear from the records, but what seems to have happened is that the potters put in a certain amount of work in their own or in designated official kilns to make up the imperial order for porcelain. It is possible however that at times the system was simply a legal device to enable the officials to requisition whatever they needed to make up the orders.

"Feudal rulers of the period used methods such as 'sending officials to supervise the kilns, sending tribute, [running] officially supervised kilns and factories ...and officially assisted private firings' to produce the items they needed for their lives of luxury."¹⁶

The corvée system seems to have been adequate for production in the early part of the Ming dynasty, but it gradually fell into disuse. In the middle years of the dynasty, the size of imperial orders rose dramatically¹⁷ and in order to cope with this increased demand, hired labour was used to supplement the men bound by the corvée. Now, hired labourers were not entirely new; there are records of workmen being hired by the kiln owners as far back as the Song dynasty (960-1127), but these were never more than a small minority, at least in the pottery industry.¹⁸ In the Jiajing-Wanli period (1522-1620) of the Ming dynasty, the number of hired labourers increased gradually till they outnumbered the corvée workers.

There was a ready supply of unskilled men to meet this new demand, as circumstances forced many peasants off the land and into the towns. Large amounts of land came into the hands of larger landlords, displacing the small owners.

"Manor lands grew larger through imperial gifts, purchases, forcible encroachment on neighbouring holdings, and the practice of commendation... by which a peasant entrusted his land to a lord in the hope of thereby escaping his taxes. Some of the resulting estates were enormous."¹⁹

In addition there was a series of disasters in Jiangxi in this period. A flood in 1540 killed thousands of men and animals in the area and made many more homeless and hungry, and two serious fires in Jingdezhen followed in 1564 and 1571. This increased the number dispossessed and unemployed, and thus the number of men available for hiring.²⁰

Contemporary commercial developments and tax reforms also assisted this change in labour supply. As the use of money became more widespread, following the cash commutation of the grain tax in 1436 and the single whip tax reforms of 1560, people were readier to offer themselves for hire. The corvée system gradually fell into disuse, although it was not formally abolished till the Qing reign of Shunzhi (1644-61).²¹

The position of skilled men changed in much the same way. During the Jiajing period (1522-68), partly as a result of the growing importance of cash transactions in commercial and official circles, an artisan-payment in cash, the banyin 班銀 or jiangyin 匠銀, was introduced to replace the corvée.

"After 1562 they [artisans] were not permitted to answer the service calls in person, and instead all their service obligations were commuted to silver in the form of one annual payment. According to the 1578 account there were 142,486 such statutory laborers throughout the empire. Their payments, termed "artisan payments", were collected by the local officials and delivered in lump sums to the Chieh-sheng Treasury (one of a number of treasuries...) which was controlled by the Ministry of works. The total revenue was fixed at 64,117 taels. Some districts, as has already been noted, simply added these payments to the general service levy accounts instead of collecting them from individual artisans.

"The same procedure was applied to other government establishments outside the two capitals, such as the charcoal factory at I-chou and the shipyard at Ch'ing-chiang p'u, except that in these cases the payments were delivered directly to the manufacturing establishments without being handled by the ministry. In theory at least the wages of the hired workers in government establishments were paid by the registered artisans in the same trades."²²

Potters in Jingdezhen had to pay 1.8 liang for each block of four years in which they would have been liable for a period of service, or 0.45 liang a year. Obviously only skilled potters could be hired to replace them, and

as the prevailing annual wage was between nine and twelve liang, presumably some potters would exempt themselves from the corvee and have themselves rehired at a profit. Some, however, were not so fortunate, and had to work even after they had paid their exemption fee, and a petition on their behalf was sent to the Board of Works in 1529 by eunuch Commissioner Liu.²³ The banyin was collected by the jiesheng treasury, part of the Board of Works which was responsible for labour at the potteries. The wages of men working on official orders came from the Fouliang Treasury which collected taxes specifically for the purpose.²⁴

By the Wanli reign (1573-1620) nearly all craftsmen working on official orders were paid wages, some on a permanent basis, and some, including highly skilled specialists, temporarily.²⁵ The exemption payment itself was finally abolished in 1584, marking the effective end of the corvée system, although the system as a whole was not formally terminated till the Qing reign of Shunzhi (1644-61) after it had been revived for a short period at the beginning of the new dynasty while official supplies were being re-established. Thereafter, hired labour was the norm.²⁶

The sizes of kilns and workshops varied considerably. Even up to the present century, many of the smaller businesses consisted of "a single household labouring in its own miserable dwelling-place,"²⁷ but some private kilns were much larger than this. Because they were able to supply large orders which were sub-contracted out to them, they must have employed tens or possibly even hundreds of men. There is, as usual, very little information about the private sector, much more about the official. According to the Tao Shuo, five hundred artisans were employed regularly on imperial orders in addition to artists, and labourers who were hired on a casual basis, and the Draft History gives a list of trades for the Ming period,

each with the number of foremen and artisans employed, giving a total of fifty-five foremen and 334 artisans working on official orders, 367 labourers and 190 gravel-hands, but whether these figures apply to actual workers or are merely notional ones for tax purposes is not clear.²⁸

There are no reliable estimates of the size of the workforce in the private kilns in Ming and Qing times, so it is very difficult to get a picture of the total labour force or its distribution between the different kilns and workshops in the imperial period, particularly so since the Qing government, unlike its predecessors, kept no official labour records.²⁹

What is certain, however, is that a very fine division of labour had developed during the Ming dynasty, involving specialist kilns and workshops, and the organisation of workers into workshops with specialist tasks. This seems to have been organised first for official work, but then to have spread to the private establishments. The Tao Lu lists the different kinds of workmen both in the kilns and the workshops.

"Kilns have establishments. Commonly known by the general name of kiln staff.

- (a) kiln firemen: whether for kilns burning pine faggots or for kilns burning brushwood. These men are also called biscuit kiln-men
- (b) kiln-men: in 'shared' kilns: that fire for other workshops they either operate pine-faggot burning kilns or brushwood burning kilns
- (c) firemen at 'complete' kilns: that is to say establishments who themselves

bake their own pots, or who bake their own pots and also the raw clay pieces for one or two other establishments.

- (d) pine-faggot kiln-workers: these may be firemen, 'shared' kiln or 'complete' kiln workers.
- (e) brushwood kiln-workers: these too may be firemen, 'shared' kiln or 'complete' kiln workers.

"Establishments have workers. The following list sets out the tasks of the various workmen. The porters and the men who look after the debts are both excluded.

- (i) washing the paste - paste refining
- (ii) throwing - colloquially called 'raw clay making'
- (iii) raw clay stamping - colloquially called 'mould tapping'
- (iv) shaving on the wheel - colloquially called 'clay cutting' or 'clay scooping'
- (v) drawing on the clay
- (vi) ash pounding - sometimes includes mixing the ashes
- (vii) mixing the glaze - some mix the ashes, others compound the colours
- (viii) putting on the glaze - some put it on by dipping, others by blowing
- (ix) brushwood humping - pine-faggot kilns do not require this, only brushwood kilns

- (x) biscuit (pei) carrying - also called 'clay humping'
- (xi) biscuit loading - loading raw clay pieces into saggars layer by layer till full
- (xii) filling and gathering - there is the task of filling the kilns. For kiln filling one hires the men specially. They are not on the regular wage sheet. When the kiln is opened there is also the task of unloading
- (xiii) kiln-stoking - colloquially called 'pa-chuang'. There are three groups of men - one tends the slow fire, one the fast fire, and one the circulating fire
- (xiv) opening the kilns - there are outsiders specialising in this work who are summoned when a kiln is to be opened. The debt-collectors also do it as a sideline
- (xv) pounding the colouring material
- (xvi) grinding the colouring material
- (xvii) sand work."³⁰

In addition there were specialists in the ancillary trades, such as bricklaying, carpentry, boatbuilding, rope and barrel making, and iron work. The division of labour did not of course go this far with the smaller family businesses, but these firms seem to have specialised in making or firing certain specific types of pottery.

Conditions of work cannot have been particularly good and rates of pay were not high. In the Ming dynasty,

skilled potters might get up to twelve liang a year, painters about nine, and labourers only seven.³¹ For a great many of the employees, work was seasonal and casual and there were frequent conflicts between kiln owners and their men, and with officialdom. There are records of sabotage and strikes, and fighting broke out on more than one occasion. In 1528, workers from Leping fought the kiln-owners and in 1537 there was a battle between the labourers and the hirers but there are no details about the cause of the conflict or the outcome. Towards the end of the Ming dynasty, fighting seems to have reached the proportions of an insurrection, particularly during the period when Pan Xiang was responsible for the potteries, around 1600. There were two such risings in 1597 and 1599, and the imperial depot was burned down in 1604 during a conflict between workmen and kiln-owners originally from Duchang.³²

As might be expected, there is rather more information about the labour force in the twentieth century, and this does shed some light on conditions as they must have been for many hundreds of years. There was a detailed investigation of the industry in 1928 and others in the 1930s,³³ all of which showed that the potteries remained an industry of small-scale kilns and workshops, each employing only a handful of people. The results of the enquiries will be studied more closely in Chapter XIV, but some of the figures for workers are given here to indicate the size of the labour force. 2,226 men worked in 106 pine kilns in 1928, an average of twenty-one per kiln; while in twenty-two brushwood kilns, 507 men were employed, an average of twenty-three per kiln. In the same year, 22,029 men worked in 1,054 workshops, roughly twenty-one per shop, so small units rather than large factories were clearly the rule.³⁴

In 1920, the Jiangxi Porcelain Company employed four hundred men, one hundred of whom were former employees of the Imperial Factory. Artists were paid five dollars a

day, and clay shapers one dollar. This was thought to be quite adequate as a single man could live quite comfortably on ten dollars a month. Most of the men were from outside the town and recruited on a four-month contract.³⁵

The potters' year ran from the beginning of the second to the end of the twelfth lunar month, a total of no more than ten months a year, but work often had to stop in the kilns and decorators' shops during the frosts of winter and early spring when the materials tended to freeze. The hours were from dawn to dusk, with no rest-day. From spring to autumn, the working day was from six a.m. to five p.m., and for the rest of the year from seven a.m. until six p.m., although some night work was also done. There were three annual holidays and Xiang Zhuo quotes wages that are very similar to those given above by Shryock. Some high class painters were paid twenty to thirty dollars a month, others only from eight to fifteen, and body-makers only five to eight dollars.³⁶ Workers in the kilns got their income from two sources. The kiln owners paid them so much a firing depending on the cost of fuel, and the owners of the body-making shops paid them according to the amount of pottery fired.³⁷

There was a great deal of child labour, and apprentices were fed but given no remuneration. This had altered by the 1940s.

Although there are records of the various guilds to which kiln owners belonged (see Chapter X) there is little information about the pottery workers' organisations before the present century. Jiang Siqing reported that they were extremely secret and that there was no information about what they did or even their names.³⁸ There were no trades unions in the area at all till 1926, although there were two large-scale strikes for wage increases in 1901, when the leaders were executed as bandits.³⁹ There was further

trouble in 1904 when workers struck to protest against troops being brought in to put a stop to fighting between two different guilds.⁴⁰ According to Acting-Consul J.B. Affleck writing in August 1924, strikes were rare and tended to involve the poorest workmen who were protesting at increases in the cost of rice, rather than demanding a wage increase.⁴¹ However in April 1924 there had been a strike of kiln workers after the opening of the kilns had been delayed. This was quickly put down by the police.⁴²

In September 1926, Nanchang was taken by the Northern Expedition with the help of workers and students in the city, and Jiujiang fell in a similar way two months later. After the southern forces had arrived in Jiangxi, a General Union was set up in Jiujiang. In January 1927, seventy-three associations with forty thousand members joined in a Nanchang General Union set up by telephone workers, printers and others in the city, and there were plans for organising a federation based on unions set up or being formed in Nanchang, Anyuan, Jiujiang and Jingdezhen.⁴³ In 1927, Shao Shiming, a special envoy of the Communist Party's Jiangxi Provincial Committee was sent to Jingdezhen to organise the labour movement, joining Hu Delan and others who had been working there for over three months. A guerilla group was set up by Li Jiesan, but all the Communist Party organs had to go underground in 1928 after the Shanghai massacre and the suppression of the Party.⁴⁴

In May 1928, a campaign for increased wages was organised among the painters, and the men also demanded regular daily food allowances. More than 1,600 men struck for over three weeks and in contrast to the time when there were no unions, they secured a wage increase. In the same year there were strikes in nine different trades of body makers, and all gained increased wages.⁴⁵ Another strike was organised in April 1929 after a visit by the communist

Fang Zhimin. The strike and demonstration took place on the day of the Dragon Boat Festival, when the owners were eating meat but the potters only vegetables. Ten men were arrested, but freed after a month. The Red Army took Jingdezhen in 1930 and many men left with it when it returned to the Soviet Base Areas in 1933. There were more strikes before and after the anti-Japanese War, but not on the same scale as before.⁴⁶

In spite of the appearance of these modern trades unions labour in Jingdezhen had really changed very little. It was still the same system that had existed since at least as far back as the Yuan dynasty, and it is interesting to note that even the Communist-backed unions had to raise the traditional demands for meat at festivals in order to organise the men. This was because hirers customarily supplied food to their workers while the kilns were open as part of their earnings.⁴⁷ Agnes Smedley, arriving in the town in 1942, was shocked by the "feudal nature of the industry", particularly the apprentice system which provided plenty of cheap labour since few apprentices could afford to buy themselves out.

"After the wounded in the poor local hospital, what interested me most in Kingtehchen were labour and social conditions, and of these the few owners and master potters of the great potteries who remained in the town spoke freely. They seemed utterly unconscious of the feudal nature of their industry. Little boys of seven or eight, they explained, were apprenticed to master potters, who housed and fed them. The owners paid the apprentices one dollar a month, through the master potter, who kept twenty cents of each dollar as 'compensation for teaching the craft.'

With the remaining eighty cents the apprentice tried to meet all his needs.

"A master potter might have ten to fifteen apprentices, who remained jhay tso - 'confined by a belt' - until their families bought their freedom and they became master potters. Many boys remained jhay tso for ten or more years, and we talked with young men in their twenties who had mastered the craft years before but had not yet been able to buy their freedom. They could mould about two hundred pieces of pottery a day. The products of their labour were sold by the master potter to the firm.

"Though the apprentices were a source of income to the master potter, it was not he who accumulated wealth. One master potter told us that in good years he had been able to earn eight hundred Chinese dollars a year, but since the war only twenty. It was the owner of the kilns who grew rich. The owner explained enthusiastically that before the war, pottery was the most profitable investment in the country. He had a friend who had come from the north with only \$2,000 but at the end of two years was able to show a profit of \$200,000.

"If an apprentice had a family, they might accumulate enough money, or secure a loan from a money-lender, which they would present to the master as a 'gift'. If it was accepted they gave a feast to

the master, and the apprentice was at last freed. Free potters told us the greatest amount they could earn in a month was twelve dollars, but the usual wage was six.

"I asked the owner of a number of kilns, whose finished products were displayed in a big shop, about the health of the apprentices. With something like amused pride, he explained that apprentices had almost every kind of disease - tuberculosis, malaria, and a variety of interesting intestinal diseases. They had no money to buy medicines, he added. As if displaying a choice exhibit, he called a young boy of ten and asked us to note how green the boy was from malaria. But even when sick, he concluded, the master potters, out of the goodness of their hearts, still fed them."⁴⁸

This exceptionally detailed account of labour conditions in Jingdezhen shows how very little progress had been made by the time the Communists came to power, as war and civil war made improvements impossible between 1942 when the account was written, and 1949.

The porcelain industry has always had a plentiful supply of the various kinds of labour that it required. Although the organisation of labour was not centrally planned it was managed well enough for the industry to increase its productivity whenever necessary, such as in the Jiajing period (1522-1566) of the Ming dynasty when imperial orders were stepped up. Although this abundance of men was an advantage in the pre-modern period, it became a hindrance to the modern industry struggling to compete with foreign products. Because labour

was so readily available and well organised, there was no incentive to turn to machinery, and indeed the industry, including the labour force, was so conservative that when machines and coal-fired kilns were tried out, this was done in Poyang rather than in Jingdezhen. There was no large-scale modernisation till the 1950s under the new Communist government.

CHAPTER XII

Taxation and Finance

Although taxation was as much of a burden on porcelain manufacture as on other industries,¹ it did stimulate the development of the industry to a certain extent because money drawn in tax was used at times to finance the production of imperial wares. Local taxation financed the hiring of workers, and later on, in the eighteenth century, tax from the customs stations was used to pay for official orders. The financing of the private sector was rather more complicated, depending variously on credit and sales and on the putting-out of official orders.

The potteries were very heavily taxed during the Yuan dynasty. A Fouliang Porcelain Bureau was established in Jingdezhen, and although the supervising official, the tiling, was responsible for the supply of porcelain to the palace, his main duties were the control and taxation of the private kilns, which were assessed on the basis of length and workforce.² When the Ming dynasty began, the Bureau became an imperial ware depot, and taxation does not seem to have been so severe. The two taxes that affected the potteries directly were the *corvée* or labour service, and the shangshui 商稅 commercial tax that was levied on all trade transactions.

Requisition of labour and materials was dealt with in some detail in Chapter XI and will not be repeated here except to state briefly the situation in the early Ming dynasty, and outline the radical changes that took place in the sixteenth century. Craftsmen potters, that is those registered as such in the 'Yellow Book', were required to spend three months in every four-year period working on official orders. The old tax system, a combination of

land tax paid in grain and labour service, was becoming inefficient and cumbersome, and in the sixteenth century a movement grew which attempted to unify the two systems into a single per capita tax payable in cash. The success of this movement, which became known as yitiaobianfa 一條鞭法 or Single Whip Method, varied considerably from province to province, and when the reform came to an end at the close of the century, its object of complete consolidation had by no means been achieved.³ However, in many areas, labour service was replaced by a cash payment, and in 1562 the unpaid labour performed by craftsmen "was totally commuted and the Ministry of Works instead ordered the magistrate to deliver the payment in a lump sum,"⁴ which was collected from the craftsmen themselves in some areas and in others just added to the standard cash levy for labour service in general.⁵ It seems as if Jingdezhen potters paid the cash themselves as the rates are quoted.⁶

The financing of official firing was somewhat complicated, as the cost of materials and labour costs were accounted for separately. In 1546, according to the Draft History,

"originally, the cost of materials for imperial wares was paid by the Jiangxi provincial treasurer, but because so much was fired, the cost of materials allotted to Jiangxi rose several hundred fold, and a levy of 120,000 liang was raised on the whole province along with the grain tax."⁷

Labour costs were financed using a system which derived from the old corvée obligations of the districts around Jingdezhen. Families registered as artisans were required to serve for so many days a year on the firing of imperial orders until this liability was commuted to a cash payment, (see Chapter XI). Ordinary families were originally liable

for special services as labourers; men from the villages of Fouliang and Poyang districts served in the potteries till the Poyang district magistrate successfully petitioned for more equitable allocation of the liability when the responsibility was spread over all seven districts of Raozhou prefecture.⁸ When this labour service was commuted in the same way as the artisan payment for skilled men the form of the corvee system was retained in the quotas.

Each district was allocated a tax quota based on the number of labourers that that district had previously supplied, but there is no evidence that these quotas had anything to do with the number of men eventually hired in the potteries. As the system evolved, they gradually became notional figures only, used simply as units of taxation.

It is not clear who actually paid the quota taxes. It is unlikely that they were collected from individual labourers, but whether each district paid them out of its general revenue or whether they were collected separately is not known. It is possible that the various trade guilds played some part in organising the payment.

The local gazetteers explain the system in this way:

"There are tax levies for hired hands, gravel hands and higher-grade skilled workers. To provide for the hiring of craftsmen, 33.6 liang [in tax] were originally allocated by the Rao qianhusuo [a local military administration]. Gravel hands grouped according to the weight of gravel or yellow clay they carried and higher grade workers were registered by trade and [the tax] allocated to the seven districts of Raozhou. Each district has its quota."⁹

The quotas for each xian, according to the Fouliang gazetteer, are shown below:

Tax Quota for Each District Before 1558¹⁰

	Higher Grade Workers	Gravel Hands	Total
Poyang	97	64	161
Yugan	58	36	94
Leping	72	38	110
Fouliang	50	18	68
Anren	30	10	40
Dexing	30	17	47
Wannian	30	7	37
	367	190	557

The general allocation of liability is fairly clear. The Fouliang xian zhi explains the system of taxation:

"For each unit [of the quota] a tax of 7.2 liang [a year] was levied to pay wages. It was due when orders were fired, but suspended when firing stopped. The tax from each xian was transmitted to the fu for verification and then issued to the Fouliang treasury."¹¹

The Fouliang treasury was obviously an important organisation. It was responsible for the cost of transporting porcelain to the capital, and for paying wages to the labourers and kept the difference between these expenses and the tax collected.

The tax was obviously quite a hardship. The Raozhou gazetteer records that one Commissioner Liang put an extra three hundred names on the list of official craftsmen and demanded expenses for them so that he could hire more men.¹² He was in fact simply increasing the agreed quotas for each district to bring in more revenue. After an investigation into the register in 1558, the quotas were reduced to lighten the load, and the revised quotas are shown below:

Tax Quotas for Each District Revised in 1558¹³

	Higher Grade Workers	Gravel Hands
Poyang	60	48
Anren	26	8
Leping	42	36
Fouliang	36	16
Dexing	35	9
Yugan	37	30
Wannian	25	8
	261	155

There were further alterations in quotas during the Ming dynasty, but at the beginning of the Qing dynasty they were higher than before:

Tax Quota for Each District at the Beginning
of the Qing Dynasty 1644-1684¹⁴

	Total Number of Workers	Tax at 7.2 <u>liang</u>
Poyang	145	1044
Yugan	58	417
Leping	102	734.4
Fouliang	66	525.2
Anren	38	273.6
Dexing	39	280.8
Wannian	37	286.4
	485	3561.4

It is not clear whether these were worked out on a different basis or whether the higher figures reflect the increased labour and costs for rebuilding the industry. As registered craftsmen were replaced by hired men, the artisan payment banyin 班銀 became available to the Ministry of Works, Gongbu 工部, to finance its various activities, which included procuring porcelain for the palace. It became more self-sufficient, and began to rival the Ministry of Revenue, Hubu 戶部 as a taxation agency, even to the extent of being able to petition for additional land tax, when all land tax normally went to the Ministry of Revenue.¹⁵

|| Porcelain trade, like all trade during the early part of the Ming dynasty, was subject to the commercial tax shangshui, which was "levied on all merchandise transported by land or water and was paid by the merchant and administered by local officials."¹⁶ It was paid to the Ministry of Revenue, and although it can be seen as a forerunner of the

likin tax in that it was characterised by minimal rates, broad coverage and duplication of collection, it fell into disuse during the sixteenth century because the low rates of collection (from 3% down to less than 1% ad valorem) and inefficiency of the collectorate meant that it cost more to operate in some areas than it collected in tax.¹⁷ || There was also a tonnage tax, chuanchao 船鈔 payable on all boats passing clearance points and a maritime tariff, fanpochoufen 番船抽分 on overseas trade, but the effect of these last two on the porcelain trade is not clear.¹⁸

|| In the latter part of the Qing dynasty a new commercial tax, usually known as the likin 厘金, was introduced, and this tax has often been blamed for the decline in industry (including the potteries) and its failure to modernise. It was very similar to the Ming commercial tax, the shangshui, in that it was an ad valorem tax on commodities, payable at customs barriers, but it extended over a much greater area and was more strictly enforced. The tax was introduced in the 1850s,¹⁹ primarily to meet the increase in long-term expenditure needed to finance the suppression of the Taiping, Nian and other rebellions. The traditional revenue system was not capable of meeting heavy long-term demands such as were needed for the protracted military operations against the Taiping, and the government was unwilling to increase the land-tax because of the traditional opposition to this way of increasing revenue; receipts from the land tax, salt monopoly and customs had been declining anyway, so a new tax was tried.¹⁹

The first reference to the new tax is in a memorial to the emperor dated April 21st 1854 giving details of an experiment in likin carried out by a military officer, Lei Yixian, as a temporary measure. Because it proved to be an efficient way of raising money, it spread rapidly, being adopted in Jiangxi in September/October 1855 and Guangdong in 1858, but because the amount of revenue was so large

that the government could not afford to lose it, it was not abolished when the rebellions were put down, as had been intended, but continued until January 1st 1931.²⁰ The system was not uniform throughout the country; because a large part of the tax stayed in local hands, provincial officials applied it to suit local conditions. The system of rates in Jiangxi itself which was quite complex was explained by D.K. Lieu in 1927.

"In Kiangsi province likin was first introduced in 1855, when a few collectorates were established by way of experiment. In the next year, a central office was organised for the whole province, and the rate fixed at 2% for all collectorates. Each collectorate had to make one levy at that rate, and goods were taxed at every point they passed. Later it was decided that only two levies should be made - one of 3% at the first collectorate, and another of 2% at the second. After passing the second collectorate, the goods were only submitted to examination, but not imposition. In 1860, on account of shortage of funds, this was again superseded by the "twice-two levy" method, with an imposition, besides the 5% collected at the first two barriers, of a similar amount to be levied at the third and fourth collectorates.

"After the Boxer troubles of 1900, Kiangxi had to bear a great financial burden in the form of a share of the service of the indemnity, which share amounted to 1,400,000 taels every year. To meet this allotment, the province found it necessary to reform its likin system. The separate-levies method took four times to collect the whole tax, and it was

easy for the trader to evade part of it if any of the four collectorates failed to catch him. Even if he were found out at the next collectorate, he might still evade the third one. To avoid such a contingency, the four levies were combined into one, to be imposed at the first collectorate, at the rate of 10%. If the trader succeeded in evading the first one, he could not possibly evade every one of the collectorates through which his goods had to pass, and whenever he was caught, he had to pay the total amount of the tax plus fines. At the same time, the responsibility of collection being concentrated on one collectorate for any shipment of goods, it became also harder for the collectors to misrepresent the amount of the tax revenue.

|| In this way tungchuan - for this is the name of the new system - is a decided improvement over the old method of likin taxation. ||

"The rate of 10% was too heavy in certain cases, and a further change was made later. The total amount was still levied when the goods were to be shipped beyond four collectorates. If only shipped beyond two collectorates, or if the point of origin was near the boundary line and the goods were shipped to other provinces, the tax was reduced to 5%, or half the total amount. To avoid misrepresentation, by traders with regard to their destination, goods which had paid the 5% tax and which were later found to pass a third collectorate in the province had to pay the other 5% at this collectorate. Miscellaneous shipments not passing beyond even two collectorates were required to pay only 3%.

"When tungchuan was first introduced in Kiangsi it was applied only to a few important articles; for instance, the timber produced along the Chi-kan and Fu-chien rivers, the grass cloth of Yuanchow, Chienchang and other localities, the native dyes of Loping, Yukan and Pengtse, the china-ware of Kingtehchen, the dry beet of Hsuiifeng, the imported tobacco leaves of Fukien, and hemp and flax from other provinces... Kiangsi, therefore, has not yet adopted a uniform rate for its likin tax, like the 2% system in the southern part of Kiangsu, although it is the place where the tungchuan system was first introduced."²¹

The tax became a heavy burden, particularly on small handicraft producers and traders, but also on the population in general as it put up prices. Although the revenue did stay in the province, a large proportion went to the collectors. Porcelain produced in Jingdezhen was taxed in the town and at Hukou on the Poyang Lake before it could be transported anywhere, and tax was payable in each province through which the cargo passed. Shipments to Hubei or Hunan, for example, passed through five tax points before reaching the market, and porcelain sold to Sichuan passed through six.²² When likin rates for Jiangxi porcelain shipped to Canton were increased in 1903, trade suffered considerably, dropping from an average of 105,142 piculs in 1901 and 1902 to 59,070 piculs in 1904. Traders were criticised by H.B. Morse for being too conservative because they ceased trading rather than turn to Yangtze and coastal steam traffic in which case they would have evaded the duties.²³ It was estimated in 1916 that the current likin rates, together with transport costs, added 60% to the cost of porcelain.²⁴

Likin was one of the reasons that Jingdezhen porcelain could not compete with the imported foreign-made pottery that started to flow in after China's defeat in the Opium Wars and was shipped in great quantities in the early years of the present century. The taxation system favoured imported pottery which could be much cheaper than Chinese.

"Many of the methods employed by military leaders to collect revenues are of a nature to upset the economic equilibrium and restrict trade, and, in some instances, to affect vitally the well-being of the individual. In the first category may be named the appropriation of the revenues of the railways, which has already been mentioned. In this class may be counted also the likin, or transit taxes, imposed at frequent intervals along the main routes of commerce and reaching such proportions as to stifle trade. This is one of the reasons that makes German porcelain cheaper than Kiangsi porcelain in Peking, in spite of its much higher production cost. The German product is imported through Tientsin and is liable to only two regular taxes, the import duty and the octroi tax on entering Peking; whereas porcelain from Kiangsi province, in travelling a distance of only eight or nine hundred miles through interior China, may be subject to as many as sixty different imposts en route, depending in both number and amount almost solely on the whim of the war lords through whose area the product has to pass."²⁵

In Jiangxi province itself, imported pottery might even be cheaper than locally produced ware. A wartime traveller reported,

"we reached Kiukiang just as it was getting dark... The shops were mostly filled with cheap Japanese crockery, but the manager of one said that if we returned later, he had a few things that might interest us."²⁶

Ironically, Jiujiang is only a few miles from Jingdezhen and has served as a market for the town's porcelain for centuries.

An attempt was made in 1907 to have Jingdezhen ware declared exempt from internal taxation by putting it in the category of "Chinese factory products in foreign style". Sanction was given for a 5% ad valorem tax to be paid at the place of production by the Jiangxi Porcelain Company in place of the normal likin, but opposition from the local likin authorities, who feared loss of revenue, and the Chinaware Guild, whose members were against this privilege being given to one firm, caused the permission to be withdrawn before a single conveyance certificate had been issued under it.²⁷

Likin as such was abolished in 1930-31, although the Nationalists replaced it with other taxes such as the 'tax on manufacture and trade to exterminate bandits' imposed by the Jiangxi provisional government in 1932. Trade with other areas was also taxed. Porcelain shipped to Tianjin, for example, was still taxed at Jingdezhen, Jiujiang and Tianjin customs, with the result that the number of shops in Tianjin dealing with Jiangxi porcelain dropped from over seventy to fifty-nine during the nineteen-thirties.²⁸

Although all this taxation was a great burden on the industry, it did help to finance it at times. The requisition of labour and supplies for official production, which accounted for a large part of the cost, and was a tax in kind, has already been dealt with. During the Ming dynasty and the early part of the Qing dynasty all the other costs of official production were paid for out of the general land tax and by corvee exemption payments banyin 班銀 through the Board of Works, but the system changed in the late seventeenth and early eighteenth centuries when customs superintendents at Huaian or Jiujiang were given responsibility for supplies of porcelain.

In 1680 normal tax payments from the provincial treasury were used for firing palace porcelain, but in February 1727 the court authorised the use of excess funds from the Huaian customs to pay for the porcelain and ordered that this money be paid to the imperial household at the end of each year.²⁹ According to Tang Ying this amounted to 8,000 liang each year.³⁰ In 1740, and again in 1799, payments were made out of tax collected by the Jiujiang customs, and it was proposed in 1799 that an annual amount of 5,000 liang from the tax receipts be used for buying imperial porcelain.³¹

In 1806 production was reduced by half because the treasury stores were full of porcelain but a further order was sent in 1814. In 1847 the imperial household asked for a large shipment of porcelain, fired in the old way, the cost of which, however, was not to exceed 2,000 liang.³²

Although there had been no planned investment in the potteries and no consistent policy of financing, a great deal of money had been put into the industry by the government in the eighteenth century and the decrease in expenditure was one of the factors that contributed to the decline

of the industry, since the high-quality production was geared to the demands of the court.

Much less can be said about the financing of the private side of the industry. Most of the money came from sales, either privately through the brokers who made the arrangements and took their percentage, or as part of the official order. Some kiln owners, however, made their money by renting out their kilns at a fixed price per firing, paid by each workshop as it had completed an order, while others had to rent the kiln they worked in.³³ Credit was available, and a flourishing money-lending system grew up in the town.³⁴

In the 1930s Jiangxi was one of the provinces with the greatest concentration of banks, and in 1936 had one of the eighteen provincial banks recognised by the Nationalist Government. In Jingdezhen itself in 1934 there were fifteen native banks with an average capital of 31,000 yuan, and ranging from 10,000 to 45,000 yuan, although in the following year there were only thirteen and their average capital had dropped to 28,000 yuan. Capital held by banks in Jiangxi was lower than most other areas. Amounts varied considerably, but at the other end of the scale, the average capital of banks in Shanghai was of the order of 300,000 yuan.³⁵ As well as banks there were a large number of credit societies. In 1935 there was a total of 1,113 Co-operative Credit Societies in Jiangxi with 34,858 members in all and 34,815 people belonged to a further seventy-nine integrated societies. Other societies were also organised under the auspices of the China International Famine Relief Commission.³⁶

// Porcelain manufacture did not require a great deal of capital. In 1920, for example, "... even to build and run a kiln required only from \$3,000 to \$10,000, depending on the size of the kiln."³⁷ Equipment such as potter's //

wheels was fairly cheap to make, and as a lot of work was done in the home, there was no factory to build or keep up. Money was needed for buying materials and for paying wages, although of course in many of the small family businesses, no wages were paid. There are no detailed figures available for Jingdezhen, but the following table of the cost of making a charge of 60,000 bowls at Peng Cheng in Hebei gives some idea of the figures involved:

	\$
Raw Materials	234.30
Labour	282.85
Repair and Renewals (including \$ for saggars)	26.00
Overhead (manager and salesman)	31.25
Charge for Fixed Capital	18.75
	593.15 ³⁸

To this would have to be added any interest payable on loans for working capital which could be very high.

There is also more information about the financing of pottery production through moneylenders in Peng Cheng:

"Ten or twenty years ago [1910-1920]

the owners of the potteries, when necessary, borrowed money from the rich men of the neighbourhood, pledging their lands, houses, and so forth as security. The rich men comprised chiefly landowners and the owners of oil presses situated to the west of P'eng Ch'eng. As time went on, conditions changed, and the merchants took the place of the local gentry as the chief money lenders. When one of the pottery owners wished to borrow money from a

merchant, he would approach the master of the commission house who acted as middleman. The price was fixed at which the merchant could secure the goods in consideration of an immediate advance. The goods were delivered at stated intervals, the price being usually seven-tenths of the regular market price. The local gentry charged 3% per month for their loans, but the merchants exacted in effect a much higher rate. This depended on the length of time allowed for payment, which might be three, six or twelve months. They were repayed in goods, at the discount mentioned, in one, two or four instalments respectively. This is equivalent to an interest rate per annum of 172% for the short periods, and approximately 137% and 89% for the longer periods, the exact figure depending on the dates of delivery of the chinaware. The longer periods are only granted to the more reliable firms. The whole situation is truly an illuminating commentary on the commercial capacity of the pottery owners."³⁹

There were no firms specialising in credit in the town, as there were in Jingdezhen (see above) and it may well be that this private organisation of credit represents an earlier stage in development, similar to that which operated in Jingdezhen before the present century.

It appears that the system of finance and taxation was flexible enough to accommodate and stimulate the great Ming expansion in spite of the fact that the corvée and later cash taxes were a burden on the private sector. The complex financial relationships show how closely the industry was

tied to the demands of the court. This close dependence may well have been one of the reasons for the failure of an independent private industry to develop. There is unfortunately very little detailed information about the financing of the potteries in the Ming and Qing dynasties but it is clear that there was a complex system of finance and credit which involved local gentry and merchants and the inevitable middle-men. Even during the Republic, when the Jiangxi authorities set up a Porcelain Bureau, there was no central financing of the industry. Planned investment and financial control had to wait till after 1949.

CHAPTER XIII

Import and Export

The export of porcelain to the West began as a trickle of curiosities carried home by inquisitive travellers or sold by a few enterprising merchants. As it became better known, a demand for it developed, and by the Ming dynasty it was being sold in large amounts, till it eventually became one of the most reliable sources of income for the industry. European interest in chinoiserie boosted porcelain exports in the eighteenth century, but the demand declined, particularly as Europeans had by now learned the techniques of manufacturing fine porcelain. When the treaty ports were established in the middle of the nineteenth century a reversal of the direction of trade began and by the early twentieth century large amounts of machine-made pottery were being shipped to China from Japan and the West.

Porcelain was exported from China at least as early as the Tang dynasty (618-907 A.D.) and some pottery may have been shipped to South East Asia in the Han dynasty (206 B.C. - 220 A.D.) but it was porcelain, with its superior quality, that eventually captured an international market.¹ It was a luxury product, like silk, and was often sent as an official gift in exchange for tribute, although it was also handled privately by Chinese, Indian and Arab traders. Government restriction on overseas trade did not stop its sale by any means as it proved too profitable to miss.²

Tang dynasty porcelain certainly travelled a long way west:

"The first tangible evidence of T'ang white wares was secured through archaeology from Brahminabad in India, Fostat in Egypt and Samarra on the Tigris in what was

formerly the Abassid Caliphate, [capital of the Caliphate from 836-883] all of which countries had commercial contact with China in the T'ang dynasty."³

This evidence confirms the reports of large-scale trading in porcelain made by the Arab travellers Sulayman in 851 A.D. and Ibn Khordādeben in 864.⁴ Some of these Tang wares were handled by traders in the Middle East, often being shipped first to India by Persian merchants. Of course, most of the porcelain exported in this period would not have come from Jingdezhen as Hebei and Henan were far more important producers, but the trade routes pioneered in the ninth and tenth centuries made possible the export of Jingdezhen ware in later years.

During the Song dynasty, trading expanded considerably, especially in metals, silk and porcelain. Shipping went to South East Asia, Zanzibar, Persia, and Japan, and there was an overland trade with Central Asia.⁵

"A merchant vessel bureau was established in Canton to tax exported goods of which the bulk were silks, cottons, porcelain and lacquerware. Book two of Zhu Yu's Talks from Pingzhou records that foreign merchantmen, each dozens of feet in breadth, and in depth, anchored off Canton 'to buy large quantities of pottery... as they were not short of space.' It also says of the Cantonese, 'the rich ones accumulate silk, cotton and pottery whenever they can, as these increase in value and yield far better profits than moneylending.'"⁶

Although porcelain was exported in some quantity during the Song dynasty, it was during the Yuan and early Ming that trade expanded greatly. The voyages of the Moslem admiral Zheng He in the early part of the ^{Ming} dynasty were an important stimulus to the export trade.

"Some seven expeditions that visited Java, Sumatra, Ceylon, India, Arabia and Africa put to sea between 1405 and 1431. In addition to ambassadors and tribute they brought back a great deal of information on sea-lanes, navigation conditions, harbors and foreign customs."⁷

The expeditions carried a variety of goods to exchange for tribute from foreign rulers, including porcelain.⁸ Not that this exchange of tribute or official trading was entirely new; pottery had been shipped to the Ryukyu Islands since at least the beginning of the dynasty. 69,500 pieces were sold there in 1374, a further shipment of an unknown quantity was made in 1376, 19,000 pieces were shipped in 1385 and more in 1404. Zheng He's voyages stimulated the expansion of trade, and, more important, extended the routes so that in the fifteenth and sixteenth centuries, Chinese porcelain in large quantities found its way to India and the Middle East, and although the admiral's expeditions were curtailed by a Confucian bureaucracy anxious to limit the influence of eunuchs, the routes he pioneered remain open. For example, in 1417, an expedition to Herat in Afghan carried porcelain as did other voyages to India, Cochin-China and Arabia, by both land and sea routes.¹⁰ Chinese porcelain travelled further and further West and by 1540 had reached Europe where Venetian potters began to copy Chinese styles and tried to master the techniques of manufacture.¹¹

There were two different forms of trading in the early part of the Ming dynasty, official shipments in exchange for tribute, and simple commercial transactions, but it is not possible to say how separate these were, or how much they overlapped.¹² Seaborne trade during the Ming dynasty had a fairly simple pattern. Tropical raw materials were imported, and exports were mainly handicraft products with textiles, iron and pottery the most important.¹³ Official gifts in exchange for tribute were usually luxury goods, so porcelain would have been sent, whereas the Chinese, Indian and Arab traders who shipped commercially would have been dealing mostly in the cheaper, coarser pottery. There were still official restrictions on overseas trade, yet it seems to have been profitable. This pattern of trading was altered radically at the beginning of the seventeenth century when the involvement of European merchants, which had begun in a small way in about 1500 became much more important.

European trading on a small scale began with the Portuguese in 1498. Porcelain was shipped by them via Goa and by the Spaniards via Mexico and was sold either in the Iberian peninsula or in their American colonies.¹⁴ The Portuguese conquest of Malacca in 1511 gave them an entrepot and enabled them to take over from the Moslem traders as principle merchants in the East Indies.¹⁵ However, it was not until the capture of two Portuguese ships by the Dutch navy that shipping began on a large scale,¹⁶ and it was the Dutch who pioneered the bulk import of Chinese porcelain into Europe north of the Pyrenees,¹⁷ whereas the Portuguese had concentrated on capturing trade within the East Indies. In 1602 the carrack 'San Jago' was captured off Saint Helena and taken as a prize, the porcelain in its cargo later being presented to the town of Middleburgh. Two years later, the 'Catharina' was taken off Patani (Johore in the Malay Straits) and its cargo auctioned in Amsterdam. The auctions revealed a

considerable demand for Chinese porcelain, which Dutch merchants swiftly moved to supply.¹⁸

The Dutch East India Company (Vereenigde Oost-Indische Compagnie) was formed in 1604 at the time when the locus of maritime power in Europe was shifting from the South to the North, and proceeded to involve itself deeply in East Asian trade, competing both commercially and in a military sense. As well as capturing Portuguese ships, the Dutch tried to take the Portuguese base of Macao in 1622, but when this failed, established themselves on Formosa in 1624. The Dutch East India Company also set up trading stations ('factories') in Japan, at Hirado from 1609-1641 and Deshima from 1641-1862.¹⁹ After the initial impetus from the capture of the carracks, trade grew rapidly. Fifty thousand butter dishes, fifty thousand plates and much else were ordered in 1608, some in shapes specially commissioned for the Dutch. In 1610, the 'Roode Leuw met Pijlen' arrived in Holland, with 9,227 pieces of porcelain, and in 1612, the 'Wapen van Amsterdam' and the 'Vlissingen' both sailed from Bantam, a port forty miles west of Batavia, the 'Wapen' carrying five barrels each containing five large dishes, and the 'Vlissingen' with 6,793 florins' worth of porcelain - 38,641 pieces in all. The 'Gelderland' in 1614 brought 69,057 pieces worth 11,545 florins back to holland.²⁰ Chinese porcelain became more and more common in Holland. A description of Amsterdam published in 1614 stated that porcelain had come to be "in daily use with the common people," and in 1640 a commentator, Peter Mundy, noted that "any house of indifferent quality" was well supplied with Chinese porcelain.²¹

In addition to this large home demand, an even greater amount was bought for re-export, so that between 1602 and 1757, more than three million pieces of porcelain were shipped to Europe, followed by about 190,000 pieces of Japanese ware between 1659 and 1682 when supply was interrupted

by the civil disturbances in China. Several million more pieces were transshipped by the Dutch at Batavia (Djakarta) for resale in the markets of India, Persia, Malaya and Indonesia.²²

Batavia, capital of the Dutch East Indies, had been the centre of Dutch activity in the Far East since the town was built in the early seventeenth century. Junks from China sailed either directly to Batavia or to Zeelandia on Formosa where Dutch ships of the East India Company took over and transported cargoes on to Batavia. From Batavia, porcelain that was more 'utility' than 'decorative' was shipped either to Holland, or for the coarser wares, to the Malay Archipelago. Many of the details of shipments were recorded in the dagh-registers or journals kept at Batavia, Hirado and Deshima.²³

Just as the development of the tea-drinking habit in Tang dynasty China stimulated the production of porcelain for internal trade, so the spread of the habit to seventeenth century Europe stimulated the production of export porcelain. The Dutch learned about tea from Van Linschoten's Itinerario in 1596, and the first consignment from Macao reached Bantam in 1607 and Europe in 1610. The demand for teacups grew when tea reappeared in London in 1650 and more so when it went on sale in London coffee-houses in 1660, but supplies from China were interrupted by the disturbances during the dynastic changeover from the Ming to the Qing.²⁴ An entry in the dagh-registers for January 13th 1644 indicated that although Dutch traders placed a large order for fine porcelain from China, they did not expect to be able to get the supplies because of the war. A junk had arrived at Batavia with the message that further supplies were unlikely because the province in which it was made was "full of war". Trade between China and the Dutch diminished considerably between 1647 and 1652.²⁵ Two ambassadors of the Dutch East India Company, Jacob Keyser and Pieter de

Goyer, travelled to Peking in 1656 to try and improve the conditions of trade. On April 23rd they arrived in Jiangxi and two days later came upon a river on which they were told lay a porcelain town. That afternoon they came to "Woltsingh" (Raozhou),

"famous because about eighteen miles distant to the east in the country, the fine porcelain bakeries are situated,"²⁶

that is at Jingdezhen. At Raozhou,

"of all the vessels sailing to the South as well as to the North, some supply and some supplement their cargo capacity with porcelain, mostly coppen [often used for cups and bowls] and we found the mandarins accompanying us not sleepy in this, for they laid in as much of this pottery as their vessels could drag away or swallow up, to peddle it with profit at Nanchin and elsewhere."²⁷

Business in the home market clearly had not suffered as much as the export trade. The masters of ships carrying porcelain from Formosa lamented the war in China and the "great mortality among the porcelain makers," but some large amounts were still shipped.²⁸

The Dutch initiative had opened the trade routes and other European merchants were quick to follow suit, including those of the French Compagnie de la Chine and the East India Company in England, which was formed by Queen Elizabeth in 1602 and given a new charter by James I in 1609, enabling it to trade with China. A rival East India Company was founded in 1698 with statutory privileges under William III.²⁹ Porcelain arrived in England during the seventeenth

century, but remained something of a novelty, although by 1696, King William III had amassed a large collection.

"April 23rd 1696 - I went to see the King's House at Kensington. It is very noble, though not great. The gallery furnished with the best pictures from all the houses, of Titian, Raphael, Correggio, Holbein, Julio Romano, Bassan, Vandyke, Tintoretto, and others; a great collection of porcelain; and a pretty private library."³⁰

Five categories of porcelain were made for the European market:

- (1) Kangxi blue-and-white and famille verte with no trace of foreign influence.
- (2) Porcelain made in shapes copied from European ceramics, silver or glass.
- (3) Porcelain decorated in China with European designs (armorial porcelain or Jesuit-Chinese porcelain with Christian designs.)
- (4) White porcelain exported for decoration in Europe.
- (5) Blue-and-white, etc., to which some decoration was added in Europe.³¹

Trade increased in the eighteenth century as chinoiserie became fashionable and much of the porcelain sold came from Jingdezhen, with kilns in Dehua and Fujian being next in importance.³²

Overland trade also expanded during the seventeenth and eighteenth centuries. There was a regular sale of porcelain to Russia via Kiakhta and to Central Asia and the Middle East. In spite of the problems of supply and

maintenance of land transport, profits were high, yielding up to ten times the buying price on sale. Sea trade was probably even more profitable as the ratio of costs to the quantity carried was far lower than that of land transport.³³

Trade to the east also increased in this period, mainly to Japan but also to Korea. Two groups of wares, both known by their Japanese names, were manufactured especially for export and were bought mainly by Japanese tea-masters.

Ko-sometsuke blue-and-white ware was made mostly in the Tianqi 古染付 reign (1621-27), although some dates from the early part of the Chongzhen period (1628-43). Most of the pieces were made in Jingdezhen but some, known as ko-gosu-sometsuke probably originated in Fujian. The earliest pieces were adaptations of existing Chinese designs, but later orders were custom designed, and these were made in the private kilns of Jingdezhen. Shonsui wares were blue and white 祥瑞 and slightly finer than the ko-sometsuke. They were also made in Jingdezhen, but were of a slightly later date.³⁴

Conditions in China during the two reigns of Tianqi and Chongzheng were quite chaotic. Caught between the Manchu advance in the north and European pressure in the south, the Chinese economy became more and more unstable, and the kilns in Jingdezhen, deprived of imperial orders, relied heavily on the export market up until the Qing reign of Kangxi.

Since few Japanese ships were allowed to trade with China at this time, most of the export wares reached Japan in Chinese or Dutch merchant ships. There are records of a man by the name of Ito in Ise who bought porcelain from a Chinese trader in Nagasaki. This man bought from a trader in Nanking who in turn bought his supplies in Jiujiang. On the Japanese side, the tea-masters were able to place their orders through the merchants' guild responsible for importing foreign wares.³⁵ The quantities of porcelain exported to Japan at this time

were quite large. In 1641 there were three shipments of 1,447 pieces, 2,700 and 30,000 pieces from Nanking, Fujian and Hangzhou respectively.³⁶

As has been suggested, the expansion of the export trade was very important to the porcelain industry in the difficult period around the end of the Ming and the establishment of the Qing dynasty. The demand for Chinese porcelain grew in several countries, because although European potters were able to make fine porcelain of the soft-paste variety, they were not able to make good hard-paste porcelain, so this had to be obtained from China.

Foreign merchantmen picked up their cargoes at Amoy, where the Portuguese had established a base in 1557, and later at Canton.³⁷ Amoy was the most important outlet till 1578 when the Portuguese were able to trade directly from Canton but there were severe restrictions on sea trade till 1684 when the imperial ban was lifted. Between 1685 and 1758, the English and other European companies tried trading in Canton, Amoy, Foochow and Ningpo, but, after 1760, trade became confined to Canton until the treaties of the 1860s. Trade was under the general supervision of the Hoppo (from Hupu - Board of Revenue), the Superintendent of Maritime Customs for Guangdong, who collected the duties payable on foreign trade. Because he followed the traditional practice of using a group of Chinese merchants as his agents, the famous Cohong system of brokerage firms developed, and it was with the Cohong that the European merchants had their dealings.³⁸

Overseas customers placed their orders with merchants from one of the brokerage firms in the Cohong - the special status of this body meant that its members had a very effective trading monopoly - and these orders were made up by potters in Jingdezhen either in traditional shapes or as teapots, cups and other designs in the western style. At first,

the wares were also decorated in Jingdezhen, but later they were sent plain to Canton and decorated in workshops there, so they could be more closely supervised by the customers. This move followed the shift in the centre of gravity of trade, and many painters lost their livelihood in Jingdezhen and were forced to move to Canton in search of work.³⁹ According to the Tao Lu, export pieces were known as Yangqi foreign ware 洋器 .

"Yangqi is made specially for sale to foreigners. Merchants who are mostly from eastern Yue [Guangdong] trade with the devils. The shapes are strange and vary from year to year."⁴⁰

As the fad for chinoiserie spread throughout Europe in the eighteenth century, most of the European countries bought Chinese porcelain. The Russians imported it through Kiakhta, British merchants bought it very early on, notably on the expedition led by Weddell in 1673 and the French Compagnie de la Chine was also a large customer.⁴¹ A lot of these transactions were financed by the silver dollar that had been introduced by the Spanish very early on in their contacts with China. However, by the early part of the nineteenth century, the fashion for chinoiserie had largely died out and been replaced by a demand for the arts of the classical revival. In addition, European potters had learned the secret of making the much-sought-after hard-paste porcelain. They had been trying to imitate Chinese porcelain ever since the first examples reached Europe. Marco Polo had taken pieces back to Italy with him, and in the fifteenth century potters in Faenza, Gubbia and Urbino tried to copy them. However they were only able to orientalise the patterns; making the porcelain body was beyond them till the eighteenth century.⁴² Their success then was partly due to the early excursion into industrial espionage by Pere d'Entrecolles

whose letters from Raozhou in the early eighteenth century which were discussed previously went into great detail about the manufacturing process. A Quaker doctor living in Plymouth, William Cookworthy, is credited with the discovery in 1786 of china clay and china stone in the decomposition products of the granite masses of Cornwall and Devon and his discovery stimulated the growth of porcelain manufacture in Staffordshire.⁴³

Pottery manufacture in England had been a cottage industry till the seventeenth century, but demand was stimulated by the growth in tea-drinking and coffee houses, and this, together with improvements in methods of manufacture enabled the industry to develop rapidly. In 1720, Astbury discovered how to whiten salt-glazed stoneware with calcined flint, moulds were introduced in 1730, but the big expansion which led to the growth of factories began with the transporting of clays from Devon and Cornwall to Staffordshire in 1770. Chinaware factories were started in Bow, (1774), Chelsea (1745), Worcester (1751) and Derby (1750)⁴⁴.

Exports of Chinese porcelain declined, and the opening of the treaty ports, following the 1842 Treaty of Nanking which ended the first Opium War, marked the beginning of a reversal in the direction of trade as machine-made Western products found their way into the markets traditionally supplied by Chinese handicraft industries. Imports from Europe and Japan were sold all over China. On top of all this came the Taiping Rebellion of the 1850s which severely disrupted trade and reduced porcelain production drastically. After 1880, exports climbed again but never reached their previous heights either in quantity or quality.⁴⁵

By the end of the nineteenth century, all China's industries were forced to diversify and porcelain was sold in two different overseas markets. In addition to the European and Japanese markets which had demanded

modified styles and decorations, a new market developed in the growing overseas Chinese communities in South East Asia, who wanted traditional designs and shapes. The finer wares tended to go to Europe and Japan, the coarser to South East Asia.⁴⁶ Jingdezhen still specialised in the higher quality wares and for many years led in the value of its exports although it was much lower down the league table in terms of the quantity produced.⁴⁷ By the 1930s, the export trade had dropped to a level from which it could not recover.

The reversal of the direction of trade discussed above had its roots in the European industrial revolution and the ability of mechanised potteries to produce porcelain comparable with the everyday ware made by hand in China, and at a much lower cost. Imports of machine-made pottery began in the late nineteenth century, stimulated by the opening of the treaty ports, but the trade grew gradually at first, not reaching large proportions till the early twentieth century. There are no records of chinaware imports in the customs returns of trade before 1900 but the following table illustrates the steady growth in the value of these imports from 1903-1906:

Value of Chinaware Imported into China⁴⁸
in Haikwan Taels

1903	361,914
1904	347,087
1905	570,435
1906	564,257

These gradually rising import figures can be compared with declining exports, to Hong Kong, Siam, Singapore and the Straits, in the same period:

Total Value of Chinaware Exported from China⁴⁹
in Haikwan Tael

1903	2,204,786
1904	1,663,921
1905	1,721,474
1906	1,579,204

The greatest increase in imports came between the period 1903-1906 and 1913 when the value doubled, and the following table shows how sales were made up in 1913 and in 1920 when the total value of imports declined considerably as a result of the European preoccupation with the First World War. Germany, defeated, stopped exporting to China, but this gap was filled by new imports from America and a doubling of Japan's imports.

Value of Pottery and Porcelain Imported
from Various Countries⁵⁰
in Haikwan Tael

	<u>1913</u>	<u>1920</u>
U.K. (Hong Kong)	371,047	17,176
U.K.	107,627	69,746
Germany	212,704	-
U.S.	-	13,431
Russia	74,449	990
Japan	347,058	671,131
Total	1,107,885	772,479

Nevertheless, the overall trend towards a decline in the quantity imported did give the porcelain industry and Chinese industry in general a respite, and there was a temporary recovery. For example in 1916, the potteries produced large quantities of fine ware for Yuan Shikai. However, the recovery did not last for long. As the European economies pulled themselves together, their export production grew again, as the following table of imports between 1927 and 1930 shows:

Value of Chinaware Imported into China⁵¹
in Haikwan Tael

1927	2,148,662
1928	2,511,033
1929	2,730,082
1930	2,649,392

In addition, a new threat faced the native industry. In 1918, the Japanese had built a factory in Dairen, the Great China Pottery Company, Dahua yaoye gongsi 大華窯業公司, under the management of the South Manchuria Railway Company, and when the Japanese took over control of Liaoning in 1931, they also took over an important porcelain company there, the New Beginning Company, Zhaoxin gongsi 肇新公司, forcing the owner Du Zhongyuan into exile in Jingdezhen.⁵²

These Japanese factories and others in Shanghai owned by Japanese and English concerns developed mechanised ceramic production, using cheap native labour and materials. However the most common complaint against all foreign imports was the favourable tax differential that they enjoyed. With cheap foreign pottery invading all its traditional markets, the handicraft industry in Jingdezhen

could not compete, although coarser pottery probably held its own in local markets.

PART III

CHAPTER XIV

Conclusion

Jingdezhen's porcelain industry has had a long and complicated history, and it is clear that some of the ideas that have been held about 'imperial kilns', 'factories' and firm state control must be considerably modified.¹ The industry was run in fact by small businessmen, individuals who owned a kiln or a workshop or both and who produced their pottery for sale with the intention of making a living, if not a profit that could be reinvested to provide capital and industrial growth. State control was irregular and often indirect; it was exercised through orders for court porcelain, official supervision and taxation, and since different agencies of the state, such as the Board of Works, Board of Revenue, Customs and local magistrates were involved at different times and in different ways, this control was never monolithic or all-important. Nevertheless state intervention and finance did have an important effect on the industry, providing a great deal of work through imperial orders in the middle of the Ming and Qing dynasties for example, or restricting growth with unfavourable tax policies as in the late nineteenth century.

Several of the problems which have arisen in this study can now be examined in more detail.

1. The Foundation of the Industry in the Period Before the Ming Dynasty

Although the more spectacular developments in the potteries took place in the sixteenth and seventeenth centuries, the earlier history of the industry is very important as it was in this period, notably during the Tang and Song dynasties, that the solid foundations were

laid which permitted the advances of later years. There are a number of reasons for the establishment of the industry in the area in the first place.

In geographical terms, Jingdezhen was extremely well placed. It combined the advantages of relative isolation from the mainstream of Chinese political and military events with easily available waterways. In spite of its position far enough inland to be safe from the ravages of Japanese pirates on the east coast and far enough south to avoid the military consequences of the invasions from the north, it was within easy reach of the main cities, so that its products could be transported either for sale or for submission to the court.

The fundamental reason for the early growth of the industry is of course the existence of plentiful raw materials within easy reach of the town. Coarse clays were found very near all the kiln sites of the Tang and Song dynasties and finer porcelain clays not very much further away; colouring materials and wood for fuel were also abundant. In the same way, the pottery industry at Peng Cheng in Hebei grew up because there were a large number of sources of clay within one or two miles of the town.² Similarly, Josiah Wedgwood in England during the late eighteenth century exploited local materials and fuel before he was able to organise the conversion of a semi-domestic process into a substantial industry which was on a large enough scale to transport large quantities of china clay from Devon and Cornwall to Staffordshire.³

It was in the Tang and Song dynasties that many of the techniques of firing, colouring and glazing porcelain were developed, although the basic techniques for making pottery such as the use of the potter's wheel and the construction of kilns had been known for centuries even then. So, long before the Ming dynasty, the technology of the

industry was firmly established and no major innovations were made. Because the process was carried out entirely by hand, it required a large amount of labour, and this seems to have been available in this early period on a part-time basis, during slack periods in agriculture.

Although the town did supply court porcelain in the Song and earlier dynasties, Jingdezhen ware was not to become the most famous of porcelains till the Ming dynasty, and the lack of consistent court involvement before this date does partly explain the industry's gradual development in contrast with the more rapid progress of the Ming period. Progress may not have been dramatic, but the four hundred or so years before the Ming dynasty began in 1368 was a period of establishment and consolidation without which the Ming developments could not have taken place.

2. Great Strides in the Middle Years of the Ming Dynasty

Although Jingdezhen possessed a number of important natural and other advantages, it was by no means unique. Other regions had clays and transport, and potteries in Hebei, Zhejiang and Guangdong were producing fine pottery and porcelain in the same period. So the reasons for Jingdezhen's development before the Ming dynasty do not entirely explain its spectacular and unique growth among pottery towns in the Middle period of the Ming dynasty. Towns such as Peng Cheng in Hebei became important as producers of pottery, and maintained this position right up to the twentieth century without ever achieving a position anything like that of Jingdezhen. To explain this growth, it is necessary to examine the great changes that took place in the national economy in this period, the fifteenth and sixteenth centuries, and analyse the ability of potters in Jingdezhen to respond to these changes and to the increased demands made by the court on the

industry, as successive emperors took a personal interest in porcelain.

This personal interest began in the very first reign, Hongwu, of the Ming dynasty, and was continued through successive reigns as orders were made by each emperor for porcelain with his own reign-mark. As the official side of the industry grew, imperial orders increased, gradually in the first hundred and fifty years of the dynasty, but then spectacularly in the sixteenth century. These orders were not an unmixed blessing for Jingdezhen, as even those that were paid for were not always costed fairly, so to some extent they were a burden on the potters. However the sheer size of the increase, from 2,570 pieces in 1529 to 105,770 in 1571, provided a stimulus to the industry's growth, whatever the cost. During this period of growth, there was very little state direction of the industry. The incumbent eunuch official had been removed in 1530 and from then on the supervisory responsibilities lay with local magistrates.

The form in which the industry reorganised to meet these new demands was partly a result of this lack of central direction and control. If the potteries had been managed directly by a state official, it is possible, though by no means certain, that large official factory units might have been created. This is not however what happened. Local magistrates did not have the power or possibly even the wish to create factories, and they relied instead on the production of the existing small workshops and kilns. Even when there were actual government officials involved in Jingdezhen, they were not managers but commissioners, agents carrying porcelain orders from the court, and their job was simply to ensure that the quantity and quality of the order were satisfactory, not to reorganise an industry that could already produce as much as the court required. Where previously porcelain for the court had been drawn (originally as part of a tax liability) from kilns designated as official

guanyao, in the Jiajing period the system known as guandaminshao Officially Assisted Private Firing, which had begun in the Zhengtong reign, took over from the existing practice. Under this new system, imperial ware was ordered from other private kilns, minyao and paid for. Although potters were put under a great deal of pressure and fined if they could not meet a deadline, the effect was to provide a great stimulus for the private sector of the industry.

However the stimulus was only possible because of certain developments that took place in the Ming economy as a whole. For example in 1562, the artisan payment banyin or jiangyin was introduced, replacing the labour service, which craftsmen had been forced to do, with a single cash payment. This new system released workers from official duties and enabled them to work for longer periods in private workshops and kilns. Private kilns could therefore expand and supplies to the court could increase. This legal development which affected the industry quite profoundly was part of the greater economic changes taking place in this crucial period of the Ming dynasty. The rationalisation of the taxation of craftsmen was part of a wider movement for the reorganisation and unification of the involved and inefficient tax system that had prevailed until then. This movement towards the 'single-whip' method of taxation spread throughout most of China during the 1560s, and although the final aim of a single cash payment was never realised, the net effect was a trend towards cash payments in commercial life as well as in taxation. The wider use of money that resulted from this reorganisation not only stimulated the growth of hired labour, but also increased the quantity of goods circulating in commercial markets and the scope and size of these markets. The widening of the sphere of activity of the Xin'an merchants from Huizhou and other groups, and their involvement in commerce throughout China increased the commercial demand for pottery and porcelain so that Jingdezhen was supplying commodities for a vastly expanded market as well as for an ever more voracious court.

Technical changes also assisted this great increase in the production of Jingdezhen porcelain. There were no startling innovations in technique, and pots were still made by hand in the traditional way, but a number of refinements such as glaze-blowing and the development of new colours and designs enabled the potters to meet the new high standards demanded by the court and more sophisticated private buyers. Finer control of firing temperatures increased productivity, since it cut down on losses in the kiln, and an increase in the division of labour also assisted efficiency in production.

As the demand for finer quality porcelain grew, both for court wares and for private porcelain made more attractive by its association with imperial production, new high quality clays had to be found as existing supplies ran out. People in Jingdezhen responded to this challenge by developing new raw material sites many miles away from the town, and the methods of transport necessary to bring materials to Jingdezhen. Fortunately the supply of labour for the traditional forms of transport by barrow, pole and boat was flexible enough to permit expansion, to meet these new demands and the needs of those transporting finished porcelain to market. Mining and manufacture, like transport, needed enormous amounts of labour since there was no mechanisation and one of the reasons that the industry was able to expand in the sixteenth century was the availability of cheap labour. Peasants were forced off the land by the growth of large estates and by natural disasters, and in North East Jiangxi, flocked naturally to Jingdezhen which provided employment for the most unskilled and even for the blind and crippled.

The remarkable growth of the industry in the sixteenth century, therefore, can be attributed to a number of factors, both external and internal. In general, the most important external factors were the growing commercialisation of the economy and the increasing interest of the court in quality porcelain, while inside the industry, the important factors

were Jingdezhen's ability to respond to the changing pattern of demand by reorganising within the confines of the traditional handicraft mode of production.

3. Embryonic Capitalism

It is obvious from the above that there were great quantitative changes in the porcelain industry during the Ming dynasty, as production expanded and the number of kilns increased, but to what extent these involved qualitative changes in the nature of the industry and Chinese society is not so clear. Among Chinese historians during the 1950s an involved and heated argument raged about the nature of early modern and pre-modern Chinese society, whether it was feudal, proto-capitalist or capitalist, and about precisely when the dividing lines should be drawn. During the controversy, many of the economic and social institutions of the Song, Ming and Qing dynasties were re-examined, particularly the various industrial enterprises, and the case of Jingdezhen was mentioned frequently in the different arguments.

Mao himself had supplied the basic text for what became essentially an exegetical controversy: "As China's feudal society developed its commodity economy and so carried within itself the embryo of capitalism, China would of herself have developed slowly into a capitalist society even if there had been no influence of foreign imperialism."⁴ The central concern of the various arguments then was to show that what was termed a feudal economy in pre- and early modern China would eventually have developed towards capitalism of its own accord, however slowly. This natural progress was, however, interrupted it was said by the Manchu invasion and the exploitation and aggression of Western imperialists in the nineteenth century.

Because of the prestige of Mao, the discussion was limited to this formula, but there were different interpretations of the analysis. One school of thought, whose leading spokesman was Shang Yue, was dominant during 1956 and 1957. Shang argued that the late Ming and Qing economy was already protocapitalist because of the widespread existence of factory handicrafts divorced from agriculture which had developed from the proliferation of internal and external trade and the concentration of landholding which had forced peasants into the towns. Opponents of this view argued that Shang over-emphasised this proto-capitalism and played down the role of foreign invaders in transforming China into a semi-feudal, semi-colonial country. He was criticised for assigning far too secure a position to capitalism three hundred years ago, when the Communist Party had had to carry out an anti-feudal land reform only within the last ten years.⁵

In addition to the arguments about the strength of this embryonic capitalism, there were wide differences of opinion about the period in which the 'sprouts', mengya 萌芽 had developed. Some scholars found their origins in the Tang and Song dynasties, but most looked to the sixteenth century and held that by the Wanli reign of the Ming dynasty, proto-capitalist forms could be found in many handicraft industries and even agriculture. A number of writers have argued that the growth in Jingdezhen's porcelain industry in the sixteenth century shows the existence of such early forms of capitalism, and their arguments will now be examined individually.

Xu Wen and Jiang Siqing in an article entitled "Looking at the Sprouts of Capitalism Through the Porcelain Industry in Ming Jingdezhen"⁶ consider the development of Jingdezhen from the point of view of increases in the hiring of labour, growth in production, division of labour, the specialisation of the town's economy, international trade and the newly

developing urban classes, concluding that the extent of these changes, notably the increase in the number and size of kilns and the growing industrial conflicts, reflected the development of capitalism in the town.

In an article entitled "Embryonic Capitalism in Certain Sections of the Handicraft Industry in Pre-Opium War China"⁷ Qian Hong examines silk, cotton, iron and paper manufacture, other metalworking and timber, and devotes one complete section to Jingdezhen. He concludes that in spite of remnants of feudal arrangements in hiring and paying workers, capitalist property relations had appeared in the Qing dynasty, and there was already a small minority of kiln owners who were in the relationship of employers to their employees.

Li Zhiqin emphasises the extent of private ownership of kilns in his "Problems of the Level of Embryonic Capitalist Production in Early Qing China"⁸ which also deals with mining and metal industries, textiles and shipping and more general problems like the scale of production and the division of labour. He uses the material to conclude that embryonic capitalism had developed to quite a high level before the Opium War, although conditions for its full development did not yet exist.

Wu Hairuo considers the ceramics industry along with cotton, silk, paper and metal production in "Embryonic Capitalism in China"⁹ and after considering the history of the industry, labour questions and relations between the official and private sectors, comes to the following conclusion

"To sum up, the official kilns had a feudal economy, but they were not separate from the development of private kilns, and their production relationships did change partly. Official kilns were based on the

development of private ones in their technology and the organisation of production... The development of capitalist relations of production in the private kilns also influenced the break up of the corvee system of the official kilns which had to adopt hired labour. In spite of these changes in the relations of production in the official kilns, in general they remained feudal."¹⁰

The articles quoted above are only a selection of those which used Jingdezhen as a case study in the "Sprouts of Capitalism" controversy, but they are those in which a relatively detailed investigation was made. Many other studies have quoted the case of the porcelain industry. The articles discussed above rely heavily on the Tao Lu and the Tao Shuo, which are not entirely reliable, but Li Zhiqin cites local gazetteers, and the article by Xu Wen and Jiang Siqing benefits in its detailed analysis from Jiang Siqing's previous thorough study of the most important primary sources.¹¹

Since there was a growth in the private sector, since hired labour had become the norm, since production for the market had expanded rapidly, and since commercial capital was closely tied up in the potteries, it is reasonable to suggest that the porcelain industry of Jingdezhen in the late Ming and early Qing period contained elements of capitalist organisation. It is however quite another thing to suggest that it was becoming predominantly capitalist. None of the studies quoted suggest that the industry was evolving in this way, and the evidence from Jingdezhen does not really support that conclusion at all. It may be true to say that the 'commodity economy' that developed weakened the 'natural economy', but it certainly failed to shift it from its dominant position, so the official sector was able to continue.¹²

The porcelain industry did contain some of the elements of capitalist growth that Lenin isolated in his study based on the Russian experience, a book much quoted in China in 1955-7.¹³ For example, production was increasingly for the market, hired labour was replacing corvee, and the division of labour that Lenin described among the Russian potters at Gzhel, Tual and Ryazan was paralleled in China.¹³ Other factors were somewhat different. Although hiring was replacing corvee, there is no real evidence that it was replacing family labour in the late Ming and early Qing period. In fact, analyses of the size of workshops in early twentieth century China shows that small workshops run by the family in their own home were still the most common. Franck talks about families "labouring in their own miserable dwelling places."

The size of enterprises is crucial as well. Many of the arguments for seeing a developing capitalist industry in Ming Jingdezhen have pointed to the growth in the number of official kilns, and the increase in the total number of kilns working. Lenin in fact suggested that a growth in capitalism would mean a decrease in the number of workshops as the tendency would be towards fewer, factory-sized units.¹⁴ There is no evidence that this occurred in Jingdezhen in the Ming and Qing dynasties. Even the compounds where imperial ware was made seem to have been short-lived and court orders were made up from the products of private kilns through the putting-out system. It is doubtful whether there was a genuine European-style factory at all before the twentieth century, and even in 1925, the British consul in Jiujiang felt that there were no factories in Jingdezhen that would require labour legislation.

There is no doubt that the elements of capitalism did exist in Jingdezhen's early economy, that there was a great deal of capital invested commercially, and that certain relationships within the industry were more 'capitalist'

than 'feudal', such as the hire labourer's relationship with the owners of kilns or workshops. However the way the potteries were organised during the Ming and Qing dynasties was much nearer to Europe in the mediaeval period than to the industrial revolution of the eighteenth and nineteenth centuries. Europe in the fourteenth to sixteenth centuries had commercial capital backing small independent craftsmen, and a high proportion of workers earning wages, but there, as in sixteenth century China, there was no large-scale investment in fixed plant.¹⁵ This large-scale investment, a move from commercial capital to industrial capital, was the basis for the factory system that was first operated in the European industrial revolution.¹⁶ This factory system, an essential component of European industrial capitalism, never really developed in the potteries of Jingdezhen (as will be further discussed below). There were a number of reasons why commercial capital did not develop into industrial capital. For example, profit was often diverted into buying land or non-economic uses such as the purchase of ranks and titles, and the lack of primogeniture made accumulation difficult, but these factors on their own do not completely explain the failure to industrialise.¹⁷ So although there was an embryonic capitalism in Jingdezhen during the sixteenth century and later, it never developed into a full capitalist economy, even before the distortion of the economy by Western entrepreneurs, and never showed any signs of doing so. It appears that the handicraft industry had reached a stable equilibrium in which the forces of the state were nicely balanced with the interests of fragmented private industry and that this somehow inhibited a further flowering of capitalism.

4. Decline and Failure to Modernise in the Eighteenth and Nineteenth Centuries.

Jingdezhen's great period of growth and expansion lasted from the sixteenth century till the middle of the eighteenth, although there were ups and downs and an interruption during the change of dynasty. However, in the late eighteenth century, a decline set in from which the industry never really recovered. Imperial orders dropped after the last of the three great directors had left, and more so after the abolition of the post of resident director in 1786. The industry was in a poor state by the 1850s, and the devastation of the Taiping rebellion was a crushing blow. A number of possibilities for revitalisation occurred, the first of these in the 1860s when a large part of China was being reconstructed after the rebellion, in the period known as the Tongzhi restoration. However there was no attempt made to modernise the potteries - the old kilns and handicraft workshops were simply rebuilt. Jingdezhen was no exception in this; there was no attempt at all to modernise Chinese industry in this period, the aim of the leaders of the restoration was to revitalise the economy but keep it on a predominantly agricultural basis. Their ideology was strictly conservative, harking back to a Confucian golden age, in striking contrast with the corresponding period in Japan when the Meiji restoration provided the basis for the growth of a modern economy. There were proposals for the modernisation of industry, but these were not heeded.

There was not enough stimulus for industrial modernisation, and little possibility of the capital accumulation needed for such changes in the potteries, since rents in general were not high enough to provide a sufficient surplus from which savings and investment could be drawn. One of the great advantages of the traditional pottery industry was that it required very little capital to set up and run either a

workshop or a kiln. Consequently it was far easier to rebuild these small enterprises after the devastation of the Taiping than it would have been to accumulate the kind of capital necessary to build and equip a modern factory.

In addition to the problem of capital, Jingdezhen in the late nineteenth century had other difficulties to deal with. One of these was the operation of the likin tax which clearly restricted trade, and, near the turn of the century, put native pottery manufacturers at a serious disadvantage compared with foreign importers. The high total cost of the tax must have reduced profits considerably, and even these would be distributed between several brokers, shipping agents and other middlemen, and the amount available for saving and investment reduced correspondingly.

Transport had been satisfactory in the Ming and early Qing dynasties, but it was not really adequate to meet the demands being made on late nineteenth century Jingdezhen. The lack of railways and modern roads, and the absolute reliance on waterways which were deteriorating as the beds choked up with sand and broken pottery gave the industry little chance to expand.

Alterations in the pattern of demand must also have had a great effect on the industry. When imperial production was at its height, Jingdezhen's prestige must have increased the orders from private individuals for decorated wares similar to those made for the court. At the end of the nineteenth and the beginning of the twentieth centuries, decline in imperial orders, changes in fashion and then disruption of communications would have caused a reduction in the demand for fine porcelain. Unfortunately, there is not sufficient information to enable these variations in demand to be quantified.

One of the most important factors in Jingdezhen's failure to modernise was the conservatism of the townspeople, notably the Chinaware Guild. The Guild operated a system of regulations for the various processes of the manufacture which were totally inflexible. Kilns were allowed to produce only those articles which they had always produced, for example plates or teacups, no newcomers could set up a business without the sanction of the Guild, and so prices were kept high. There was no technical improvement, and as a result the same kind of kilns were being used in 1920 as in the Ming dynasty.¹⁸ This conservatism bedevilled the first major attempt to modernise and mechanise the potteries at the beginning of the twentieth century, the Jiangxi Porcelain Company. The enterprise ran into trouble from the very beginning. Only half the anticipated capital of 400,000 yuan was collected, illustrating the problems of capital accumulation and investment in Chinese industry, most of the money came from military and civil officials in Jiangxi and surrounding provinces, and the first manager was a man with a completely traditional education. So the venture was closely tied to the old anti-commercial order, and this is further illustrated in the dual nature of the business. An experimental factory using machines was to be run, not at Jingdezhen, where the Guild was so conservative that it would never have succeeded, but at Poyang. A traditional plant would be run by the same company at Jingdezhen at the same time. The venture had hardly even begun when the 1911 revolution broke out, after which the experimental plant was closed down, although the company continued to operate the traditional plant.

There was a great deal of concern in China during the 1920s and 1930s about the fate of the porcelain industry, and a number of detailed investigations were made and suggestions put forward for its reform, but before any of these proposals could be put into effect, civil war and the Japanese invasion intervened. A factory built in 1936

never began production as the plant and machinery were seized by the Japanese. Broadly speaking, Jingdezhen was unable to modernise in the late nineteenth and early twentieth century because of external economic constraints, conservative organisation within the industry, and finally because it was overtaken by external political pressures which disrupted the whole economy.

5. Factories and Workshops

One aspect of the porcelain industry which reveals a great deal about the level of its development is the nature of the organisation of production, whether it be in factories or workshops. The factory system was the crucial factor in the European industrial revolution, and was characterised by concentration of capital and centralisation of labour and plant.¹⁹ This kind of centralisation did not take place in Jingdezhen before the twentieth century, and even then hardly at all during the first half of it.

A great deal of confusion has developed over the use of the word 'factory' to translate the chang 廠 of the early Ming dynasty, which were almost certainly depots. There were short periods in the later Ming and Qing dynasties when work was concentrated in special compounds. However these short-term enterprises cannot really be considered to have been part of a factory movement like that in eighteenth and nineteenth century Europe, but had more in common with the artificially created large-scale industries that developed in France during the seventeenth century, depending on the protection and privileges of the court rather than on economic forces. Crown monopolies in seventeenth-century England operated in a similar way.²⁰ The production of porcelain was organised in handicraft workshops rather than a factory system throughout Jingdezhen's history right up to the present century. Even under this system, which was

a prerequisite for factory organisation, the independence of the artisan disappeared, but unlike factories, the workshop system did not force trade and expand commerce, but depended on them.²¹

D.K. Lieu in 1927 classified manufacturing industries for the whole of China under three headings: workshop industries, cottage industries and modern factories.²²

The workshop industry

"is the same as a workshop in Mediaeval Europe with its master-workman, journeymen and apprentices. In some cases, however, it may have grown to such a size that it is more like a modern factory than a mediaeval workshop, yet, for one reason or another it cannot be very well classified under (3). There may be more than 100 workmen in one establishment, yet the shop is owned and operated by a master workman with no capitalistic proprietor or manager who has not served an apprenticeship in the trade itself... Besides the shop has no expensive labour-saving machinery, but the most important part of the manufacturing process involves special manual skill... the shop has certainly outgrown the size of a mediaeval establishment and may have a few departments each with a score or more of workmen, yet the mere size will not put it in the same category as modern factories."²³

Few of the establishments in Jingdezhen had as many as a hundred workers and the average was much lower than that even in the 1920s, so clearly at no time were there factories in the town in the European sense of the word. The following table gives some idea of the size of workshops in Jingdezhen in 1928 and 1937.

Number of Men Employed in Different Types of Workshop²⁴

	1928				1937				
	Number of Workshops	Men Employed	Average Number of Men per Workshop	Number of Workshops	Men Employed	Average Number of Men per Workshop	Number of Workshops	Men Employed	Average Number of Men per Workshop
Body Making	1,054	22,029	21	1,946	20,211	14			
Pinewood Kilns	106	2,226	21	72	1,512	21			
Brushwood Kilns	22	507	23	19	475	25			
Small Saggar Makers	62	540	9	-	-	-			
Large Saggar Makers	91	585	6	-	-	-			
Decorators	1,452	4,251	3	-	-	-			

The figures for kiln workers are very difficult to estimate as each man probably worked in two or three kilns (since the kilns fired only from 13-70 times, 31 on average, each year, standing idle the rest of the time), so the average should be somewhat lower. The figures only give an overall picture in any case as the conditions in workshops manufacturing different products varied widely.

Nevertheless it is clear that the workshops and kilns were on a very small scale and that there was never the injection of entrepreneurial capital necessary to transform them into factories. The acting British Consul in Jiujiang, J.B. Affleck, described them in 1924 as

"a large collection of old-fashioned outdoor kilns individually owned and operated. There is no factory of the type which has rendered legislation necessary as in Europe to protect the workmen employed."²⁵

6. High Level Equilibrium Trap

However it still remains to account for the overall failure of modernisation in the porcelain industry. A number of different factors operated: restrictive taxation, rents too low to yield an adequate surplus which could be accumulated for investment, discouragement of entrepreneurship if not necessarily commerce, conservatism in the outlook of the kiln owners or at least vested interests, and the distortion of the economy by the West after 1850, for example. All these factors taken together describe the failure but do not give sufficient reason for it. A number of general explanations for the failure of China's industries have been attempted, but most of these appear inadequate or at least over-simplified. It is not possible to place all the blame, as do some historians in the People's Republic, on the Manchu invasions and Western imperialism, for inhibiting China's embryonic capitalism, although obviously both had a profound effect.

Neither can one simply point to the absence of something equivalent to a "Protestant Ethic" to back entrepreneurialism; among Chinese communities outside China industrial and especially commercial capitalism have long flourished.

One recent attempt at a general explanation for the retardation of China's technological advance may give a clue to the backwardness of the porcelain industry.

"It is that through a number of interlocking causes, the input-output relationships of the late traditional economy had assumed a pattern that was almost incapable of change through internally generated forces. Both in technological and investment terms, agricultural productivity per acre had nearly reached the limits of what was possible without scientific-industrial inputs, and the increase of the population had therefore steadily reduced the surplus product above what was needed for subsistence."²⁶

In effect, the late traditional economy had reached a 'ceiling of efficiency' - a high-level equilibrium trap. "It was the historic contribution of the modern West to ease and then break the high-level equilibrium trap in China,"²⁷ laying the foundations for modern Chinese enterprise.

The advantage of this concept of the high-level equilibrium trap in relation to the porcelain industry, is that it makes it possible to integrate the reasons already advanced for the failure of the industry to modernise. The process of manufacture was as finely differentiated and as technically advanced as it could get within the confines of handicraft production, as was the organisation of the process within the limits of the workshop. With the preponderance of small, low-capital workshops and kilns, operating on a very low

margin of profit, the chances of individual kiln-owners accumulating sufficient surplus to be able to invest in large factory units were very slight. In addition, the other parts of the economy such as water transport that the industry most depended on were also at a similar 'ceiling of efficiency'. No improvement could be made in shipping porcelain that did not involve steam traffic and mechanical dredgers, and rail and motorised road transport would be an even greater benefit. The idea that the industry had reached an equilibrium is an attractive one, although the application of a general theory to a specific case does produce exceptions and problems. For example the porcelain industry had begun to decline before the West became involved. This decline however may well have been part of a cyclical fluctuation that can be seen in the Ming dynasty as well as the Qing.

Whether or not this theory accounts completely for the retardation in the nineteenth century and earlier, the failure to modernise in the first half of the twentieth century is due to the failure of political and economic powers to tackle the problems left by the legacy of Western involvement and traditional backwardness. It was left to the government of the People's Republic to do this.

7. Modernisation in the 1950s

The first serious attempt to modernise the potteries began in the 1950s under the newly established People's Government. Although the details are outside the scope of this study, a brief examination of the methods shows up the failure of the previous century in sharp relief.

From earliest times the potteries had been run privately subject only to irregular state intervention. In the 1930s, the grave problems in the industry prompted suggestions for an injection of government finance and planned development

but very little was actually done. However after 1949, like all other industries, porcelain manufacture was gradually integrated into a nationally planned economy, and the pattern of its development changed considerably.

The policy towards handicraft industries in general in the early 1950s was to develop them "through a gradual process of collectivisation, beginning with joint tool groups, advancing to handicraft marketing co-operatives and to small handicraft groups, and ending with handicraft production co-operatives. These [were] then to be transformed into co-operative factories or handicraft workshops".²⁸ These measures, which closely paralleled the gradual collectivisation of agriculture were introduced to increase investment in the handicraft industries. If technology were also improved, there would be increased production, increased supplies to other sectors of the economy, and improvements in labour productivity. In some handicraft industries output was switched from consumer to producer goods and the plan was for the handicraft industries and agriculture to generate sufficient surplus between them to support the growth of a modern industrial sector.²⁹

The first task of the newly established authorities in Jingdezhen was to restore production which had been cut back by the war and the civil war, and this was done by giving loans to the master potters and organising the supply of clay, colouring materials and fuel and the transport and marketing of finished porcelain through state concerns.³⁰ At first increases in production were made by individual potters, but formation of co-operatives was encouraged.³¹ In 1950 there were twenty people in co-operatives, 130 in 1951 and 562 in 1952. Taking 1952 as a base, the subsequent increase in co-operatives can be seen in the following table:

Index of the Number of Co-operatives

in Jingdezhen 1952=100³²

1952	100
1953	117.62
1954	549.11
1955	854.80

As the number of co-operatives increased, so the proportion of porcelain produced in them rose, although only gradually at first.

Percentage of Porcelain Produced in

Different Types of Workshop³³

	Individually Owned	Capitalist Workshops	Co-operatives
1952	28.61	63.61	2.57
1953	24.89	63.48	4.33
1954	10.97	46.19	14.08

The production of fuel and clays was increased and so was the total amount of porcelain produced, and the first scientific studies of raw materials and manufacturing processes began.³⁴ Belt-driven wheels were introduced into the workshops as the first stage of mechanisation, and engineers developed a coal-fired kiln that could carry out reduction firings as well as the traditional pine-fuelled kilns had done. The artistic side was not neglected: craftsmen were brought together, including some who had left the industry, and a

ceramics museum, a college of ceramic arts, and a research institute were set up.³⁵

The Porcelain Research Institute which began work in 1954, combines research in the artistic and the scientific aspects of porcelain manufacture; "on the one hand research into decorating techniques in drawing and painting, in design and shape, in relation to porcelain forms and sculpture, and on the other, research into clay bodies, glazes, and the design of kilns."³⁶ A high priority is attached to the development of a well-trained specialist labour-force, many of whom have been through either the Research Institute or the College. The College was opened in 1958 and teaches ceramic engineering, raw material studies, firing techniques, kiln building, factory design and the art subjects of colour, design, sculpture and decorating.³⁷

The improvements in techniques and production which resulted from the reorganisation and programmes of education enabled the industry to contribute to the national economy in the way planned. Pottery and porcelain is supplied to the whole of China and also earns much needed foreign exchange as it is exported all over the world. Part of the industry was reorganised to produce ceramics for the chemical and electrical industries as part of the plan to switch from consumer to producer goods, but the town is still best known for its porcelains.

The contrast between this central planning and financing in the 1950s and the previous decentralised system of small businesses and middlemen is quite marked. Certainly the 1950s saw the revival of Jingdezhen with the beginnings of mechanisation and modern organisation, and the development of a wide variety of styles and types of porcelain.³⁸

NOTES AND REFERENCES

Chapter I Introduction

1. Henry Wadsworth Longfellow (1807-82) from 'Keramos', in Longfellow's Poetical Works Vol. III, Boston and New York 1895 p.231.

Longfellow noted in his journal for May 7th 1877 that he was 'trying to write a poem on the potter's wheel,' and on August 3rd that he had 'received, from the Harpers magazine one thousand dollars for Keramos.' The poem was published in the magazine with illustrations, and then in Keramos and Other Poems in 1878.

2. Wang Shimao Minbushu quoted in:
Zhonggou renmin daxue zhongguo lishi jiaoyanshi huiji zhiyi (Chinese People's University), Ming Qing shehui jingji xingtai de yanjiu (Social and Economic Conditions in the Ming and Qing Dynasties), Shanghai 1957, translated Mark Elvin, Pattern of the Chinese Past, London 1973 p. 285

3. There are a great many works on Chinese ceramic history and only some of the most important and the most recent studies are listed here:

General Studies

S.W. Bushell	<u>Oriental Ceramic Art</u> , New York 1899
R.L. Hobson	<u>Chinese Pottery and Porcelain</u> , London 1915
	<u>Handbook of the Pottery and Porcelain of the Far East</u> (British Museum) London 1937
Anthony du Boulay	<u>Chinese Porcelain</u> , London 1963
W.B. Honey	<u>Ceramic Art of China</u> , London 1945

There is also much material on the art history

of Chinese porcelain in Jiangxi Porcelain Bureau, Jingdezhen taoci shigao (A Draft History of Pottery and Porcelain in Jingdezhen), Peking 1959, and Jiang Siqing, Jingdezhen ciyeshi (History of the Jingdezhen Porcelain Industry), Shanghai 1936

Tang Dynasty

Tang pottery is covered very thoroughly in William Willetts, Chinese Art Vol. 2, Harmondsworth 1958 p.393-500, and there is also Mario Prodan, The Art of the T'ang Potter, London 1961

Yuan Dynasty

The standard work on Yuan dynasty ceramics is now Margaret Medley, Yuan Porcelain and Stoneware, London 1974

Ming Dynasty

Volume 11 of Sekai tōji zenshu (Catalogue of World Ceramics) edited by Koyama, Tokyo 1955, includes a study by Nobumori Ozaki of Yuan and Ming ceramics. A.D. Brankston in Early Ming Wares of Chingtechen, London 1970, discusses Ming porcelain up to about 1500, while R.L. Hobson, Wares of the Ming Dynasty, London 1923 and Soame Jenyns, Ming Pottery and Porcelain, London 1953 cover the whole dynasty. Fu Zhenlun, Mingdai ciqi gongyi (The Art of Ming Porcelain), Peking 1955, is a brief introduction to the achievement and influence of Ming ceramic styles.

Qing Dynasty

Soame Jenyns, Later Chinese Porcelain, London 1951, is the main work. Sir Harry Garner, Oriental Blue and White, London 1954, includes much material on Chinese blue and white in general.

4. For example, the articles in Zhongguo zibenzhuyi mengya wenti taolun ji (Collected Discussions on the Problem of Embryonic Capitalism in China), Peking 1957, Tokyo 1968, and those in Japanese by Sakuma Shigeo (see bibliography).
5. There is no universal agreement on the precise definition of pottery and porcelain, but while pottery is porous, opaque, and fired at low temperatures, between 800°C and 1,000°C, porcelain is hard, impermeable and translucent and fired at over 1,150°C. The Chinese call pottery wa 瓦 and porcelain ci 瓷 or 磁, but include under ci what in the West is considered to be in an intermediate category, porcellanous stoneware which is fired at a high temperature but is not translucent. It is included with porcelain as ci covers all high fired resonant wares. See Margaret Medley, Handbook of Chinese Art, London 1973 p. 58.
6. Arthur Waley, "Loyang and its Fall", Secret History of the Mongols, London 1963, p.48
7. quoted in Hsiao Kung-chuan, Rural China, Seattle 1967 p. 27
8. Jiangxisheng qingongyeting taoci yanjiusuo, Jingdezhen taoci shigao (A Draft History of Pottery and Porcelain in Jingdezhen), Peking 1959, afterwards referred to as Draft History, p. 29.
9. Sun Jingzhi, Economic Geography of Central China p. 368, translation of Huazhong dichu jingji dili, United States Joint Publications Research Service 1960
10. Stanley Wright, Kiangsi Native Trade and Its Taxation, Shanghai 1920, p. 76.

11. Chi Ch'ao-ting, Key Economic Areas of China, New York 1963 p. 146
12. Jiang Siqing, Jingdezhen ciyeshi (History of the Jingdezhen Porcelain Industry) Shanghai 1936 p.42
13. Fouliang county has changed its name many times. In the Han dynasty, it had no separate existence, but was part of the larger county of Poyang. It became a county in its own right in the Tang dynasty, as Xiping, but was later called Xinchang and eventually Fouliang, which means 'floating bridge' and probably refers to a pontoon bridge which crossed the Chang river at some time. It retained its links with Raozhou (formerly Poyang) as a part of the Raozhou prefecture in the Ming and Qing dynasties. Zhongguo gujin diming da huidian, (Dictionary of Chinese Place Names Old and New), Shanghai 1931 p.722.

Chapter II Jingdezhen Before the Ming Dynasty

1. Draft History p.43

2. There are a number of places called Xiping 新平 , but only those in the Fouliang and Hangzhou areas have ever been concerned with the pottery industry, and local tradition suggests that it was the Xiping in Jiangxi, later known as Fouliang, that produced pottery in this period. Draft History, p.43.

3. Jiangxi Tongzhi (Jiangxi Provincial Gazetteer), 1881 edition edited by Zhao Zhiqian, Book 93, p.5b, Taipei 1967 (8 volumes), Vol.5 p.2029.

4. Draft History p.44

5. R.L. Hobson Handbook of the Pottery and Porcelain of the Far East, British Museum, London 1937.

For a discussion of pottery, porcelain and stoneware see Chapter I, note 5 of this study.

6. Draft History p.45

7. Jiangxi Tongzhi 1881 Book 93 p.5b (Vol.5 p.2029)
Draft History p.46

8. Celadons are "wares having a greyish or brownish body covered by a transparent, or opaque, olive or greyish-toned glaze. The name is derived from the name Celadon, the shepherd in the stage version of Honoré d'Urfe's pastoral romance L'Astrée, who wore ribbons of a soft grey-green tone. Among the most important wares to which the term is applied are Yüeh, Northern Celadon, and the wares of Lung-ch'üan..."
Margaret Medley, A Handbook of Chinese Art, London 1973 p.62

9. Wang Yongzuo, Raozhoufuzhi (Gazetteer of Raozhou Prefecture) 1684, Book II, p.786. Microfilm of copy in Naikaku Bunko, Cabinet Library, Tokyo.
Fouliang xianzhi (Gazetteer of Fouliang District) 1682, book 4 p.39
Draft History p.46
Jiang Siqing, History of the Porcelain Industry p.53
10. Draft History p.25
11. Chen Wanli, "Jianguo yilai duiyu gudai yaozhi de diaocha" (Investigations of the Sites of Old Kilns Since the Founding of the People's Republic), Wen Wu 1959 no.10 pp.44-49
12. A.D. Brankston, "An Excursion to Ching-te-Chen and Chi-an-fu in Kiangsi," Transactions of the Oriental Ceramics Society 1938-39 pp.19-32
13. Jiang Siqing, History of the Porcelain Industry p.50
14. D.C. Twitchett, Financial Administration Under the T'ang Dynasty, Cambridge 1970 p.77
15. Jiang Siqing, History of the Porcelain Industry p.50
16. ibid. p.51
Feng Xianming, "Cong wenxian kan Tang Song yilai yincha fengshang ji taoci chaju de yanbian" (The Tea-drinking Habit Since the Tang and Song Dynasties and the Development of Ceramic Teasetts), Wenwu 1963 no.1 p.8
17. Draft History p.47-48

18. Jiang Siqing, History of the Porcelain Industry p.41
19. ibid. p.55
20. Raozhou fuzhi 1684 p.78b
Fouliang xianzhi 1682 p.39b
21. Jiang Siqing, History of the Porcelain Industry p.41
22. Shiba Yoshinobu, Commerce and Society in Sung China, translated by Mark Elvin, Michigan Abstracts no.2 1970 p.48
There was a flourishing, though sometimes illegal, trade with the Jürched. As well as porcelain, the South exported tea, rice and other manufactured goods including textiles, weapons and luxury goods, receiving in return such things as pearls, silks and horses, although "on balance, the flow of goods was mainly from the south to the north" (ibid.)
23. Chen Wanli, "Investigations of Old Kiln Sites," Wen Wu 1959 no. 10
24. Draft History p.53-54
25. ibid. p.56
26. Hin-cheung Lovell, Illustrated Catalogue of Ting Yao and Related White Wares in the Percival David Foundation of Chinese Art, London 1964 p.xxii
Margaret Medley, Yuan Porcelain and Stoneware, London 1974 p.6 There is no firm evidence for the tradition that the potters fled south.
27. Draft History p.58

28. ibid.
29. Margaret Medley, Handbook of Chinese Art p.83
30. Draft History p.58
31. Soame Jenyns, Ming Pottery and Porcelain, London 1953 p.19
32. Franz Schurmann, Economic Structure of the Yuan Dynasty, Translation of Chapters 93 and 94 of the Yuan-shih, Cambridge Mass. 1956
33. The Taojilüe was included in the 1322 edition of the Fouliang xianzhi and transcribed in later editions of this and the Jiangxi tongzhi. It was written by Jiang Qi.
34. Taojilüe. See also Draft History p.59, Jenyns, Ming Pottery and Porcelain p.19, Geoffrey R. Sayer, Ching-te-chen T'ao Lu or the Potteries of China, London 1971, pp.74-5, and Margaret Medley, Yuan Porcelain and Stoneware p.8
35. Taojilüe
36. Draft History p.58
37. Taojilüe
38. Chü Ch'ing-yuan, "Government Artisans of the Yuan Dynasty" in E-tu Zen Sun and John de Francis, Chinese Social History, Washington 1956 p.234
39. Draft History p.92

Chapter III The Ming Dynasty

1. L.Carrington Goodrich, A Short History of the Chinese People, London 1948 p.186
see also: Wu Han, Zhu Yuanzhang zhuan (Biography of Zhu Yuanzhang), Hong Kong c.1954 p.106
and Li Guangbi, Mingchao shilue, Wuhan 1957
2. Jiang Siqing, History of the Porcelain Industry p.79
3. Fouliang xianzhi 1682 p.48b
4. Lan Pu, Jingdezhen taolu (Pottery Records of Jingdezhen), 1815, book 5 p.4
5. Zhu Yan, Tao Shuo (On Pottery), Shanghai 1936 p.27
Stephen W. Bushell, Description of Chinese Pottery and Porcelain, being a Translation of the T'ao Shuo
Oxford 1910 pp.55-6
6. Raozhou fuzhi 1684, book 11 p.78
Fouliang xianzhi 1682 book 4 p.39
7. Zhu Yan, Tao Shuo p.27; this passage is translated in
Bushell, Description of Chinese Pottery and Porcelain,
with chang rendered as 'manufactory'
8. Margaret Medley, "Ching-te-chen and the Problem of the
Imperial Kilns", Bulletin of the School of Oriental and
African Studies no.29 1960 pp.326-338, p.329
9. L.C. Goodrich, Short History p.186
Li Guangbi, Mingchao shilue pp.33-4

10. Da Ming Huidian (Collected Statutes of the Ming)
ch.201, 2715, 25b. Quoted in Medley, "Imperial
Kilns" p.331
11. Medley, "Imperial Kilns", pp.334-5
12. Charles O. Hucker, "Governmental Organisation of
the Ming Dynasty," in John L. Bishop (ed.), Studies
of Governmental Institutions in Chinese History,
Harvard 1968 p.25
13. E-tu Zen Sun, Ch'ing Administrative Terms, Harvard
1961 p.537
14. Medley, "Imperial Kilns" p.332
15. Sun Jingzhi, Economic Geography p.382
16. Sakuma Shigeo, "Mindai keitokuchin yōgyō no ^{ichi-}kōsatsu",
(A Study of the Ceramic Industry in Ming Jingdezhen),
in Shimizu hakushi tsuitō kinen Mindai-shi ronso
(Studies in Ming History in Memory of Dr Shimizu
Taiji), Tokyo 1962 p.457-87, p.465-9

Song Yingxing, Tiangong kaiwu, Shanghai c.1930 p.135-6,
p.137 of translation by E-tu Zen Sun and Shiou-Chuan
Sun, Pennsylvania 1960

Jiangxi sheng qingongyeting Jingdezhen taoci yanjiusuo
(ed.), Zhongguo de ciqi (Chinese Porcelain), Peking
1963 p.212
17. Sakuma, "Study of the Ceramic Industry" p.468
18. N. Bailey, Universal Etymological Dictionary, London 1726
19. Sakuma, "Study of the Ceramic Industry" p.459

- Draft History p.95
20. Draft History p.95
Jiang Siqing, History of the Porcelain Industry p.79
21. A.D. Brankston, in Early Ming Wares of Chingtechen,
Hong Kong and London 1970, p.57, describes the hundreds
of derelict kilns outside the town. These had been
out of use for centuries.
22. See Chapter X of this study for more details
23. Draft History p.97;
Medley, "Imperial Kilns", pp.335-6, quoting from the
Ming shi (History of the Ming Dynasty) and the Ming
Shilu (Veritable Records of the Ming Dynasty);
Sakuma, "Study of the Ceramic Industry" p.462
24. Fouliang xianzhi 1682 p.39
Raozhou fuzhi 1684 p.78
Draft History p.97
25. Hucker, "Governmental Organisation" p.23; see also
Chapter X of this study
26. Draft History p.97
27. Jiang Siqing, History of the Porcelain Industry p.79
28. Foulaing xianzhi 1682 p.39
29. Medley, "Imperial Kilns" p.337
30. Chen Shiqi, Mingdai guanshougongye de yanjiu (Studies of the
Official Handicraft Industries in the Ming Period), Wuhan
1958 p.3

31. Ho Ping-ti, Studies on the Population of China, Cambridge Mass. 1959 p.196
32. Fouliang xianzhi 1682 p.39
Raozhou fuzhi 1684 p.78b
Draft History p.98
33. Draft History p.98
34. Fouliang xianzhi 1682 p.39b
35. Draft History p.99
36. Draft History p.106
37. Sakuma Shigeo, "Mimmatsu Keitokuchin no minyō no hatten to minben", (Insurrections and the Development of Private Kilns in Late Ming Jingdezhen), in Suzuki Shun kyōju kanreki kinen Tōyō-shi ronsō (Collection of Studies in Oriental History in Honour of Suzuki Shun), Tokyo 1964 p.272
38. Draft History p.99
39. ibid.
40. Raozhou fuzhi 1684 p.80b
41. Draft History p.108
42. For guandaminshao, buxian and qinxian, see Draft History p.107-10, and Sakuma Shigeo, "Study of the Ceramic Industry" p.476ff

43. Ray Huang, Taxation and Governmental Finance in Sixteenth Century Ming China, Cambridge 1974 p.253
44. see Li Guangbi, Mingchao shilue (Brief History of the Ming Dynasty), Wuhan 1957
45. Draft History p.103
46. Henri Van Oort, The Porcelain of Hung-hsien, Leiden 1970 p.72; for more details on corvée and labour in general, see Chapter XI above
47. Chen Shiqi, Mingdai guan shongongye de yanjiu, p.3
48. Liang Fang-chung, The Single Whip Method of Taxation in China, Harvard 1956 p.1 and passim
49. Huang, Taxation and Government Finance in Sixteenth Century Ming China, p.253-4
50. Xu Wen and Jiang Siqing, "Cong Mingdai Jingdezhen ciye kan zibenzhuyi yinsu de mengya" (Embryonic Capitalism in the Ming Porcelain Industry in Jingdezhen) p.686-9, in Chinese People's University, Zhongguo zibenzhuyi mengya wenti taolun ji (Collected Discussions on the Problem of Embryonic Capitalism in China), Tokyo 1968
51. Draft History p.106
52. Ho Ping-ti, Studies in the Population of China p.196
53. Ra Zhou fuzhi 1684 p.41b
54. Draft History p.105

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55. Mark Elvin, Pattern of the Chinese Past London 1973 p.234
56. Xu Wen and Jiang Siqing, "Embryonic Capitalism in Jingdezhen" p.699-702
57. Draft History pp.26-27
A.D. Brankston, Early Ming Wares p.51
58. Chen Shiqi, Mingdai guanshougongye de yanjiu pp.3-4
Elvin, Pattern of the Chinese Past p.268-70
59. see Fujii Hiroshi, "Shin'an shōnin no kenkyū" (A Study of the Xin'an Merchants), Tōyō Gakuhō, Vol. XXXVI nos. 1,2,3,4, June 1953 - March 1954,
and
Fu Yiling, Ming Qing shidai shangren ji shangye ziben (Merchants and Commercial Capital in the Ming and Qing Periods), Peking 1956 pp.64-5
Marketing is discussed in more detail in Chapter IX above.
60. Draft History p.119
61. A.D. Brankston, Early Ming Wares p.72-74
62. Draft History p.98
63. Fouliang xianzhi 1682 p.40
Jiang Siqing, History of the Porcelain Industry p.81
Wu Yunjia, Foulaing taozheng zhi (Records of Porcelain Administration in Fouliang) p.3b, in Xunmintang congshu and Xuehai leiban vol.48

Sakuma Shigeo, "Insurrections and the Development of Private Kilns", p.275-7

64. Jiang Siqing, History of the Porcelain Industry p.80
65. Soame Jenyns, "The Chinese Ko-sometsuke and Shonsui Wares," Transactions of the Oriental Ceramic Society, 1962-3
66. T. Volker, Porcelain and the Dutch East India Company, as Recorded in the Dagh-Registers of Batavia Castle, those of Hirado and Deshima and Other Contemporary Papers 1602-1682, Leiden 1971 p.22
67. ibid. p.25
68. ibid. p.23
69. ibid. p.25
70. C.R. Boxer, The Dutch Seaborne Empire 1600-1800, London 1965 p.174
71. Volker, Porcelain and the Dutch East India Company p.56-57
72. ibid. p.50 and p.79

Chapter IV The Qing Dynasty

1. T. Volker, Porcelain and the Dutch East India Company 1602-1682, Leiden 1971 p.50
2. Draft History p.100
3. Fouliang xianzhi 1682 p.43
 Raozhou fuzhi 1684 p.83
4. ibid.
5. Draft History p.101
6. Fouliang xianzhi 1682 p.48b
7. Wu Yunjia, Fouliang taozheng zhi (Record of Pottery Administration in Fouliang), p.1b, in Xunmintang congshu, and also Xuehai leibian Vol. 48
8. Fouliang xianzhi 1823, quoted in Peng Zeyi, Zhongguo jindai shougongyeshi ziliao (Materials on the History of the Modern Handicraft Industry in China) - afterwards Handicraft History - in four volumes, Peking 1957, Vol. I p.108

Wu Sangui was one of three princes (the others were Shang Kexi and Geng Jimao) granted large fiefs in Yunnan, Guangdong and Fujian respectively in return for their assistance in the Manchu's conquest of China. The Kangxi emperor wanted to abolish these feudatories and reduce the military power of the princes, so Wu was ordered to move to Shanhaiguan in the north-east. On December 28th 1673 Wu rose in rebellion and proclaimed a new dynasty, the Zhou, as the legitimate successor

of the Ming. Eight years of bitter fighting followed before the rebellion was put down in 1681. (Immanuel C.Y. Hsu, Rise of Modern China, New York 1970 p.39; Jonathan Spence, Emperor of China, London 1974 p.xvii)

9. Raozhou fuzhi 1684 p.82

10. Père Francis Xavier d'Entrecolles, Lettres p.183, reprinted in Bushell, Description of Chinese Pottery and Porcelain pp.181-222

11. Raozhou fuzhi 1684 p.84

Fouliang taozhengzhi p.2

Tao Shuo p.1

Da Qing Huidian (quoted in Handicraft History Vol. I p.105)

12. Tong Shuye and Shi Xuetong, Zhongguo ciyeshi luncong (Collected Essays on the History of China's Porcelain Industry), Shanghai 1957 p.17

13. Draft History p.101

14. Handicraft History Vol.I p.105

15. Tong and Shi, Collected Essays p.17

Lang Tingji was sub-prefect of Jiangning in Jiangsu from 1681 and governor of Jiangxi from June 17th 1705 till late 1712, during which time he took an interest in the potteries of Jingdezhen. In 1712, he became Director-General of Grain Transport. (Hummel, Eminent Chinese of the Ch'ing Period Washington 1943-44)

notes to pages 44-50

16. Tong and Shi, Collected Essays p.17f
17. E.T. Chow and F.S. Drake, "Kuan-yao and min-yao. A Study of Imperial Porcelain and People's Porcelain from K'ang-hsi to the end of the Ch'ing Dynasty" Archives of the Chinese Art Society of America, 13
18. Tong and Shi, Collected Essays p.17-20
Draft History p.101
19. ibid. 102
20. Printed in the Tao Shuo and translated by Bushell, Description of Chinese Pottery and Porcelain, and also in the 1880 edition of the Jiangxi tongzhi
21. Tong and Shi, Collected Essays p.19
22. Draft History p.101
23. These were reprinted in full in French as an appendix to Bushell, Description of Chinese Pottery and Porcelain and a shortened version translated into English was included in William Burton, Porcelain: its Nature, Art and Manufacture, London 1906. The following quotations are translated from the French as they were omitted from the Burton translation.
24. D'Entrecolles, Lettres p.183
25. ibid. pp.183-5
26. ibid. p.185
27. ibid. p.189
28. ibid. p.205

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29. ibid. p.210
30. Tao Lu Book 2 pp.2b-3
31. Draft History pp.253-4
Jiang Siqing, History of the Porcelain Industry p.151
see also Chapter XIII of this study
32. Draft History p.103
33. Da Qing Huidian Book 1190, quoted in Handicraft History Vol. I p.105
34. Tong and Shi, Collected Essays p.21
35. Zongguan neiwufu xianxing zeli (Regulations of the Manager of the Imperial Household), quoted in Handicraft History Vol. I p.105
36. Theodore Hermann, China's Export Handicrafts to 1930, unpublished Ph.D. thesis, University of Washington, 1954 p.31
37. W.J. Hail, Tseng Kuo-fan and the Taiping Rebellion, Yale 1927 p.177
38. Jen Yu-wen, The Taiping Revolutionary Movement, Yale 1973 p.329
39. ibid. p.337
40. ibid. p.347
41. ibid. p.414
42. Jiangxi tongzhi 1881 book 93 p.8, and Handicraft History Vol.II p.13

43. Stanley Wright, Kiangsi Native Trade and Taxation Shanghai 1920 p.21
44. Jiangxi tongzhi 1881 book 93 p.8
Handicraft History Vol.II p.13
45. Mary C. Wright, The Last Stand of Chinese Conservatism, The T'ung-chih Restoration 1862-1874, Stanford 1957, pp.153-7, 174, 184
46. Wu Renjing, Xin Anchao, Zhongguo Taocishi (History of Chinese Pottery and Porcelain) in Handicraft History Vol.II p.13
47. Wright, Kiangsi Native Trade and Taxation p.21
48. Ma Zonghuo, "Jingdezhen ciye risang zhi yuanyin" (Reasons for the Decline of Jingdezhen's Porcelain Industry), Monthly Report of Shanghai Chamber of Commerce, Vol.3 No.12 1923, quoted in Handicraft History Vol.III p.48
49. E.G. Beal, Origin of Likin 1853-64, Harvard 1958, Chapter 4 and passim
50. D.K. Lieu, China's Industries and Finance, Peking 1927 p.137
51. D.K. Lieu p.138, and see Chapter XIII of this study for more details
52. Beal, Origin of Likin Chapter 5
53. H.B. Morse, Trade and Administration of the Chinese Empire, Shanghai 1908 p.306

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54. Inspectorate General of Customs, Returns of Trade, Article 125 Shanghai 1907
55. Wright, Kiangsi Native Trade and Taxation p.194
56. Returns of Trade Article 19
57. Hermann, China's Export Handicrafts p.32
58. Wright, Kiangsi Native Trade and Taxation p.185
59. Draft History p.220
Xiang Zhuo, Jingdezhen taoye jishi (Records of the Porcelain Industry at Jingdezhen) 1920 p.52
60. Draft History p.270-272
Xiang Zhuo, Records of the Porcelain Industry pp.52-3
61. National Review Annual, Provinces of China, Shanghai 1910

Chapter V The Republic

1. See Mary C.Wright, China in Revolution: The First Phase, 1900-1913, Yale 1968
2. Draft History p.271
 Jiang Siqing, History of the Porcelain Industry p.198
3. Draft History p.272
4. ibid. p.263
5. ibid. p.373
6. ibid.
7. Guo Shiwu (Guo Baochang), the translator of Noted Porcelains of Successive Dynasties by Xiang Yuanpian (H.A. Van Oort, Porcelain of Hung-hsien, Leiden 1970 p.32)
8. H.A. Van Oort, op.cit., pp.31-32, 144
9. D.K. Lieu China's Industries and Finance p.1
10. John Knight Shryock, "Kingtehchen: the Porcelain City", Asia Nov. 1920 pp.997-1002, p.997
11. Harry A. Franck, Roving Through Southern China, London 1926 p.106
12. ibid. p.108
13. ibid.

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14. Jean Chesneaux, The Chinese Labour Movement (1919-1927), Stanford 1968 p.322-328
15. Draft History p.343-4
16. It is not clear whether the figures for imports are adjusted to take into account porcelain re-exported, but the value of re-exports seems only to have been a small proportion of the total value imported, 4,617 taels out of a total of 575,052 in 1905 for example, or 15,781 out of 580,038 in 1906, (Returns of Trade) so this would not alter the figures a great deal.
17. Draft History p.263
18. Albert Feuerwerker, The Chinese Economy 1912-1949, Michigan Papers in Chinese Studies no.1 1968 p.59-60
19. Draft History p.265
20. ibid. p.274
21. A number are quoted in the Handicraft History volumes:
Feng Hefa, "Zhongguo taociye zhi xiankuang ji qi maoyi zhuangkuang" (Present Conditions and Trade in China's Porcelain Industry), International Trade Report Vol.3 Nos.2,3,4, no date but c.1925, (Handicraft History Vol.III p.49)
"Jingdezhen ciye zuijin sangtui zhi zhenyin" (The Real Reason for the Recent Retrogression in Jingdezhen's Porcelain Industry), Finance and Industry Monthly Vol.6 no.6 p.6-7 1926, (Handicraft History Vol.III p.49)

Chen Yuqi, "Jiujiu sangluo Jingdezhen de taociye"
(Save Jingdezhen's Dying Porcelain Industry), Economic Weekly 1946, (Handicraft History Vol.IV p.330, p.484)

"Jingdezhen ciye jinkuang" (Present Conditions in
Jingdezhen's Porcelain Industry), Hunan Native Products Museum Monthly, nos. 2-3, p.21-22, 1934, (Handicraft History Vol.III p.501)

"Jingdezhen ciye" (Jingdezhen's Porcelain Industry),
International Labour Report no.16 p.72-3 1936,
(Handicraft History Vol.III p.502)

"Jiangxi Jingdezhen ciye zhi diaocha" (Investigation
of the Porcelain Industry in Jingdezhen), Industrial and Commercial Bulletin no.15 p.8 1928, (Handicraft History Vol.III p.119)

Cai Xiang, Zhao Zengli, "Jiangxi Jingdezhen ciye
zhi diao cha" (Investigation of the Porcelain Industry
in Jingdezhen, Jiangxi), Industrial and Commercial Bulletin no.19, p.12 1930, (Handicraft History Vol.
III p.227, p.324)

22. Draft History p.274

23. ibid.

24. Biographical details of Du in H.L.Boorman and R.C.
Howard, Biographical Dictionary of Republican China,
New York 1967 p.325, and Draft History p.275. His
report is quoted in Draft History p.275-9

25. Du himself was eventually arrested in 1937 by the
National Government for distributing anti-Japanese
material. He then went to work in Xinjiang where
the local warlord Sheng Shicai had him executed in
1943 for his left-wing political views. (Biographical
Dictionary of Republican China p.325.)

26. The average index of retail prices speaks for itself
(1937=100)

1937	100
1938	176
1939	323
1940	724
1941	1,980
1942	6,620
1943	22,800
1944	75,500
1945	249,100
1946	627,210
1947	10,340,000
1948	287,700,000

Feuerwerker, Chinese Economy 1912-49 p.60

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Chapter VI Raw Materials

1. A.D. Brankston, Early Ming Wares pp.61-2
2. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.142)
3. Raozhou fuzhi 1684 p.79
4. Margaret Medley, Handbook of Chinese Art p.72
5. Tao Lu book 4 p.2b, translated Sayer p.29 (modified)
6. Theodore Hermann, China's Export Handicrafts p.128
7. Sun Jingzhi, Economic Geography p.379
8. Zhou Ren, "Zhongguo chuantong zhici gongyi shulue"
(Brief Account of Traditional Chinese Techniques in
Porcelain Manufacture), Wenwu cankao ziliao 1958 no.2 p.6-9
9. Brankston, Early Ming Wares p.64
10. Margaret Medley, Handbook of Chinese Art p.79
11. Zhou Ren, "Traditional Chinese Techniques" p.6-9
12. ibid.
Brankston, Early Ming Wares p.64
13. ibid. p.64, p.69
Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.148)
14. Tao Lu book 4 p.2a-b

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15. Sun Jingzhi, Economic Geography p.379
16. Tao Lu book 3 p.13
17. Brankston, Early Ming Wares p.72-3
18. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.153-4)
19. Brankston, Early Ming Wares p.61-2
20. see Bernard Leach, A Potter's Book, London 1955 ch.7
21. Wright, Kiangsi Native Trade and Taxation p.31
22. Soame Jenyns, Later Chinese Porcelain
23. Draft History p.39
24. Franck, Roving Through Southern China p.113
25. Sun Jingzhi, Economic Geography pp.369,431
26. Draft History p.33
27. ibid.
28. Chen Wanli, "Investigations of Old Kiln-Sites" p.45
29. Draft History p.33
30. Bushell, Description of Pottery and Porcelain p.8
31. Fouliang xianzhi 1682 p.40b

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32. Draft History p.34
33. Fouliang xianzhi 1682 p.40b
Ra Zhou fuzhi 1684 p.79b
34. Jiang Siqing, History of the Porcelain Industry p.44
Xiang Zhuo, Records of the Porcelain Industry p.9

Chapter VII The Manufacturing Process

1. Brankston, Early Ming Wares p.62
2. Raozhou fuzhi 1684 p.79b
3. Tao Shuo p.2 (Bushell, Description of Pottery and Porcelain p.7, translation modified.)
4. Brankston, Early Ming Wares p.64
5. Xiang Zhuo, Records of the Porcelain Industry p.12
6. Tao Lu book 4 p.3a-b; (Sayer p.29-30, translation modified)
7. Xiang Zhuo, Records of the Porcelain Industry p.34
Zhang Renren, "Raozhou ji Jingdezhen zhi taociye"
(The Porcelain Industry in Jingdezhen, Raozhou),
Bulletin of Agriculture and Commerce no.50 1918 p.2
(Handicraft History Vol.II p.729)
8. Brankston, Early Ming Wares p.64
9. Song Yingxing, Tiangong kaiwu p.138-9 (Sun translation p.147)
10. Tao Shuo p.3
Bushell, Description of Pottery and Porcelain p.8
11. Brankston, Early Ming Wares p.65
12. Song Yingxing Tiangong kaiwu p.147
13. Tao Shuo p.5; Bushell, Description of Pottery and Porcelain
p. 12 (translation modified)

14. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.147)
15. Tao Shuo p.5-6
Bushell, Description of Pottery and Porcelain p.13
(translation modified)
16. Brankston, Early Ming Wares p.65
17. ibid.
18. Franck, Roving Through Southern China p.111
19. ibid.
20. Tao Shuo p.6; Bushell, Description of Pottery and Porcelain p.13-14 (translation modified)
21. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.147)
22. Tao Shuo p.6; Bushell, Description of Pottery and Porcelain p.15
23. Ra Zhou fuzhi 1684 p.79
24. Tao Shuo p.7; Bushell, Description of Pottery and Porcelain p.15
25. ibid.
26. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.148)
27. Ra Zhou fuzhi 1684 p.80
28. ibid.
Fouliang xianzhi 1682 p.43b-44

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29. R.L. Hobson, Handbook of the Pottery and Porcelain of the Far East
30. Kangxi, Xijiangzhi 1720 (Gazetteer of the West River) quoted in Handicraft History Vol.I p.106
31. Tao Shuo p.8; Bushell, Description of Pottery and Porcelain p.18
32. Franck, Roving Through Southern China p.116
33. Brankston, Early Ming Wares p.66
34. Song Yingxing, Tiangong kaiwu p.139 (Sun translation p.148)
35. Tao Shuo p.3; Bushell, Description of Pottery and Porcelain p.9
36. Tao Shuo p.9; Bushell, Description of Pottery and Porcelain p.21
37. Draft History p.119
38. Brankston, Early Ming Wares p.69
39. ibid.
40. Tao Shuo p.10-11; Bushell, Description of Pottery and Porcelain p.23-4
41. Draft History p.119
42. Gong Yue, Jingdezhen taoge (song of Jingdezhen Pottery) quoted in Handicraft History Vol.I p.277

43. John Knight Shryock, "Kingtehchen: the Porcelain City." p.999-1000. These figures are exaggerated beyond the limits of probability,
see also Franck, Roving Through Southern China p.113
44. Wright, Kiangsi Native Trade and Taxation p.22

Chapter VIII Transport

1. Song Yingxing, Tiangong kaiwu p.171
2. Adam Smith, The Wealth of Nations, London 1901 p.62
3. see Shiba Yoshinobu, Commerce and Society in Sung China, Michigan Abstracts no.2, 1970
4. Song Yingxing, Tiangong kaiwu p.171
5. J.B. Tayler, "The Hopei Pottery Industry and the Problem of Modernisation", Chinese Social and Political Science Review Vol.XIV no.2 April 1930 p.196
6. Mark Elvin, Pattern of the Chinese Past p.304
7. Wright, Kiangsi Native Trade and Taxation p.11
8. Draft History p.31
9. Wright, Kiangsi Native Trade and Taxation p.13
10. ibid.
11. H.B. Morse, Trade and Administration of the Chinese Empire p.306
Toa Dōbunkai (ed), Shina Shōbetsu Zenshi (Complete Gazetteer of China by Provinces) Vol.11(Jiangxi), Tokyo c1935 p.84
12. Quoted in Wright, Kiangsi Native Trade and Taxation p.14
13. ibid. p.14
Shina shōbetsu zenshi p.376-80
14. Wright, Kiangsi Native Trade and Taxation p.15

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15. Rudolph P. Hommel, China at Work, Massachusetts Institute of Technology 1969 p.321
see also Shina shōbetsu zenshi p.412-433
16. Tayler, "Hopei Pottery Industry" p.196
17. Hommel, China at Work p.321
18. Brankston, Early Ming Wares p.57
19. Hommel, China at Work p.345
20. ibid.
21. Jiang Siqing, History of the Porcelain Industry p.43
22. Draft History p.32
23. ibid.
24. G.R.G. Worcester, Junks and Sampans of the Yangtze, Maryland 1971 p.384
25. ibid. p.385
26. Sun Jingzhi, Economic Geography p.385
27. Ra Zhou fuzhi 1684 p.80
28. adapted from Draft History p.31
29. Worcester, Junks and Sampans p.386
30. Jiang Siqing, History of the Porcelain Industry p.42
31. ibid.

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32. Draft History p.30
33. Hermann, China's Export Handicrafts p.137
34. Draft History p.34
35. D'Entrecolles, Lettres p.187
36. Franck, Roving Through Southern China p.106
37. Song Yingxing, Tiangong kaiwu (Sun translation p.171)
38. Wright, Kiangsi Native Trade and Taxation p.4
39. ibid. p.5
40. Worcester, Junks and Sampans p.390
Shina shōbetsu zenshi p.345-6
41. Shiba, Commerce and Society p.165-180
42. Tao Lu p.2
Tao Shuo p.68
Hommel, China at Work p.330
43. Shiba, Commerce and Society p.165-180
44. Xiang Zhuo, Records of the Porcelain Industry p38
45. Elvin, Pattern of the Chinese Past p.144
46. A. Watson, Transport in Transition, Michigan Abstracts
1972 p.9

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47. Worcester, Junks and Sampans, p.391
48. Xiang Zhuo, Records of the Porcelain Industry p.39
49. Worcester, Junks and Sampans p.386
50. Wright, Kiangsi Native Trade and Taxation p.7-9
51. Rewi Alley, Land and Folk in Kiangsi p.33
52. Hermann, China's Export Handicrafts p.36
53. Draft History p.29
54. Watson, Transport in Transition p.4
55. ibid. p.6
56. Draft History p.278
57. Worcester, Junks and Sampans p.391
58. Wright, Kiangsi Native Trade and Taxation p.189
59. Draft History p.31

Chapter IX Marketing and Distribution of Porcelain

1. Fujii Hiroshi, "Xin'an Merchants" p.24
2. Sun Jingzhi, Economic Geography p.420
3. Draft History p.245
4. Fouliang xianzhi 1682 p.43b
5. Details in Chapter II of this study
6. Draft History p.245
see also Chapter III of this study
7. Sayer, Tao Lu p.12
8. Draft History p.246
9. Jiang Siqing, History of the Porcelain Industry p.193
10. ibid.
11. ibid.
12. Tao Lu book 4 p.12, translated Sayer p.36 (modified)
13. ibid. p.13, translated Sayer p.37
14. See Fujii Hiroshi, "Xin'an Merchants", and also
Ho Ping-ti, Studies on the Population of China, Cambridge
Mass. 1959 p.197-9
15. See Chapter III of this study

16. Fujii Hiroshi, "Xin'an Merchants" (2)p.35-6
17. Fu Yiling, Ming Qing shidai shangren ji shangye ziben
(Merchants and Commercial Capital in the Ming ^{and Qing} Periods)
Peking 1956 pp.64-5
18. P.J.B. Du Halde, quoted in Ho Ping-ti, Studies on the
Population of China p.199
19. Takanaka Rie, "Min Shin jidai no Keitokuchin no tōgyō"
(Jingdezhen's Potteries in the Ming and Qing Periods),
Shakai keizai shigaku, Vol.32 nos.5-6, Feb.1967 p.85
20. Fujii Hiroshi, "Xin'an Merchants" p.11
21. ibid. p.6
22. ibid.
23. ibid.p.24
Ho Ping-ti, Studies in the Population of China p.198
24. Xiang Zhuo, Records of the Porcelain Industry p.37
25. ibid.
26. Tao Lu book 4 p.12b, Sayer translation p.37
27. ibid., translation modified
28. Xiang Zhuo, Records of the Porcelain Industry p.38
29. Draft History p.320
30. Shryock, "Kingtehchen: the Porcelain City" p.1002

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31. Draft History p.320, also
Hermann, China's Export Handicrafts Ch.V p.136
32. Draft History p.320
33. Hermann, China's Export Handicrafts Ch.V p.136
see also Watson, Transport in Transition p.21, for
the operation of shipping brokers in the early
twentieth century
34. Tong Mengchuan, "Jiangxi zhi gongye" (Jiangxi's Industry)
in Agricultural and Commercial Bulletin 1917, also
Zhang Renren, "Raozhou ji Jingdezhen zhi taociye",
(Porcelain Industry in Raozhou and Jingdezhen), in
Agricultural and Commercial Bulletin 1918 (both cited
in Handicraft History p.652)
35. J.B. Tayler, "Hopei Pottery Industry" p.195-6
36. Shiba Yoshinobu, Commerce and Society in Sung China p.1
37. ibid. p.2, p.165
38. ibid. p.48
39. Draft History p.324
40. Shina shōbetsu zenshi p.810
41. Shryock, "Kingtehchen: the Porcelain City" p.1002
42. Draft History p.279 and Chapter V of this study

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Chapter X Management and Ownership

1. Ray Huang, Taxation and Governmental Finance p.55
2. Taojilue, and see Chapter II of this study
3. Margaret Medley, "Imperial Kilns" p.337
4. Sakuma, "Study of the Ceramic Industry" p.465, and see Chapter III of this study
5. Medley, "Imperial Kilns" p.337
6. see Chapter III of this study
7. see Chapter III of this study, and also
Medley, "Imperial Kilns" p.335-7
Sakuma, "Study of the Ceramic Industry" p.462
Draft History p.97
8. Hucker, "Governmental Organisation" p.25, 145
9. Ray Huang, Taxation and Governmental Finance p.8-11, and
Yang Lien-sheng, "Ming Local Administration", in Hucker,
Chinese Government in Ming Times New York 1969 p.13
10. Huang, Taxation and Governmental Finance p.11
11. Medley, "Imperial Kilns" p.337
12. ibid.
13. Draft History p.99, and see Chapter III of this study

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14. Draft History p.99
15. see Chapter IV of this study
16. The Huaian customs post was north of Baoying on the Grand Canal, over three hundred miles from Jingdezhen, so an official stationed there could hardly be in close day-to-day control of the potteries.
17. See Chapter IV of this study
18. Tao Lu book 2 p.3, Sayer translation p.13 (modified)
19. Abbé Huc, The Chinese Empire, London 1859 p.502
20. E-tu Zen Sun, "Sericulture and Silk Textile Production in Ch'ing China", in W.E. Willmott, Economic Organisation in Chinese Society, Stanford 1972 p.100
21. Xiang Zhuo, Records of the Porcelain Industry p.34
22. Fouliang xianzhi 1823 book 2 p.5, in Handicraft History Vol.I p.227
23. Wright, Kiangsi Native Trade and Taxation p.193-4
24. Draft History p.120-23
25. Jiang Siqing, History of the Porcelain Industry p.185
26. ibid.
27. Zheng Guanying, Shengshiweiyan (Warnings to a Prosperous Age), quoted in Mou Anshi, Yangwu yundong (Foreign Matters Movement), Shanghai 1956 p.181

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28. Draft History p.270-72, and see Chapter IV of this study
29. Shryock, "Kingtshchen: the Porcelain City", p.997
30. Draft History p.274
31. Agnes Smedley, Battle Hymn of China, London 1944 p.171-2

Chapter XI Supply and Organisation of Labour

1. Tao Lu book 8 p.1-2
2. Cai Xiang, Zhao Zengli, "Jiangxi Jingdezhen ciye zhi diaocha" (Investigation of the Porcelain Industry in Jingdezhen), Gongshang gongbao, Industrial and Commercial Gazette 1930 no.19 p.12, in Handicraft History Vol.III p.234
3. Shina shōbetsu zenshi p.84
Franok, Roving Through Southern China p.112
4. Sakuma Shigeo, "Insurrections and the Development of Private Kilns in Late Ming Jingdezhen" p.267
5. Zheng Tinggui, Taoyang zhuzhici (Bamboo Branch Poems from Taoyang Jingdezhen), in Handicraft History Vol.III p.272
Fouliang xianzhi 1823 book 8 p.36 (Handicraft History Vol.1 p.275)
6. Zhang Renren, "The Porcelain Industry of Jingdezhen, Raozhou", in Handicraft History Vol. II p.729
Cai Xiang, Zhao Zengli, "Investigation of the Porcelain Industry in Jingdezhen", in Handicraft History Vol.III p.324
7. D.K. Lieu, China's Industries and Finance p.4
8. see Chapter II of this study
9. Ray Huang, Taxation and Governmental Finance p.18

10. In 1370 the Hongwu emperor decreed that all the population and households under his control be registered. The first book of census figures was compiled in 1381 and four copies made, one deposited with each of the district, prefectural and provincial governments, and the fourth submitted to the Imperial Government at Nanking. Since the last copy had a yellow cover, it became universally known as the Yellow Book, huangce 黄册. Most of the households were registered in one of four categories:
- (1) The general population
 - (2) Hereditary military families
 - (3) Artisans - classified according to trade
 - (4) Saltern households
- (Ray Huang, Taxation and Government Finance p.32)
11. ibid. p.253
12. Xu Wen, Jiang Siqing, "Embryonic Capitalism in Jingdezhen's Porcelain Industry" p.687
13. see Chapter III of this study
14. Draft History p.103, and see Chapter III of this study
15. Li Guangbi, Ming Qingshi luncong (Collected Essays on Ming and Qing History), Wuhan 1957 p.65
16. Li Huibing, "Lüetan Ming Qing de caici" (Brief Discussion of Ming and Qing Polychromes) Wenwu 1974 no.8 p.91
17. see Chapter III of this study
18. Draft History p.53
Elvin, Pattern of the Chinese Past p.172

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19. ibid. p.234
20. Draft History p.99
Xu Wen, Jiang Siqing, "Embryonic Capitalism in Jingdezhen" p.686
Sakuma Shigeo, "Insurrections and the Development of Private Kilns" p.272
21. Draft History p.106
22. Huang, Taxation and Governmental Finance p.254
see also Sakuma Shigeo, "Study of the Ceramic Industry" p.470
23. Draft History p.105
24. Fouliang xianzhi 1682 p.41
Taxation and the financing of the industry are both dealt with in more detail in Chapter XII of this study
25. Draft History p.116
26. ibid.p.106
27. Franck, Roving Through Southern China p.109
28. Draft History p.103-4
The question of tax quotas expressed in terms of the labour force is discussed more fully in the following chapter.
29. Draft History p.106

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30. Tao Lu, book 3 p.1b-3; Sayer p.19-20
31. Draft History p.105
32. Xu Wen, Jiang Siqing, "Embryonic Capitalism in Jingdezhen" p.699-702
see also Chapter III of this study
33. See Chapter V, note 21 of this study
34. Draft History p.288-294
35. John Knight Shryock, "Kingtehchen: the Porcelain City", p.997-8
36. Xiang Zhuo, Records of the Porcelain Industry p.43-4
Zhang Renren, "Porcelain Industry of Jingdezhen, Raozhou", in Handicraft History Vol.II p.729
Cai Xiang, Zhao Zengli, "Investigation into the Jingdezhen Porcelain Industry," in Handicraft History Vol.III p.227
37. Cai Xiang, Zhao Zengli, "Investigation into the Jingdezhen Porcelain Industry," Handicraft History Vol.III p.324
38. Jiang Siqing, History of the Porcelain Industry p.185
39. Draft History p.340
40. Handicraft History Vol.II p.604-7
41. Command Papers 2442, China no.1 1925, Labour Conditions in China p.75

notes to pages 162-165

42. Handicraft History Vol.III p.356
43. Jean Chesneaux, Chinese Labour Movement 1919-1927, Stanford 1968 p.322-328
44. Draft History p.342
45. Handicraft History Vol.III p.378
46. Draft History p.343-4
47. Cai Xiang, Zhao Zengli, "Investigation into the Jingdezhen Porcelain Industry", in Handicraft History Vol.III p.324
48. Agnes Smedley, Battle Hymn of China, London 1944 p.171-2

Chapter XII Taxation and Finance

1. Complaints about the burden of taxation are common through the history of the Chinese empire. Taxation was omnipresent: agriculture was affected, since the land tax payable in grain provided the main source of imperial revenue, industry and trade paid taxes on sales and transport, and in addition, individuals were liable to perform certain corvée or labour service duties. A complaint from a seventeenth century censor shows the extent of taxation on trade:

"Throughout the prefectures, the departments and the counties of Kiangnan there are waterways everywhere. Everywhere there are local specialities. Everywhere there is trading. At the present time there are controls on all this. At the river ports of every county and prefecture even such commonplace articles as rice, salt, chickens and pigs, and even such coarse ones as firewood, coals, vegetables and fruits are all affected. Every commodity is subject to a tax. In no county is there one village at peace, and in no village one family at peace. People are being interfered with everywhere. Rich and poor alike are being molested."

(Elvin, Pattern of the Chinese Past p.269)

2. See Chapter II of this study
3. See Liang Fang-chung, The Single-Whip System of Taxation,

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and Ray Huang, Taxation and Governmental Finance
p.118ff.

4. ibid. p.138
5. ibid.
6. Draft History p.105
7. Draft History p.99
8. Raozhou fuzhi 1684 p.81
9. Fouliang xianzhi 1682 p.41
Raozhou fuzhi 1684 p.79b
10. Fouliang xianzhi 1682 p.41b
11. ibid.
12. Raozhou fuzhi 1684 p.80b
13. Fouliang xianzhi 1682 p.42a-b
14. Raozhou fuzhi 1684 p.81b
15. Ray Huang, Taxation and Governmental Finance p.19
16. ibid. p.226
17. ibid. p.232
18. ibid. p.233
19. See Beal, Origin of Likin pp.12-18 and passim

20. D.K. Lieu, China's Industries and Finance p.129
21. ibid. p.137-9
22. Xiang Zhuo, Records of the Porcelain Industry p.48-9
23. H.B. Morse, Trade and Administration of the Chinese Empire p.306; for a description of how heavy likin duties had reduced Jingdezhen porcelain prices, see Handicraft History Vol.II p.485
24. Xiang Zhuo, Records of the Porcelain Industry p.49
25. Walter H. Mallory, China, Land of Famine, New York 1926 p.79
26. Edward Ward, Chinese Crackers London 1947 p.96
27. Wright, Kiangsi Native Trade and Taxation p.187
28. Draft History p.27
29. Da Qing huidian book 1190, in Handicraft History Vol I p.105
30. Tang Ying, Taocheng jishi (Records of Pottery Manufacture) in Handicraft History Vol.I p.106
31. Da Qing huidian, in Handicraft History Vol.I p.111
32. Regulations of the Manager of the Imperial Household in Handicraft History Vol.I p.105, p.111
33. Hermann, China's Export Handicrafts p.128
Xiang Zhuo, Records of the Porcelain Industry p.35

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34. Xiang Zhuo , Records of the Porcelain Industry p.37
35. Frank Tamagna, Finance and Backing in China New York
1942 p.61, 149
36. ibid. p.189-193
37. Shryock, "Kingtehchen: the Porcelain City" p.1002
38. Tayler, "Hopei Pottery Industry" p.196
39. ibid.p.197

Chapter XIII Import and Export

1. C.P. Fitzgerald, Southern Expansion of the Chinese Empire, London 1972 p.6
2. Hermann, China's Export Handicrafts p.25
3. Hin-cheung Lovell, Catalogue of Ting Yao Wares, London 1964 p.ix
4. Jia Jingyan, "Mingdai ciqi de haiwai maoyi" (Export of Ming Porcelain) in Problems of Embryonic Capitalism p.47
 Jiang Siqing, History of the Porcelain Industry p.71
5. C.P. Fitzgerald, Southern Expansion of the Chinese Empire p.16
 Jiang Siqing, History of the Porcelain Industry p.74
6. Jia Jingyan, "Export of Ming Porcelain" p.47; Talks from Pingzhou was written in 1119 A.D., see Shiba Yoshinobu, Commerce and Society in Sung China, translated by Mark Elvin
7. L.C. Goodrich, Short History of the Chinese People p.194
8. Jiang Siqing, History of the Porcelain Industry p.149
9. Jia Jiangyan, "Export of Ming Porcelain" pp.48,50
10. Jiang Siqing, History of the Porcelain Industry p.149
11. ibid. p.151
12. ibid. p.147

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13. Zhang Weihua, Mingdai haiwai maoyi jianlun (Ming Shipborne Trade), Shanghai 1956 p.73
14. C.R. Boxer, Dutch Seaborne Empire p.174
15. Basil Gray, "Export of Chinese Porcelain to India", Transactions of the Oriental Ceramics Society 1963-4
16. Jia Jingyan, "Export of Ming Porcelain" p.49
17. Boxer, Dutch Seaborne Empire p.174
18. ibid., and
T. Volker, Porcelain and the Dutch East India Company
p.25
19. ibid. p.9-10
20. ibid. p.23-5
Draft History p.252
Jia Jiangyan, "Export of Ming Porcelain" p.50
21. Boxer, Dutch Seaborne Empire p.174
22. ibid.
23. Volker, Porcelain and the Dutch East India Company p.24
24. ibid. p.48-50
25. ibid. p.50-56
26. ibid. p.56
27. ibid.

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28. ibid. p.50
29. Maurice Ashley, England in the Seventeenth Century, Pelican History of England Vol.6, Harmondsworth 1967 p.185
L. Dermigny, La Chine et l'Occident; Le Commerce à Canton au XVIII^e Siècle 1719-1833, Paris 1964 p.83ff
30. John Evelyn, Diary Vol.2, London 1945 p.343
31. Margaret Jourdain and R. Soame Jenyns, Chinese Export Art in the Eighteenth Century, London 1967 p.40
32. ibid.
33. Draft History p.253
Hermann, China's Export Handicrafts
34. Soame Jenyns, "Chinese Ko-sometsuke and Shonsui Ware"
Transactions of the Oriental Ceramics Society 1962-3
35. ibid.
36. Jia Jingyan "Export of Ming Porcelain" p.50
37. John King Fairbank, Trade and Diplomacy on the China Coast; the Opening of the Treaty Ports 1842-1854
Harvard 1964 p.47
38. ibid. p.47-50
Dermigny, Le Commerce à Canton pp.312,321-9

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39. ibid. p.574-5
Draft History p.254
40. Tao Lu book 2 p.8b
41. Draft History p.254
42. Donald F. Lach, Asia in the Making of Europe; the Century of Discovery Vol.I, Chicago 1965 p.81
43. K.A. Buchanan, Industrial Archaeology, London 1974 p.154
44. J.L. and Barbara Hammond, Rise of Modern Industry, London 1966 p.164-8
45. Wright, Kiangsi Native Trade and Taxation p.27
46. Hermann, China's Export Handicrafts p.209-11
47. ibid.
48. Inspectorate General of Customs, Returns of Trade, article 125, Shanghai 1906
49. ibid. article 19
50. Jiang Siqing, History of the Porcelain Industry p.159-60
Draft History p.263
51. ibid. p.264
52. ibid. p.265

Chapter XIV Conclusion

1. For example Edwin O. Reischauer and John K. Fairbank, East Asia: the Great Tradition London 1960 p.334
"... the imperial kilns produced great quantities of porcelain for the palace and also for upper class use and even export." Many works on ceramic art make these assumptions, "... it was not until the Ming dynasty that an Imperial factory was established in Chingtechen," Brankston, Early Ming Wares p.5.
R.L. Hobson in Wares of the Ming Dynasty talks about a "factory" in the Yuan dynasty, as do many other writers.

2. Taylor, "Hopei Pottery Industry" p.186

3. K.A. Buchanan, Industrial Archaeology p.153-4
J.L. and B. Hammond, Rise of Modern Industry p.162-8

4. Mao Tse-tung, Selected Works Peking 1954 Vol.III p.77

5. A.L. Feuerwerker and S.Cheng, Chinese Communist Studies of Modern Chinese History, Cambridge Mass. 1961 pp.181,185
A.L. Feuerwerker, History in Communist China

and see Problems of Embryonic Capitalism

6. ibid. p.685

7. ibid. p.238

8. ibid. p.565

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9. ibid. p.835
10. ibid. p.863
11. Jiang Siqing, History of the Porcelain Industry
12. Chen Shiqi, Mingdai guanshougongye de yanjiu p.40
13. V.I. Lenin, The Development of Capitalism in Russia in Collected Works Vol.III Moscow 1960- p.331ff
14. ibid.
15. see S. Thrapp, Mediaeval Industry 1000-1500, London
16. Paul Mantoux, The Industrial Revolution in the Eighteenth Century London 1968
17. Ho Ping-ti, Studies on the Population of China p.205
18. Wright, Kiangsi Native Trade and Taxation p.193-4
19. Mantoux, Industrial Revolution
20. ibid.
21. ibid.
22. D.K. Lieu, China's Industries and Finance p.1-2
23. ibid.
24. Compiled from data in Draft History p.287ff
25. Command Papers 2442 p.75

26. Elvin, Pattern of the Chinese Past p.312
27. ibid. p.315
28. Peter Schran, "Handicrafts in Communist China" China Quarterly no.17 1964 p.154
29. ibid. p.162-3
30. Mei Chien-ying, "City of Porcelain" China Reconstructs 1955 no.4 p.14
31. ibid.
32. Academia Sinica Shougongye cankao zi liao (Handicraft Reference Materials) 1954 p.184
33. ibid.
34. See Zhou Ren, "Traditional Techniques of Porcelain Manufacture"
35. Mei Chien-ying, "City of Porcelain" p.15
36. Wanda Garnsey, "Music and Porcelain" in Eastern Horizon Vol. V no.4 April 1966 p.33
Rewi Alley, Land and Folk in Kiangsi p.36
37. Garnsey, "Music and Porcelain" p.33
38. There are full details of the development of Jingdezhen since 1949 in the Draft History. Part IV, which is entitled "Jingdezhen's Porcelain Industry in New China" (pp.349-434) covers the restoration of production, the development of new techniques during the first five-year

plan, the socialist transformation of the handicraft workshops and labour conditions. It concludes with chapters on research and development and the growth of internal and foreign markets.

APPENDIX A

A Note on Sources

1. Local Gazetteers

Fouliang District Gazetteer 浮梁縣志 . A microfilm of the 1682 edition in the Naikaku Bunko (Cabinet Library) in Tokyo has been used in this study. There is no earlier edition extant, but there were further compilations in 1740 and 1823. It has not been possible to trace these.

Raozhou Prefectural Gazetteer 饒州府志 . This has been used in a 1684 edition from the same source as the district gazetteer, but there was also an edition in 1825 although this has not been traced.

Jiangxi Provincial Gazetteers: The Jiangxi tongzhi 江西通志 of 1881 has been used. An earlier compilation, the Jiangxi dazhi 江西大志 has been referred to whenever cited in secondary works, but a complete copy has not been found.

In all the above gazetteers, particular attention has been given to the monographs on Pottery Administration, taozheng 陶政. Most of these are concerned with the official presence in Jingdezhen and the procurement of official orders, but they also discuss the supply and mining of raw materials, the processing of blue colouring materials, and taxation. There is very little detail about the running of the industry. A translation of part of the pottery monograph in the Raozhou gazetteer follows in Appendix B.

2. Works on Technology and Ceramics

Tiangong kaiwu: The most important general work on Ming technology is the Tiangong kaiwu 天工開物 (The Creations of Nature and Man) written by Song Yingxing in 1637. It contains details of the manufacture of ceramics and the other

main industrial and agricultural techniques such as metallurgy, paper-making, and the growing of grains. It is quite possible that the information about porcelain manufacture was obtained at first hand since Song was born in Fengxin in northern Jiangxi, just thirty miles west of Nanchang, and spent some of his official career as an Education Officer for the Fenyi district which is only about a hundred miles south-west of the Poyang Lake. The Tiangong kaiwu was written while he was at Fenyi.

The editions used in this study were one produced in Shanghai about 1930, another annotated by Yabuuchi Kiyoshi published in Tokyo in 1972, and the excellent translation by E-tu Zen Sun and Shiou-chuan Sun, from which the above information about Song Yingxing's career is taken.

Jingdezhen Tao Lu: The Tao Lu 陶錄 (Pottery Records of Jingdezhen) was written about 1790 by Lan Pu (Lan Binnan) but was not published till about 1815. It was edited by Zheng Tinggui (Zheng Wengu) who also made some additions, and is in ten books, the first and last of which are the work of Zheng.

Book One, accompanied by maps, deals with the history of Jingdezhen and the Imperial Depot, and gives details of the manufacturing process which are taken from Tang Ying's Taoye tushuo (Explanations of the Illustrations of Porcelain Manufacture) and illustrated by woodcuts. Book Two is about the Depot, its establishment and staff and the porcelain made for it, and Book Three goes into more detail about the business of pottery manufacture, the different trades and commercial practices. In the fourth book there is more detail about the materials and manufacture and Books Five, Six and Seven give an account of pottery and porcelain made in Jingdezhen throughout the town's history, and include details of ancient kilns and reproductions of famous antique wares. Books Eight and Nine together contain 129 literary references to porcelain and to Jingdezhen, and the work concludes with additional remarks by Zheng in Book Ten.

Two translations have been made of the Tao Lu, a partial one by Stanislas Julien into French in 1856, and a complete English translation made by Geoffrey R. Sayer and published first in 1951. For this study, a copy of the 1815 edition was used. Sayer's translations have been used whenever possible but these have often been modified in the light of comparisons with the original and similar passages in local gazetteers.

Tao Shuo: The Tao Shuo 陶說 (On Pottery) was written by Zhu Yan in 1774 and is particularly important because it includes Tang Ying's Taoye tushuo (see above). It contains a short study of Qing porcelain but concentrates on the products of the Ming and earlier dynasties. It is considered today to be rather unreliable for these earlier periods because of its reliance on secondary sources and inaccurate quotations. Stephen W. Bushell made a complete translation of the Tao Shuo in 1910 under the title of Description of Chinese Pottery and Porcelain, which has been used in this study together with a 1936 reprint of the original. As in the case of the Tao Lu, the existing translation has been used whenever possible and modified when necessary.

3. Travellers' Records

As one of the deficiencies of the official records is their neglect of the life of the ordinary people and the day-to-day business of the town, it is fortunate that these can be supplemented, at least for later periods, by the reports of a number of European travellers. In many ways these records are much more detailed than those written by native Chinese and the writers seem much more observant.

The earliest of these records, the two letters of Père d'Entrecolles, have already been discussed and quoted in Chapter V, but several travellers in the early part of the present century provided equally detailed and vivid descriptions

of the town at work, notably Harry A. Franck, whose chapter on Jingdezhen in Roving Through Southern China conveys in its punchy American prose more about life in Jingdezhen than all the official Chinese records. John Knight Shryock's article, "Kingtehchen: the Porcelain City" goes into great detail about manufacture and business, and Agnes Smedley's short visit, recorded in Battle Hymn of China, which is quoted in Chapter XI, reveals a great deal about labour conditions in the 1940s.

One Chinese writer of the present century, Xiang Zhuo, who wrote Records of the Jingdezhen Pottery Industry in 1928 went to Jingdezhen to investigate the industry and produced a detailed report on the use of raw materials, the manufacturing process, management, trade and labour conditions. However his account never really makes the town come alive in the way that Franck's work does.

4. Secondary Works

The most important secondary works in Chinese used in this study are the Draft History, Jingdezhen taoci shigao 景德镇陶瓷史稿 compiled by the Jiangxi Light Industry Bureau in 1959, and the Jingdezhen ciye shi 景德镇陶瓷史 (History of the Porcelain Industry in Jingdezhen) by Jiang Siqing, published in 1936.

Both cover all aspects of the industry and ceramic art and while the Draft History is the fuller of the two, it is less satisfactory as a history since the sources for many of the statements made are never given. Jiang's book is the fullest of the studies of the industry made in the Republican period and like all of them was started because of his concern for the future of a declining industry. The history of the town is given from earliest times and this is based on documents for which he gives a full reference.

In addition, much information was obtained from the four volumes of Handicraft History Materials, Zhongguo jindai shougong

ye shi ciliao 中国近代手工业史资料 , edited by Peng Zeyi,
and some from the articles on the problems of early capitalism
collected in the mid-1950s.

There are a number of studies of Chinese ceramics by
Japanese authors but the most important work on the history
of Jingdezhen has been done by Sakuma Shigeo in two studies
entitled "Insurrections and the Development of Private Kilns" and
"A Study of the Ceramic Industry."

APPENDIX B

Translation of Part of the Monograph on the Administration of the Potteries in the 1684 Raozhou Gazetteer

Note: material in square brackets and all sub-headings have been added to clarify the translation.

Early History of the Pottery Depot

The pottery depot has been in existence since the second year [A.D.619] of the Tang dynasty reign of Wude when the potters presented vessels made of "imitation jade" to the court after which a tax station was established. The first market-town administration was set up during the Jingde reign [1004-1008] of the Song dynasty for supplying the court and supervising the manufacture [of porcelain]. This was replaced in the Yuan dynasty by an official called a tiling. When there were orders [from the court] these were met, but when there were none, [production of official wares] stopped.

The Ming Dynasty

At the beginning of the Ming dynasty [porcelain] was made and submitted annually [to the court]. At the beginning of the Zhengde reign [1506-21] the Imperial Ware Depot was set up. It was abolished for a time during a period of war but was re-established soon after. During the reign of Xuande [1426-35] there was special supervision of the craftsmen by an assistant from the Department of Building. This was ended early in the reign of Zhengtong [1436-49] and in the dingniu year [1458] of the Tianshun reign, a eunuch official was again put in charge of production. During the Jiajing reign [1522-56] this post was abolished by imperial decree and the assistant magistrates of Raozhou took charge. This was later changed and it was proposed that the assistants in each prefecture be responsible for [the potteries] in rotation.

In the renwu year [1582] of the Wanli reign it was proposed that Raozhou take charge and that the dubu take up residence [in Jingdezhen]. Later, firing [of imperial wares] was temporarily stopped.

The Qing Dynasty

In the present dynasty, supervision by the dubu and assistant prefects ended and firing became the responsibility of the magistrates and junbu of Raozhou. In the yihai year [1659] of the Shunzhi reign, an official of the Board of Works was sent to have balustrade plaques, dragon jars and other wares made. After a long period of unsuccessful attempts to make them, Governor Zhang petitioned the Emperor for permission to end the firings. An imperial decree was granted. In the xinhai year [1671] of the Kangxi reign, the Board [of Works] ordered the firing of sacrificial vessels. This order was transmitted to the provincial governor who made the prefectural and district officials responsible for the firing.

Clays

Pottery clay comes from Macangshan in Xinzhengdu. That from Qianhukeng, Longkengwu, Gaolupi and Dilupi is the best. It is firm sticky earth of a uniform consistency with black seams that contain sugar-like specks of white. Yugan and Wuyuan both produce china-stone, and one or two sites at Hutian produce glaze-stone or glaze-earth. From Changling in Xinzhengdu comes a fine yellow glaze, while Yikeng produces a glaze for pouring over white ware. These two are very good. [Glaze material] from Boyeban and other places like Lijiawu has black streaks and is not very good. The new earth from Wumentuo which has sugar-like specks is very good.

Mining

Although the mines can be several li deep and many people have died trying to make money, private businesses get only

a few fen for each load of earth. In the thirty-second year [1604] of the Wanli reign, the clay broker Dai Liang and others went to the eunuch official with notices declaring Gaoling clay to be requisitioned as official property. The magistrate Zhou Qiyuan said that a price had always been paid for clay for court firings, and that private property should not be requisitioned. He had the notices withdrawn.

Labour Taxes and Expenses

There are tax levies for hired hands, gravel hands and higher grade workers. To provide for the hiring of craftsmen. 33.6 liang [in tax] were originally allocated by the Rao qianhusuo [a local military administration]. Gravel hands grouped according to the weight of gravel or yellow clay they carried, and higher grade workers were registered by trade and [the tax] allocated to the seven districts of Raozhou. Every district had its quota. For details on the fluctuation over the years and how payments and receipts were made, see the Fouliang District Gazetteer.

Completed pottery has to be delivered to the capital by a given deadline, and the expenses of the delivering officials are met by the Fouliang treasury. Anything left over after the gravel hands and higher-grade labourers have been paid is remitted to the capital. In the past all the pottery reached the capital by water. Transport by land began after the eunuch officials were withdrawn. Later Commissioner Pan re-established transport by boat as it was more convenient.

Blue Colouring Materials

The mohammedan blue used for the finest pottery comes as tribute from abroad. Pond blue is produced in Leping. During the Jiajing reign [1522-66] Leping ran out. Stone blue was produced at several places in Ruizhou. As for the ways of using the blue colouring, if mohammedan blue is

used on its own, the colour runs badly. If there is too much stone blue, the colour is deep and not bright enough. So for the top grade, one part of stone blue is added to ten parts of mohammedan blue. A ratio of four parts to six made up the medium grade, while a ratio of ten to one was called turbid water. Recently mohammedan blue has been in short supply and the private kilns have made a lot of pure white porcelain such as eggshell thin goblets and cups and figurines of people, immortals and buddhas which are very skilful.

A short piece about lead glazes is omitted here. Only official kilns made wares in all colours.

Board quota porcelain buxian was not put out to other kilns, but imperial quota qinxian was. An order was placed [with the private kilns] and those who were able to, produced completed pieces. Those who could not were required to do so, and if they could not manage this, the officials sold pieces to them [from the official kilns] at a high price, which caused difficulties for the private kilns.

Official Craftsmen

More than three hundred names were put on a register by Commissioner Liang and hired in the same way as official craftsmen but without pay. Country people could not fulfil their service obligations at the depot. The official craftsmen were hired to replace them as chargehands. They demanded payment each month but received none and kept complaining.

The authorities kept the same numbers as before and would not relax their demands. Men were not hired for their own duties or given official food allowances. In recent years after the allocation of the artisan commutation payment in Jiangnan, there was some slight relief but [people were] still very worried as these duties increased the burden on them.

If firing starts again, the authorities should pay attention to this matter. The price [for wares] supplied to the court should be increased as it was originally double that outside [the official supply system?]. The veteran foremen also want this. The people who suffer because of this are the craftsmen from the various districts. In the twelfth year [1584] of the Wanli reign, Xiang Zhuan of the official depot bore in mind this hardship and the people were grateful whenever demands were relaxed.

The old system for supplying the pottery depot was to allot [the task] to the thirteen li of Fouliang and the thirty-five li of Poyang District. Later the Poyang district magistrate Xu Junmin requested that labour for the depot be more evenly distributed.

The detailed tax quotas have been omitted here, as they are summarised in Chapter XII, p.170-72.

Merchants and pedlars from the four quarters gather in Jingdezhen. The houses of the people are packed closely together. During the [Wu Sangui] rebellion, in the thirteenth year [1674] of the Kangxi reign, more than half [the town] was burnt down, and the kiln owners lost all their property and became vagrants or changed their trade. Businesses were sold to outsiders, only twenty or thirty per cent of whom were professional potters, and demands for labour service were hard to meet.

Early Qing Officials

In the second month of the twentieth year [1681] of the Kangxi reign, Xu Tingbi, Secretary to the Treasury of the Imperial Household, Zang Yingxuan, Secretary Grade Three in the Department of Weights and Measures in the Board of Works, Li Tingxi, Assistant Secretary in the Imperial Household and Che Erde, a Clerk Grade Two from the Board of Works were

commanded by the emperor to supervise the manufacture of porcelain .

When they took up residence, all the local officials came to complain about their problems. The four noble officials were gravely worried by the people's difficulties and together with the authorities established an office to regulate prices for [official] supplies so the people should not be burdened. When there was hardship the people got relief, public undertakings flourished, and industry and commerce both profited. The local people gradually recovered their position. In general pottery both benefited the people and made them suffer. When the officials had been in residence for a long time and had got to know the conditions [of the industry] very well, they personally compiled an Investigation into the Administration of the Potteries which is printed below.

Investigation of the Administration of the Potteries

The first paragraph repeats the history of the town from the Tang dynasty onwards, but adds:

In the yihai year [1599] of the Wanli reign of the Ming dynasty, the eunuch commissioner responsible for collecting mining taxes was given responsibility [for the potteries] as well.

In the eleventh year [1654] of the Shunzhi reign of our royal house, dragon jars, balustrade plaques and other pieces were ordered by decree, and Gaba, Superintendent of the Board of Works and Secretary Wang [Ricao] deputed to supervise the firing through the Raozhou circuit superintendents Dong [Xiezhang] and Wang [Tianchun], the Inspector of the southern circuit, and Governor Zhang who were to oversee work personally. When [the firing] was unsuccessful a petition was sent [for permission] to stop.

The details of the appointment of the four officials are repeated and have been omitted here.

In the twentieth year [1681] of the Kangxi reign the supervisors at the depot fixed realistic prices for each consignment submitted in succession for the emperor's inspection. It was proposed that the cost of materials for the artisans be paid for item by item out of regular taxes. Transport and other costs are not now a burden on the local people. There has been a thorough reform and corruption has been curbed to the great benefit of officials and people.

Details of clay extraction and mohammedan blue are repeated, there is a list of types of pottery produced and tax quotas are again discussed. These are omitted here.

Kilns are all of similar structure but the widths vary. If the kiln, the porcelain body and the fuel are dry there is less risk of [the pieces] cracking, breaking or losing their shape. If the clay, the colouring material and the workmanship are fine, the pots will not be coarse or poor in quality. The temperature must be even, neither too high nor too low, so that the glaze will be bright and the pots perfect. The right glaze and a clean saggar are essential. These are the basic principles of firing.

Note that the gazetteer discusses only the production of porcelain for official use. Private production was continuous.

BIBLIOGRAPHY

- Ajia Kenkyū-jō アジア研究所 Chūgoku kōgyō kōjō sōran 中國
工業工場總覽 (Survey of Factories in China) 2 vols. Tokyo
1970
- Ajia Rekishi Jiten アジア歴史事典 (Dictionary of Asian
History) 10 vols. Tokyo 1959-62
- Alley, Rewi Land and Folk in Kiangsi - a Chinese Province in
1961 Peking 1961
- Bai Shouyi and Wang Yuchuan 白壽彝 王毓銓 "Shuo Qin Han
dao Mingmo guanshougongye he fengjian zhidu de guanxi" 說秦漢
到明末官手工業和封建制度的關係 (Relationship
Between the Feudal System and Official Handicraft Industries
from the Qin and Han Dynasties to the End of the Ming) Lishi yanjiu
1954.5 p.63-98
- Balazs, Etienne Chinese Civilisation and Bureaucracy Yale 1964
- Beal, Edwin George Origin of Likin 1853-1864 Harvard 1958
- Bishop, John L. (ed) Studies of Governmental Institutions in
Chinese History Harvard 1968
- Boorman, Howard L. and Richard C. Howard Biographical Dictionary
of Republican China 4 vols. New York 1967-71
- Boulay, Anthony du Chinese Porcelain London 1963
- Boxer, C.R. Dutch Seaborne Empire 1600-1800 London 1965
- Boxer, C.R. (ed) South China in the Sixteenth Century, Being
the Narratives of Galieto Pereira, Fr Gaspar da Cruz O.P.,

Fr Martin da Rada O.E.S.A. (1550-1575) Nendeln/Liechtenstein 1967

Brankston, A.D. Early Ming Wares of Chingtechen Hong Kong and London 1970

Brankston, A.D. "Excursion to Chingtechen and Chi-an-fu in Kiangsi" in Transactions of the Oriental Ceramic Society 1938-39 p.19-32

Bridgman, E.C. "Topography of Kiangsi" Chinese Repository XI p.375-386 1842, Tokyo Reprint

Brunnert, I.S. and V.V. Hagelstrom Present Day Political Organisation of China 1908, reprinted Taipei 1963

Buchanan, K.A. Industrial Archaeology London 1974

Burton, William Porcelain: its Nature, Art and Manufacture London 1906

Bushell, Stephen W. Description of Chinese Pottery and Porcelain Being a Translation of the T'ao Shuo, with Introduction, Notes and Bibliography Oxford 1910

Bushell, Stephen W. Oriental Ceramic Art New York 1899

Chandler, M. Ceramics in the Modern World London 1967

Chang Chung-li Income of the Chinese Gentry Seattle 1962

Chen Shiqi 陳詩啓 "Mingdai de gongjiang zhidu" 明代的工匠制度 (Artisan System of the Ming Dynasty) Lishi yanjiu 1955.6

Chen Shiqi 陳詩啓 Mingdai guanshougongye de yanjiu 明代官手工業的研究 (Studies of Official Handicraft Industry in the Ming Dynasty) Wuhan 1958

Chen Wanli "Recent Discoveries in Chinese Ceramics" Eastern Horizon 3rd January 1964

Chen Wanli 陳萬里 "Jianguo yilai duiyu gudai yaozhi de diaocha" 建國以來對於古代窯址的調查 (Investigation of Ancient Kiln-Sites Since 1949) Wenwu 1959.10

Chesneaux, Jean The Chinese Labour Movement 1919-1927 Stanford 1968

China Imperial Maritime Customs Returns of Trade and Trade Reports Shanghai 1901, 1907

Chow, E.T. and F.S. Drake "Kuan-yao and min-yao: a Study of Imperial Porcelain and People's Porcelain from K'ang-hsi to the End of the Ch'ing Dynasty" Archives of the Chinese Art Society of America 13

Chü Ch'ing-yuan "Government Artisans of the Yüan Dynasty" in Sun and de Francis, Chinese Social History q.v.

Ch'u Tung-tsu Local Government in China Under the Ch'ing Cambridge Mass. 1962

Clapham, Sir John Concise Economic History of Britain to 1750 London 1966

Clennel, W.J. "Region of the Poyang Lake, Central China" Geographical Journal 1906 no.3 p.301

Command Papers 2442 Labour Conditions in China China No.1 London 1925

Cordier, Henri Bibliotheca Sinica Taiwan 1966

Court, W.H.B. Concise Economic History of Britain, 1750 to Recent Times Cambridge 1962

- David, Sir Percival Chinese Connoisseurship London 1971
- Dermigny, Louis La Chine et l'Occident: le Commerce a Canton au XVIII^e siecle 1719-1833 in 3 vols. Paris 1964
- Dillon, Edward Porcelain London 1904
- Dimberg, Ronald, and E.L. Farmer and R.L. Irick, Ming Directory 1968 Taipei 1968
- Donnithorne, Audrey China's Economic System London 1967
- Eberhard, Wolfram History of China London 1964
- Edkins, J. "Sketch of the Growth of Science and Art in China to the Ming Dynasty" Journal of the Peking Oriental Society Vol.II no. 2 1888 pp.142-154
- Elvin, Mark "High Level Equilibrium Trap: the Causes of the Decline of Invention in the Traditional Chinese Textile Industries," in W.E. Willmott (ed) Economic Organisation in Chinese Society q.v.
- Elvin, Mark "Last Thousand Years of Chinese History - Changing Patterns in Land Tenure" Modern Asian Studies 4.2 1970 pp.97-114
- Elvin, Mark Pattern of the Chinese Past London 1973
- Entrecolles, Père Francis Xavier d' Lettres printed as an appendix to Stephen Bushell Description of Pottery and Porcelain q.v.
- Fairbank, John King Trade and Diplomacy on the China Coast 1842-1854 Harvard 1964

Fairbank, John King, and M.Banno and S. Yamamoto, Japanese Studies of Modern China: a Bibliographical Guide to Historical and Social Science Research on the Nineteenth and Twentieth Centuries Harvard 1971

Fairbank, John King and A.Eckstein and L.F.Yang "Economic Change in Early Modern China: an Analytic Framework" Economic Development and Cultural Change (Chicago) 9.1 1960

Ferguson, J.C. and Kuo Pao-ch'ang Noted Porcelains of Successive Dynasties Written by Hsiang Yuan-pien Peiping 1931

Feuerwerker, Albert China's Early Industrialisation: Sheng Hsuan-huai (1844-1916) and Mandarin Enterprise Harvard 1958

Feuerwerker, Albert Chinese Economy 1870-1911 Michigan Papers in Chinese Studies No.5 Ann Arbor 1969

Feuerwerker, Albert Chinese Economy 1912-1949 Michigan Papers in Chinese Studies No.1 Ann Arbor 1968

Feuerwerker, Albert "From 'Feudalism' to 'Capitalism' in Recent Historical Writing from Mainland China" Journal of Asian Studies 18 no.18 pp.107-115

Feuerwerker, Albert History in Communist China Cambridge Mass. 1969

Feuerwerker, Albert and S. Cheng Chinese Communist Studies of Modern Chinese History Cambridge Mass.1961

Fitzgerald, C.P. Southern Expansion of the Chinese People London 1972

Fouliang xianzhi 浮梁縣志 (Gazetteer of Fouliang District) 1682

Franck, Harry A. Roving Through Southern China London 1926

Franke, Wolfgang Introduction to the Sources of Ming History
Singapore 1968

Fu Yang 傅揚 Mingdai minjian qinghua ciqi 明代民間青花
瓷器 (Ming Blue and White in Common Use) Peking 1957

Fu Yang 傅揚 Qinghua ciqi 青花瓷器 (Blue and White
Porcelain) Peking 1957

Fu Yiling 傅衣凌 Mingdai jiangnan shimin jingji shitan 明代
江南市民經濟試探 (Urban Economy in Jiangnan During
the Ming Period) Shanghai 1957

Fu Yiling 傅衣凌 Ming Qing shidai shangren ji shangye ziben
明清時代商人及商業資本 (Merchants and Commercial
Capital During the Ming and Qing Dynasties) Peking 1956

Fu Zhenlun 傅振倫 Mingdai ciqi gongyi 明代瓷器工藝
(Ceramic Art of the Ming Dynasty) Peking 1955

Fu Zhenlun 傅振倫 Zhongguo de weida faming - taoci 中國
的偉大發明 陶瓷 (Porcelain- China's Great Invention)
Peking 1955

Fujii Hiroshi 藤井宏 "Shin-an shōnin no kenkyū" 新安商人
の研究 "Study of the Xin'an Merchants) Tōyō Gakuhō Vol. XXXVI
i-iv, 1953-4

Garner, Sir Harry Oriental Blue and White London 1970

Garnsey, Wanda "Music and Porcelain" Eastern Horizon Vol.V
no.4 April 1966 pp.32-4

Goodrich, L. Carrington Short History of the Chinese People
London 1948

- Gordon, Leonard H.D. and Frank J. Shulman China: A Bibliography of Doctoral Dissertations in Western Languages 1945-70
Seattle 1972
- Gray, Basil Early Chinese Pottery and Porcelain London 1953
- Gray, Basil "Export of Chinese Porcelain to India" Transactions of the Oriental Ceramic Society 1963-4
- Grousset, René Histoire de l'Extreme-Orient Tome 2^o Paris 1929
- Grousset, René Rise and Splendour of the Chinese Empire
London 1952
- Hail, William James Tseng Kuo-fan and the Taiping Rebellion
Yale 1927
- Hammond, J.L. and Barbara Rise of Modern Industry London 1966
- Hansford, S. Howard Glossary of Chinese Art and Archaeology
London 1954
- Herman, Theodore An Analysis of China's Export Handicraft Industries to 1930 Unpublished Ph.D. Thesis, University of Washington 1954
- Herrmann, A. Historical Atlas of China Chicago 1966
- Hetherington, A.L. Chinese Ceramic Glazes Cambridge 1937
- Hetherington, A.L. Early Ceramic Wares of China London 1922
- Hetherington, A.L. Pottery and Porcelain Factories of China
London 1921
- Hicks, J.R. Social Framework: an Introduction to Economics
Oxford 1971

- Hicks, J.R. Theory of Economic History Oxford 1969
- Hirth, F. Ancient Porcelain: a Study in Chinese Mediaeval Industry and Trade Hong Kong 1888
- Ho Pingti. Studies on the Population of China 1368-1953
Harvard 1959
- Hobson, R.L. Chinese Pottery and Porcelain 2 Vols. London 1915
- Hobson, R.L. Handbook of the Pottery and Porcelain of the Far East London 1937
- Hobson, R.L. Later Ceramic Wares of China British Museum Handbook London 1925
- Hobson R.L. Wares of the Ming Dynasty London 1923
- Hommel, Rudolph P. China at Work: an Illustrated Record of the Primitive Industries of China's Masses, Whose Life is Toil, and Thus an Account of Chinese Civilisation Massachusetts Institute of Technology 1969
- Honey, W.B. Ceramic Art of China and Other Countries of the Far East London 1945
- Honey, W.B. Guide to Later Chinese Porcelain London 1947
- Hoshi Ayao 星 斌夫 Chugoku shakai keizai-shi goi 中國社會
經濟史語彙 (Dictionary of Terms in Chinese Socioeconomic History) Tokyo 1966
- Hsiao Kung-chuan Rural China Seattle 1967
- Hsu, Immanuel C.Y. Rise of Modern China New York and London 1975

Huang Benji 黃本驥 Lidai zhiguan biao 歷代職官表
(Chronological Table of Official Posts in History with Explanatory
Notes) Shanghai 1965

Huang, Ray Taxation and Governmental Finance in Sixteenth
Century Ming China Cambridge 1974

Huc, Abbe M. A Journey Through the Chinese Empire London 1859

Hucker, Charles O. Chinese Government in Ming Times New York
1969

Hucker, Charles O. "Governmental Organisation of the Ming
Dynasty" in John.L. Bishop (ed) Studies of Governmental
Institutions in Chinese History Harvard 1968

Hucker, Charles O. Traditional Chinese State in Ming Times
Tucson 1961

Hudson, G.F. Europe and China Boston 1961

Hummel, Arthur W. Eminent Chinese of the Ch'ing Period 2 Vols.
Washington D.C. 1943-44

Jen Yu-wen Taiping Revolutionary Movement Yale 1973

Jenyns, Soame "Chinese Ko-sometsuke and Shonsui Wares"
Transactions of the Oriental Ceramic Society 1962-63

Jenyns, Soame Later Chinese Porcelain London 1951

Jenyns, Soame Ming Pottery and Porcelain London 1953

Jia Jingyan 賈敬顏 "Mingdai ciqi de haiwai maoyi" 明代瓷器的
海外貿易 (Export Trade in Ming Porcelain) in Problems
of Embryonic Capitalism q.v.

Jiang Qi 蔣祈 Taojilue 陶記略 (Summary of Pottery Records) in Fouliang xianzhi 1682 q.v.

Jiang Siqing 江思清 Jingdezhen ciye shi 景德鎮瓷業史 (History of the Porcelain Industry in Jingdezhen) Shanghai 1936

Jiang Xuanyi and Qin Tingyu 蔣玄怡 秦廷楫 Zhongguo ciqi de faming 中國瓷器的發明 (Invention of Chinese Porcelain) Shanghai 1956

Jiangxi sheng qing gongyeting Jingdezhen taoci yanjiusuo 江西省輕工業廳景德鎮陶瓷研究所 Zhongguo de ciqi 中國的瓷器 (Chinese Porcelain) Peking 1963

Jiangxisheng qing gongyeting taoci yanjiusuo 江西省輕工業廳陶瓷研究所 Jingdezhen taoci shigao 景德鎮陶瓷史稿 (Draft History of Jingdezhen) Peking 1959

Jiangxi tongzhi 江西通志 (Gazetteer of Jiangxi Province) 8 vols. Taipei 1967

Jingdezhen taoci xueyuan meishuxi 景德鎮陶瓷學院美術系 Zhongguo taoci chuantong caihui 中國陶瓷傳統彩繪 (Traditional Decoration of Chinese Porcelain) Nanchang 1961

Jourdain, Margaret and R. Soame Jenyns Chinese Export Art in the Eighteenth Century London 1967

Julien, Stanislas Histoire et Fabrication de la Porcelaine Chinoise Paris 1856

Kahle, Paul "Eine Islamische Quelle über China um 1500. (Das Khitāyname des 'Ali Ekbar)" Acta Orientalia 12 1934 191-110

Kamachi Noriko, J.K. Fairbank and Chuzo Ichiko Japanese Studies of Modern China since 1953: a Bibliographical Guide to Historical and Social Science Research on the Nineteenth and Twentieth Centuries Harvard 1975

Keen, Maurice Pelican History of Mediaeval Europe Harmondsworth 1968

King, Frank H.H. Concise Economic History of Modern China 1840-1961 London 1969

Kirby, E. Stuart Introduction to the Economic History of China London 1954

Koyama Fujio Sekai tōki zenshu 世界陶器全書 (Catalogue of World Ceramics) Vols. 11 and 12, Tokyo 1955

Lach, D.F. Asia in the Making of Europe: the Century of Discoveries 2 vols. Chicago 1965

Lan Pu 藍浦 Jingdezhen taolu 景德鎮陶錄 (Pottery Records of Jingdezhen) 1815

Leach, Bernard A Potter's Book London 1955

Lenin, V.I. Development of Capitalism in Russia Collected Works Vol. III Moscow 1960-

Li Guangbi 李光璧 "Mingdai shougongye de fazhan" 明代手工業的發展 (Development of Ming Handicraft Industries) Problems of Embryonic Capitalism p.31

Li Guangbi 李光璧 Mingchao shilue 明朝史略 (Outline History of the Ming Dynasty) Wuhan 1957

Li Guangbi (ed) 李光壁 Ming Qingshi luncong 明清史論叢
(Collected Essays on Ming and Qing History) Wuhan 1957

Li Huibing 李輝柄 "Lüetan Ming Qing de 'caici'" 略談明清
的"彩瓷" (Brief Discussion of Ming and Qing Polychromes)
Wenwu 1974 no.8 p.91

Li Zhiqin 李之勤 "Guanyu Zhongguo Qingchu zibenzhuyi shengchan
mengya de fazhan shuiping wenti" 關於中國清初資本主義
生產萌芽的發展水平問題 (On the Level of Development
of Capitalist Production in Early Qing China) Problems of
Embryonic Capitalism p.565

Liang Fang-chung Single Whip Method of Taxation in China
Harvard 1956

Lieu, D.K. China's Industries and Finance Being a Series of
Studies in Chinese Industrial and Financial Questions Peking 1927

Doewe, Michael Imperial China London 1966

Longfellow, Henry Wadsworth Longfellow's Poetical Works
Vol.III Boston and New York 1895

Lovell, Hin-cheung Illustrated Catalogue of Ting Yao and
Related White Wares in the Percival David Foundation of
Chinese Art London 1964

Lust, John Index Sinicus: a Catalogue of Articles Relating
to China in Periodicals and Other Collective Publications 1920-
1955 Cambridge 1964

Mallory, Walter H. China Land of Famine New York 1926

Mantoux, Paul Industrial Revolution in the Eighteenth Century
London 1968

- Medley, Margaret "Ching-te-chen and the Problem of the 'Imperial Kilns'" Bulletin of the School of Oriental and African Studies No.29 1966
- Medley, Margaret Handbook of Chinese Art London 1973
- Medley, Margaret Illustrated Catalogue of Ming Polychrome Wares in the Percival David Foundation of Chinese Art London 1966
- Medley, Margaret Illustrated Catalogue of Porcelains Decorated in Underglaze Blue and Copper Red in the Percival David Foundation of Chinese Art London 1963
- Medley, Margaret Yuan Porcelain and Stoneware London 1974
- Mei Chien-ying "City of Porcelain" China Reconstructs 1955
4 ii p.14
- Mitchell, Kate L. Industrialisation of the Western Pacific New York 1942
- Morse, H.B. Trade and Administration of the Chinese Empire Shanghai 1908
- National Review Annual Provinces of China Shanghai 1910
- Needham, Joseph Science and Civilisation in China Cambridge 1954-
- Oort, Henri Van Porcelain of Hung-hsien: a Study of the Socio-Cultural Background and some Characteristics of the Porcelain Produced at Ching-te-chen during the Imperial Reign of Yuan Shih-k'ai (1916) Leiden 1970
- Ozaki Junsei 尾崎 均盛 Mindai no tōji 明代の陶器 (Ming Ceramics) Tokyo 1942

Pang Hsun-chin "China's Pottery and Porcelain" People's
China 1955 23 p.15

Peng Zeyi (ed) 彭澤益 Zhongguo jindai shougongye shi ziliao
中國近代手工業史資料 (Materials on the History of
the Modern Handicraft Industry in China) 4 vols. Peking 1957

Petro, Wladimr Triple Commission London 1968

Playfair, G.M.H. Cities and Towns of Asia: A Geographical
Dictionary Taipei 1965

Prodan, Mario Art of the T'ang Potter London 1971

Qian Hong 錢宏 "Yapian zhanzheng yiqian Zhongguo ruogan
shougongye bumen zhong de zibenzhuyi mengya" 鴉片戰爭以前
中國若干手工業部門中的資本主義萌芽 (Embryonic
Capitalism in Various Chinese Handicraft Industries Before the
Opium War.) Problems of Embryonic Capitalism p.238

Raozhou fuzhi 饒州府志 (Gazetteer of Raozhou Prefecture)
1684

Revue Bibliographique de Sinologie Paris 1955

Richards, L. Comprehensive Geography of the Chinese Empire
Shanghai 1908

Richtofen, Ferdinand Freiherr von Letters 1870-1872 Peking 1941

Sakuma Shigeo 佐久間重男 "Mimmatsu Keitokuchin no minyō no
hatten to minben" 明末景德鎮の民窯の発展と民変
(Insurrections and the Development of Private Kilns in Late Ming
Jingdezhen) in Suzuki Shun kyōju kanreki kinen Tōyō-shi ronsō
鈴木俊教授還曆記念東洋史論叢 (Collection of
Studies in Oriental History in Honour of Suzuki Shun) Tokyo 1964

Sakuma Shigeo 佐久間重男 "Mindai Keitokuchin yōgyō no ikosatsu" 明代景德鎮窯業の一考察 (Study of the Ceramic Industry in Ming Jingdezhen) in Shimizu hakushi tsuito kinen Mindai-shi ronso 清水博士追記念明代史論叢 (Studies in Ming History in Memory of Dr Shimizu Taiji) Tokyo 1962

Sawanobori Yoshihito 沢登佳人 "Ajia teitairon no kokufuku to shakaishi no ippan hōsoku oyobi kore ni kanren shite Keitokuchin tōji kōgyō no hatten o chūshin ni Chūgoku ni okeru shihonshugi no hassei o ronzu" アジア停滞論の克服と社会史の一般法則, およびこれに関連して景德鎮陶磁工業の発展を中心に中国における資本主義の発生を論ず (A Refutation of the Theory of Asian Stagnation: the General Laws of Social History with a Related Discussion of the Emergence of Capitalism in China as Seen in the Development of the Ceramics Industry in Jingdezhen) Chūkyū shōgaku ronsō 11,4 March 1965 1-52 12,1 June 1965 23-44

Sayer, Geoffrey R. Ching-te-chen T'ao Lu or the Potteries of China London 1951

Schran, Peter "Handicrafts in Communist China" China Quarterly no.17 1964

Schurmann, Franz Economic Structure of the Yuan Dynasty: Translation of Chapters 93 and 94 of the Yuan-shih Cambridge Mass. 1956

Scidmore, Eliza R. China, the Long-Lived Empire London 1900

Shi Xuetong 史學通 "Ping Zhongguo ciqu shi luncong" 評中國瓷器史論叢 (Criticising Collected Studies in the History of Chinese Porcelain) Lishi yanjiu 1959 no.4

Shiba Yoshinobu Commerce and Society in Sung China (trans. Mark Elvin) Michigan Abstracts 1970.

Shryock, John Knight "Kingtehoen: the Porcelain City"
Asia Nov. 1920 pp.997-1002

Shu Shicheng 束世澂 "Lun Bei Songshi zibenzhuyi guanxi de
chansheng" 論北宋時資本主義關係的產生 (Capitalist
Relationships in the Northern Song Period) Problems of
Embryonic Capitalism p.828

Skinner, William "Marketing and Social Structure in Rural
China" Journal of Asian Studies Vol.I no.1 Nov.1964

Skinner, William Modern Chinese Society 1644-1970: An
Analytical Bibliography

Vol. I Publications in Western Languages (with E.A. Winckler)

Vol. II Publications in Chinese (with W. Hsieh)

Vol. III Publications in Japanese (with Shigeaki Tomita)

Stanford 1973

Smedley, Agnes Battle Hymn of China London 1944

Smith, Adam Wealth of Nations London 1901

Song Yingxing 宋應星 Tiangong kaiwu 天工開物 (Creations
of Nature and Man) Shanghai c.1930

Song Yingxing 宋應星 Tiangong kaiwu 天工開物 (Creations
of Nature and Man) annotated by Yabuuchi Kiyoshi Tokyo 1972

Song Yingxing 宋應星 (Sung Ying-hsing) T'ien-kung
k'ai-wu: Chinese Technology in the Seventeenth Century
Translated by E-tu Zen Sun and Shiou-chuan Sun, Pennsylvania 1966

Staehelin, Walter Book of Porcelain: the Manufacture,
Transport and Sale of Export Porcelain in China During the
Eighteenth Century London 1966

- Sullivan, Michael Arts of China London 1973
- Sun, E-tu Zen Ch'ing Administrative Terms Harvard 1961
- Sun, E-tu Zen "Sericulture and Silk Textile Production in Ch'ing China" in Willmott, Economic Organisation in Chinese Society q.v.
- Sun, E-tu Zen and J.de Francis Bibliography of Chinese Social History: a Selected and Critical List of Chinese Periodical Sources New Haven 1952
- Sun, E-tu Zen and J.de Francis Chinese Social History Washington D.C. 1956
- Sun Jingzhi Economic Geography of Central China Joint Publications Research Service 1960 (a translation of Huazhong dichu jingli dili 華中地區經濟地理 Peking 1958)
- Takanaka Rie 高中利恵 "Min Shin jidai no Keitokuchin no tōgyō" 明清時代の景德鎮の陶業 (Jingdezhen's Porcelain Industry in the Ming and Qing Periods) Shakai keizai shigaku Vol.32 nos.5/6 Feb.1967 pp.72-107
- Tamagua, Frank Marius Banking and Finance in China New York 1942
- Tawney, R.H. Land and Labour in China London 1937
- Tayler, J.B. "Hopei Pottery Industry and the Problem of Modernisation" Chinese Social and Political Science Review Vol.XIV no.2 April 1930
- Tayler, J.B. Farm and Factory in China London 1928

Teng Ssu-yü and Knight Biggerstaff Annotated Bibliography of Selected Chinese Reference Works Cambridge Mass. 1971

Thrapp, S. Mediaeval Industry 1000-1500

Tōa Dobun Kai 東亞同文會 Shina shōbetsu zenshi 支那省
別全誌 (Complete Gazetteer of China by Provinces) Vol.11
Jiangxi, Tokyo 1923

Tong Shuye and Shi Xuotong 童書業 史學通 Zhongguo ciqishi
luncong 中國瓷器史論叢 (Collected Essays on the History
of Chinese Porcelain) Shanghai 1958

Tong Shuye 童書業 "Ping Jingdezhen taoci shigao" 評景德鎮
陶瓷史稿 (On the Draft History of Jingdezhen Porcelain)
Lishi yanjiu 1959.12

Tregaer, T.R. Geography of China London 1966

Volker, T. Porcelain and the Dutch East India Company as Recorded in the Dagh-Registers of Batavia Castle, those of Hirado, Deshima and Other Contemporary Papers 1602-1682
Leiden 1971

Waley, Arthur Secret History of the Mongols and Other Pieces
London

Wan Guoding 萬國鼎 Zhongguo lishi jinian biao 中國歷史
紀年表 (Chronological Table of Dynasties in Chinese History)
Hong Kong 1956

Ward, Edward Chinese Crackers London 1947

Watson, Andrew Transport in Transition: the Evolution of Traditional Shipping in China Michigan Abstracts no.3 1972

Watson, William Style in the Arts of China London 1974

Wilkinson, Endymion History of Imperial China: a Research Guide Harvard 1974

Willetts, William Chinese Art 2 vols. London 1958

Willmott, W.E. (ed) Economic Organisation in Chinese Society Stanford 1973

Wright, Mary C. China in Revolution: the First Phase, 1900-1913 New Haven and London 1968

Wright, Mary C. Last Stand of Chinese Conservatism: the T'ung-chih Restoration 1862-1874 Stanford 1957

Wright, Stanley J. Kiangsi Native Trade and its Taxation Shanghai 1920

Wu Hairuo 吴海若 "Zhongguo zibenzhuyi shengchan de mengya"
中國資本主義生產的萌芽 (Embryonic Capitalist
Production in China) Problems of Embryonic Capitalism p.854ff

Wu Yunjia 吴允嘉 Fouliang Taozheng zhi 浮梁陶政志 (Annals
of Fouliang Porcelain Administration) in Xunmintang congshu 遜
敏堂叢書

Xiang Zhuo 向焯 Jingdezhen Taoyejishi 景德鎮陶業紀事
(Records of the Porcelain Industry in Jingdezhen) 1920

Xin Anchao and Wu Renjing 辛安潮 吴仁敬 Zhongguo taoci shi
中國陶瓷史 (History of Chinese Pottery and Porcelain)
Shanghai 1954

Xu Daling 許大齡 "Shiliu shiji shiqi shiji chuqi Zhongguo fengjian shehui neibu zibenzhuyi de mengya" 十六世紀十七世紀初期中國封建社會內部資本主義的萌芽 (Embryonic Capitalism in China's Feudal Society in the Sixteenth and Early Seventeenth Centuries) Problem of Embryonic Capitalism p.879ff

Xu Wen and Jiang Siqing 徐文 江界清 "Cong Mingdai Jingdezhen ciye kan zibenzhuyi yinsu de mengya" 從明代景德鎮瓷業看資本主義因素的萌芽 (Embryonic Capitalism Seen Through the Jingdezhen Porcelain Industry in the Ming Period) Problems of Embryonic Capitalism p.685-702

Yamane Yukio 山根幸夫 Mindai yōeki seido no tenkai 明代徭役制度の展開 (Development of the Ming Corvee System) Tokyo 1966

Yang Lien-sheng "Ming Local Administration" in Hucker Chinese Government in Ming Times q.v.

Yang Lien-sheng Money and Credit in China Cambridge Mass. 1952

Yosaburo Takekoshi Economic Aspects of the History of the Civilisation of Japan 3 vols. New York 1930

Young, J. Research Activities of the South Manchuria Railway Company New York 1966

Zang Libe 臧勵籛 Zhongguo gujin diming da cidian 中國古今地名大辭典 (Dictionary of Chinese Place Names) Shanghai 1931

Zhang Tingyu 張廷玉 Mingshi 明史 (History of the Ming Dynasty) Peking 1974

Zhang Weihua 張維華 Mingdai haiwai maoyi jianlun 明代海外貿易簡論 (Ming Shipborne Trade) Shanghai 1956

Zhao Yiwen 趙藝文 Xin Zhongguo de gongye 新中國的工業 (Industry in New China) Peking 1957

Zhongguo renmin daxue Zhongguo lishi jiaoyanshi 中國人民大學
中國歷史教研室 Ming Qing shehui jingji xingtai de yanjiu 明清社會經濟形態的研究 (Study of Social and Economic Conditions in the Ming and Qing Dynasties)
Shanghai 1957

Zhongguo renmin daxue Zhongguo lishi jiaoyanshi 中國人民大學
中國歷史教研室 Zhongguo ziben zhuyi mengya wenti taolun ji 中國資本主義萌芽問題討論集 (Essays on the Problem of the Origin of Capitalism in China) Tokyo 1968

Zhou Ren 周仁 Jingdezhen ciqu de yanjiu 景德鎮瓷器的研究 (Studies of Jingdezhen Porcelain) Peking 1958

Zhou Ren 周仁 "Woguo chuantong zhici gongyi shulue" 我國傳統制瓷工藝述略 (Traditional Chinese Porcelain Technology)
Wenwu cankao ziliao 1958 no.2

Zhu Yan 朱琰 Tao Shuo 陶說 (On Pottery) Shanghai 1936
(reprint of 1774 edition)