

PORCELAIN  
A SKETCH OF ITS  
NATURE ART AND  
MANUFACTURE

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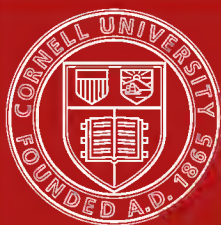
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PLATE I.—FIGURE OF KUAN TI, GOD OF WAR, IN  
FUCHIEN *BLANC DE CHINE*.







# PORCELAIN

A SKETCH OF ITS NATURE  
ART AND MANUFACTURE

BY

WILLIAM BURTON, F.C.S.

*Author of "English Earthenware and Stoneware"*

*With 50 Half-tone Plates*

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## PREFACE

THE interest of Porcelain is perennial, and though book succeeds book, the subject remains unexhausted. The aim of this little book is to supply the collector and student of Porcelain, as well as the general reader, with a clear and connected account of the various kinds of porcelain made in Asia and Europe. It has taken me more years than I like to count to arrive at the ideas set down in the following pages, and I hope that, as a result of my labours in sifting, weighing, selecting, and arranging, the knowledge gained from so many diverse sources, others may be saved a great deal of unnecessary trouble.

This is in no sense a technical treatise, yet it is based on a practical experience in many branches of the Potter's Art, which has, I trust, enabled me to exhibit certain aspects of the subject in a way that will be new to the bulk of my readers. Throughout the work I have been careful to explain how the artistic qualities of the various porcelains have been influenced by the nature of the materials and processes used in different countries; the information being of such a character as will enable a collector to find the scientific explanation of the differences which an artist feels.

Many difficulties have to be faced in a work necessarily so compressed as this. In the first place, it is impossible to keep the treatment accurately in scale. Naturally, perhaps, in an English book the records of the English factories occupy more space than the artistic merit of their productions would warrant; while German porcelain makes so little appeal to our English tastes, that a German might, not unreasonably, complain that the factories of his country had received less attention than they deserve. Others may think that Japanese porcelain has been somewhat slighted, but I have honestly tried to give a picture that should represent as truly as possible, within the prescribed limits, the development of every important kind of porcelain known.

It is, perhaps, necessary to say a word in explanation of the attention given to the Letters of Père d'Entrecolles. In the first place I think it would be impossible to over-

rate the importance of these letters, which first gave to the European potters of the eighteenth century such a vivid and detailed account of the manufacture of Chinese porcelain in the period of its culmination. The more we know about Chinese porcelain, the more there is to excite our astonishment that this Jesuit father, who was no potter, should have been able to observe and describe so faithfully what he saw at Ching-tê-chên. There is no doubt, in my mind, that these letters of Père d'Entrecolles suggested many of the things that have made certain European porcelains the distinctive wares they are.

The question of the "marks" used on the various porcelains has exercised my mind a good deal, and after much doubt and perplexity, I have come to the conclusion that it would be better to omit them altogether from this book. In the first place, it would need a volume as large as this to discuss the subject of "marks" alone; but far beyond that, I am convinced that most collectors have paid a great deal more attention to marks than they deserve; and that the only safe method of discrimination must be based on the observation of the qualities of body and glaze, or colour and decoration, such as has been followed here. It must never be forgotten (1) that many of the choicest specimens of porcelain are unmarked; (2) that the marks of one period or one factory have been imitated or copied at other times and places; and (3) that the first thing a forger imitates, and generally the easiest thing for him to imitate, is the mark of the much-prized ware. Bearing these facts in mind, as well as the fact that there are many volumes already in existence exclusively devoted to this branch of the subject, I have given no reproductions of marks in this volume, deeming it better to devote the space to more important things.

In conclusion, I have to thank Mr. Bernard Rackham, of the Victoria and Albert Museum, for much assistance in the selection of typical specimens for illustration; and in the supervision of the photographer when it was impossible for me to be in London.

WILLIAM BURTON.

CLIFTON JUNCTION,  
*October, 1906.*

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# PORCELAIN.

## CHAPTER I.

### ERRATA.

- Page 34, line 4, *for* "limitations," *read* "limitation."  
Page 64, line 19, *for* "300" *read* "200."  
Page 127, line 5 from bottom, *for* "Ming" *read* "K'ang-hsi."  
Page 166, line 25, *for* "1840" *read* "1740."  
Page 167, line 13, *for* "1840 to 1880" *read* "1740 to 1780."  
Page 176, line 13 from bottom, *for* "1864" *read* "1764."  
Page 223, line 11, *for* "1761" *read* "1671."  
Page 225, line 11 from bottom, *for* "1720" *read* "1711."  
Page 225, line 7 from bottom, *for* "before 1840" *read* "after 1730."

#### PORCELAIN HANDBOOK.

inventories of the treasures of princes to widely different substances, while it was also used by the Italians to distinguish the whitest and brightest of their Majolica wares. When the Venetian traveller, Marco Polo, published his account of China in 1298, he gave the name to the material now known as Chinese porcelain, even though he used the same word to designate works carved in shell. By a process

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# PORCELAIN.

## CHAPTER I.

### INTRODUCTORY.

ALMOST everyone—certainly every collector—has an idea of what is meant by the word PORCELAIN, but all attempts to give a scientific definition of the term which shall admit neither of doubt nor of criticism have failed, for the simple reason that the name has always been applied in a very unsystematic fashion to substances of diverse kinds which have only certain surface-qualities in common. The word "porcelain" made its appearance in the flux of languages of the Latin tongue current in Europe during the Middle Ages from which the modern Italian, French and Spanish have grown. At first it seems to have been applied to rare pieces of artistry in carved shell or mother-of-pearl, doubtless because their white pearly surface recalled the sheen of the cowrie or Venus-shell, called by the Italians "Porcellana."\* It seems practically certain that for some considerable time the word was used only to indicate such artistic objects as had this pearly sheen, for we find it applied in mediæval inventories of the treasures of princes to widely different substances, while it was also used by the Italians to distinguish the whitest and brightest of their Majolica wares. When the Venetian traveller, Marco Polo, published his account of China in 1298, he gave the name to the material now known as Chinese porcelain, even though he used the same word to designate works carved in shell. By a process

\* This name, itself equivalent to "little pig," is said to have been given to this species of shell because of its shape.

of natural selection, as specimens of Chinese porcelain became more plentiful in Europe, the name was gradually restricted in its application, and ultimately was used in connection with pottery alone. As it happened, however, the European potters of the sixteenth and seventeenth centuries were absolutely ignorant of the nature of this porcelain of the Far East. Their wonder and admiration at its beauty drove them to attempt its manufacture, and many European substitutes were made, from the sixteenth century onwards, which had nothing in common with Chinese porcelain except certain qualities of colour and tone. Some writers, in their zeal for exact classification, would restrict the name now to those species of pottery, whether produced in Oriental or European kilns, which resemble Chinese porcelain not only in appearance, but in their materials and the methods of their manufacture. The true collector could never accept such a narrowing of his ideas as this limitation would imply, and he will continue to apply the name porcelain to many diverse kinds of pottery, so long as they possess certain distinctions of colour and texture that delight his eye and satisfy his touch.

Scientific precision of definition being, therefore, out of the question, let us proceed to examine into the qualities that any kind of pottery must possess before it may be considered to rank among the porcelains. If we could gather together examples of all the different kinds of pottery which the best authorities of every country would include in this great group, we should find that they possessed at least two or three features in common. First of all we should be struck with the general fineness of finish and the whiteness of both the body and the glaze.\* Further, we should find that all the specimens were fairly hard, some of them, indeed, exceedingly hard in substance; but the most distinctive and precious quality of all is the translucence of the ware as seen on sharp edges, on thin lips or mouldings. Many species of modern earthenware or stoneware may approach or even surpass some kinds of porcelain in whiteness or hardness; while the thin, white salt-glaze ware

\* This is, of course, excepting the class of coloured-glaze porcelains, more extensively made in the East than in Europe,

of Staffordshire and the white-jasper ware of the great Wedgwood, both products of the eighteenth century, are quite translucent in thin pieces ; yet a trained eye would separate these from porcelain at once, because of a difference in the quality of the glazed surface. For the final beauty of any form of pottery depends on the way in which the light is reflected from its glaze, and it is this most precious possession of the porcelains which entitles them to be separated from the other species of pottery, even though it has been attained by the use of entirely different materials, and by widely diverse methods of fabrication.

We must first describe the various ways in which the porcelains have been made, and then we shall be in a position to understand why, as a class, they possess a texture and surface so much more subtle and beautiful than are to be found in the other kinds of pottery. The species of porcelain produced in our own times are many and varied, but they all originated in attempts to reproduce the porcelain of China ; and though the Chinese were not the first people who made pottery which would nowadays be classed as porcelain, it is established beyond contradiction that it was their discovery of the possibility of making a translucent pottery from mixtures of natural clays and powdered rocks that formed the starting point of all the modern porcelains whether in Europe or in Asia. The method slowly elaborated by the Chinese, and only brought to perfection by them in the seventeenth or eighteenth centuries, may be briefly outlined. The potter prepares mixtures of various natural clays and rocks, all of which are complex silicates. For his clays he uses the purest and whitest procurable, to which he has given the name of kao-lin.\* Along with this clay certain crystallised rocks, reduced to the finest state of subdivision and containing felspar and white mica, are used, and the mixture may need completing by the addition of pure silica in the form of ground white sand or of

\* The Chinese name, kao-lin, literally means "high-ridge," and so applies only to the place from which the clay best suited for porcelain came from. The English name, China-clay, *i.e.* "the clay for making China-ware," is equal testimony to the source of the first porcelains known to us.

pulverised quartz. These ingredients must be compounded in such proportions that the resulting mass will possess sufficient plasticity to work as a potter's clay, *i.e.* that it can be moulded, or "thrown" on the wheel; and it must also be so refractory that the vessels shaped from it shall be capable of enduring a very high temperature of firing without serious de-formation. At the high temperature to which the ware is exposed during this firing, a gradual chemical interchange takes place between the various silicates composing the mixture. The *fusible* silicates, such as the felspar and mica, begin to melt and attack the free silica and the kao-lin, and when the changes are complete we get a dense, hard, white porcelain, quite translucent if sufficiently thin, and so vitrified as to elicit a ringing musical note if sharply struck. However intensely fired the body may be, it never becomes transparent or clear like a piece of glass, for the glassy silicates that result from the fusion are penetrated through and through with opaque needles or rod-like crystallites, probably consisting of a silicate of alumina analogous to the mineral Sillemanite. Porcelain made in this way is generally spoken of as *True* or *Natural* porcelain; *True*, because the methods are those used by the Chinese, the originators of the method; and *Natural*, because all the substances employed are such only as Nature has prepared for our use in her ancient laboratory, the earth. Other names in current use are *Kao-linic* or *Felspathic*, from the fact that kao-lin and felspar are its principal ingredients; while the terms "hard" or "hard-paste" porcelain are also used because of the intense hardness of the fired material.

There seems to be a general idea that there is only one kind of kao-linic porcelain, and that whether we are dealing with the ware of China, Japan, Meissen, Copenhagen, or Limoges, they are one and the same in composition and quality. It is difficult to imagine how such a view can ever have obtained credence, for every collector must have been struck with the different aspect of these varieties of porcelain. Contrast, for instance, the hard, almost harsh whiteness of a piece of French porcelain, made, say, between 1800 and 1870, with the luscious depth and softness of a

piece of Chinese blue-and-white. No one with the slightest artistic perception could fail to feel, almost painfully, the difference in quality between the two products. This difference in quality is directly traceable to differences of composition among the various kinds of true or hard porcelain. This point will be dealt with more fully in the succeeding chapters, but it must be emphasised at the outset that there are many distinct varieties among the hard-paste porcelains alone.

When Chinese porcelain first startled the European nations nothing was known of its composition or the methods of manufacture. The earliest European porcelains, whether of Italy or of France, were made by mixing together a small proportion of white-firing clay with a large proportion of an artificial fusible silicate, such as frit or glass. When such mixtures are fashioned and fired the glass begins to soften and melt, enveloping and partly dissolving the clay, so that again a material is obtained in which a clear transparent base holds in suspension white and opaque particles, and such substances consequently exhibit something of the soft translucence that distinguishes the porcelains as a class. The porcelains thus made in imitation of the Chinese are generally distinguished as *artificial* or *glassy* porcelains, because of the use of artificial silicates, e.g. frit or glass, to replace the natural fusible silicates of the earlier true porcelains.

This artificial porcelain made from mixtures of clay and glass was, however, very difficult of management, for the mass was so deficient in plasticity that it was not easy to fashion articles from it; and though the temperature needed to melt the glass in the paste was much lower than that needed to melt the fusible silicates of true porcelain, the pieces were far more readily deformed by slight irregularities in the firing. Its manufacture was therefore always hazardous and uncertain; attended with so much loss, in fact, that it could only be continued at the expense of some great prince or sovereign. It was, indeed, generally abandoned on account of these difficulties as soon as a knowledge of the Chinese materials became common, or when more manageable mixtures were found that would give

comparable results. In France, where the artificial glassy porcelain reached its highest development, it was supplanted by hard porcelain as soon as materials resembling those used by the Chinese were discovered and worked. In England, where glassy porcelains were also largely made by the middle of the eighteenth century, the purely glassy mixtures were soon departed from, and other substances such as calcined ox-bones, steatite, &c., were added to the clay and frit to make mixtures that were more stable in the fire. After the discovery that minerals suitable for the manufacture of true porcelain occurred in Cornwall, the use of bone-ash still persisted, and a third type of porcelain was invented, known distinctively as English or bone-porcelain. In this case, a mixture of China-clay, China-stone (a natural mixture of felspar and quartz), and bone-ash is first prepared. This mixture possesses a fair amount of plasticity so that it can be readily shaped by the potter, and it attains the requisite degree of translucence at a temperature considerably lower than that needed for Chinese porcelain.

Though each of these types of porcelain admits of many subdivisions which are of great technical interest, it is sufficient for our present purposes to consider that all the porcelains belong to one of the following types :—

1. The natural felspathic porcelains. *Such as are made in China and Japan, as well as in Germany, France, Austria, Denmark, Sweden, &c.*

2. The artificial glassy porcelains. *Largely made in Italy, France, England and other European countries, in the eighteenth century.*

3. The phosphatic or bone porcelains. *Invented in England in the eighteenth century, and now made in England, America, France, Germany, Sweden, and elsewhere in Europe.*

The members of the first group are distinguished by their whiteness, hardness, and complete vitrification, though of course different members of the group exhibit these qualities in different degree. The body is so hard that it cannot be scratched by a steel tool; it is impervious to staining fluids in the ordinary way, and if by chance it becomes chipped or shattered it exhibits a distinct conchoidal fracture, resembling that of a flint pebble.



The members of the second group are never quite so white in tint; they fritter away before a steel tool; they readily absorb staining fluids, and their fracture is distinctly granular, somewhat resembling that of loaf sugar, because as a matter of fact complete "porcelainisation" has not taken place.

The members of the third group are intermediate in every respect between those of the first two groups. Thus, they are generally whiter than the glassy porcelains and not so white as the felspathic porcelains; in hardness, in permeability and fracture they occupy a similar position, though they approach more nearly to the members of the first group than to those of the second. In fact, we may regard English bone-porcelain, so far as the body of the ware is concerned, as a true porcelain paste which has been rendered more fusible by the addition of a large proportion of calcium phosphate in the form of bone-ash.

Hitherto we have considered only the body or substance of the various porcelains, because that seems to be the simplest way of arriving at a clear understanding of a very complex subject. Let us now consider the question of the glaze, for this is the distinctive mark of the finest porcelains, and the source of their subtle beauty. In all porcelains of the first class, the glaze is composed of materials analogous to those used as the fusible ingredients of the paste, and as such materials are very refractory, they need to be fired at the same high temperature required to porcelainise the body. In China, the glaze, reduced to the finest possible state of subdivision, is generally applied to the pieces before they have been fired at all. In Europe and Japan the piece of shaped clay is fired at a moderate red-heat (from  $600^{\circ}$ - $900^{\circ}$  C.) which expels all the water from it, and brings it to a condition in which it is about as brittle and as porous as an ordinary clay tobacco-pipe, after which the glaze coating is applied. In either case the glaze and the body are then fired at a temperature varying from  $1,350^{\circ}$ - $1,500^{\circ}$  C., so that, as we have said, the porcelainisation of the body and the fusion of the glaze go on side by side. It will be readily conceived that under such circumstances the melting glaze, containing fusible ingredients

similar to those used in the body, will also attack and partly dissolve the outer layer of the body substance, and we may picture to ourselves a piece of glazed porcelain of the first class as consisting of many layers of different silicates, some of them of excessive thinness and none of them sharply defined, ranging from the outer skin of the glaze, which in perfect pieces is always the clearest, down to the body itself, which is a felted mass of minute crystalline rods imbedded in a more glassy substance. Only by forming some such mental picture, which is in harmony with the knowledge obtained by a microscopical examination of thin slices of the material, can we understand where the distinctive beauty of porcelain resides. When light falls upon a piece of true porcelain it penetrates these successive layers, which, so to speak, filter, soften and subdue it, so that the lowest depths shimmer and glisten with the light they reflect to the observer's eye through the successive envelopes of more translucent substance.

In the case of the other varieties of porcelain, the glaze and the glazing process are entirely different. The pieces of glassy-porcelain or of bone-porcelain having been fashioned and dried, are heated up to their vitrifying point, *i.e.* until they attain sufficient translucence, so that they are completely fired before the glaze is applied. When they are removed from the kiln after the first firing they are slightly porous, and they are then coated with a fine layer of powdered glaze, which is usually a glass rich in lead-oxide, or in borax. The pieces are fired a second time at a temperature sufficient to melt this glaze coating; a temperature considerably less than that previously used to bake the body. Glazes made in this way are always thinner, more transparent and brilliant, more "glassy," in a word, than those in the first class, and from their nature and method of formation they lack the subtle depth and unctuous richness of the latter, because they affect the light less as it passes through them. A microscopical examination of thin slices of these lead-glazed porcelains, while it proves that there is a certain amount of analogy between all the porcelains, shows not less clearly the distinctions between them, and demonstrates the reasons for the difference of

quality that the trained eye of a genuine collector perceives among the different members of the porcelain family. It goes without saying that, interesting as the differences of structure revealed by the microscope are, it is on the right training of his eye and a finely developed sense of touch that the collector must depend. Fine porcelains are too precious and beautiful to be wantonly sacrificed to the passion for analysis. Fortunately, too, there are many qualities, perfectly visible to the eye, that are generally sufficient to distinguish the different kinds of porcelain from one another. Many of these have been already mentioned (see pp. 6 and 7), and careful training by the examination and handling of typical specimens, using these indications as a guide, is the only way to prevent deception, either at the hands of ignorant or unscrupulous dealers, or, what is perhaps even more common, the self-deception that attends on imperfect knowledge.

## CHAPTER II.

### WHAT THE VARIOUS PORCELAINS ARE MADE OF.

THE porcelain collector may consider that he is not concerned with technical matters, but sufficient has already been said in the introductory chapter to show that the composition and nature of the different porcelains determine the qualities which enable us to distinguish between them, and on which every collector must found his judgment of the pieces he is anxious to acquire.

It seems to me, therefore, that it would be advisable to give here a preliminary sketch of the methods of porcelain-making, pointing out clearly those distinctions of material or method which have an active influence on the artistic qualities of the product.

Such a course will doubtless save some confusion and needless repetition, and those who are already acquainted with the details of porcelain manufacture can easily skim or omit the technical chapters before proceeding to the chapters which will deal with the historical and artistic aspects of our subject.

It has too often been assumed—indeed, it has been explicitly stated by certain writers—that true porcelain, whether made in Europe or in the Far East, is practically identical in its nature and composition. Nothing could well be wider of the truth, and it is difficult to conceive how such an opinion could have been advanced when even chemical analysis, which can tell us so little with regard to artistic quality, had already shown that there must be wide divergencies of type between the “true” porcelains made in various countries.

The information supplied by the following analyses of different typical porcelains ought to convince anyone that

such substances must possess very different chemical and physical properties :—

	Silica.	Alumina.	Lime.	Magnesia.	Alkalies.	Oxide of Iron.
1. Sèvres (" Hard " paste)	58·0	34·5	4·30	—	3·0	—
2. Meissen     "     "	59·9	32·5	1·65	0·32	4·15	0·20
6. Chinese     "     "	70·5	22·7	0·50	0·30	6·0	1·80
3. Bristol     "     "	62·92	33·16	1·28	—	2·64	—
5. Japanese (Arita)     "	75·29	19·0	0·10	0·53	4·46	0·62
4. Berlin     "     "	66·60	28·00	0·30	0·60	3·40	0·70

#### CLASS I.—" TRUE " PORCELAINS.

As a general statement it may be sufficient to say that all " true " porcelains are compounded practically from two ingredients, Kao-lin and Felspar, with a small proportion of silica in the form of quartz or sand, but the materials used by potters in their body-mixtures differ widely in different countries. Kao-lin, or China-clay, as it is quarried, washed, and prepared for the potter, is by no means a pure chemical substance such as a chemist would deal with in his laboratory. In fact, pure kao-lin, the definite hydrated silicate of alumina having the chemical composition given to it in text-books,\* is practically non-existent. What the potter has to work with is some clay-substance approaching to this in composition but always containing variable percentages of other ingredients in addition, and the behaviour of any particular sample of kao-lin, or China-clay, may be very largely influenced by these other substances, especially when they happen to be substances that are fusible at lower temperatures than kao-lin itself. Père d'Entrecolles, who sent to Europe the first definite information as to the materials used by the Chinese, noted particularly that their kao-lin " was disseminated with corpuscles which are somewhat glittering," by which he evidently meant that the kao-lin contained particles of white mica as well as of

\* *Kao-lin* is often assumed to be a definite substance for which such a formula as  $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$  might be written. This would correspond to 39·77 per cent. of alumina, 46·33 per cent. of silica, and 13·90 per cent. of water.

clay. Analyses of samples of the kao-lins used in China at the present day show that this mica may amount to 20 or 30 per cent. of the whole. Yet such mixtures of clay and mica, and the clay-substance used by a European potter from which all the mica has been carefully removed by washing and decantation, would both be described as kao-lin. Is it any wonder that the problems presented by the porcelains have proved so difficult to disentangle?

If this is true of the clay-substance used by the porcelain maker, the rocky minerals used to supply the fusible felspathic ingredients are even more variable. Within the last half-century the porcelain makers of Europe have had the advantage of being able to use the enormous masses of finely crystallised and remarkably pure felspar found in Sweden and Norway, and one may trace the fine and limpid whiteness of the modern porcelains of Copenhagen, Rörstrand, and other northern factories to this fact. Generally speaking, however, the porcelain maker does not use pure felspar, any more than he uses pure clay, in his mixtures. The general custom is to grind down to powder certain granitic rocks in which felspar is the predominant constituent. The Chinese potter, for instance, uses *Pe-tun-tse*,\* the French or German potter pegmatite, and the English potter China-stone, because all these are mineral substances, rich in felspar, which fuse down to a white, glassy mass at a high temperature. Similar as these substances, *Pe-tun-tse*, pegmatite, and China-stone, may be in general character, they are widely dissimilar in composition and fusibility. Beyond this, every practical potter knows that, with such mixed\* minerals, samples obtained from different parts of the same quarry exhibit surprising variations in fusibility. In *theory*, therefore, all true porcelains consist of mixtures of chemically pure clay, felspar and quartz; while in *practice*, the potter of every country, even of every district, has certain natural clays and rocks to deal with—none of which is pure, many of

\* This word, *Pe-tun-tse*, literally "little-brick," means nothing more than that the various rocks after being finely pulverised and washed are made into a paste with water, and sold to the porcelain maker in brick-like blocks.

which contain very diverse substances—and his task is to mix them together in such proportions as will give him a mass that he can fashion and fire into vessels of porcelain.

As a necessary corollary, while all the true porcelains have many qualities in common, there are wide divergencies of type to be met with even in this one group. If we consider, for instance, the porcelain produced at Sèvres under the direction of Brongniart and his successors, we see the result of working under the guidance of scientific men who were concerned primarily with problems of manufacture and cared little for the æsthetic charm of the substance manufactured. In the first place, all the clays and rocks were analysed, as correctly as was possible with the imperfect methods of silicate-analysis used, and the paste was compounded so as to approximate to a definite chemical composition. According to Brongniart,\* the aim was to make a paste of the following composition :—

Silica	...	...	58.0	per cent.
Alumina	...	...	34.5	"
Lime	...	...	4.5	"
Potash	...	...	3.0	"

This composition was arrived at in many different ways, according to the varying composition of the different supplies of material, but, as the simplest mixture, we may select that used in 1839, viz. :—

Kao-lin (containing perhaps 10 per cent. of felspathic dust)	...	...	...	73	parts.
Felspathic material (containing some quartz)	...	...	...	24	"
Lime (introduced as chalk)	...	...	...	3	"
				<hr/>	
				100	
				<hr/>	

A body mixture of this kind would need to be heated to about 1,550° C. to convert it into porcelain ; and as the glaze must be fired at the same temperature, the purest pegmatite, ground to an extremely fine state of subdivision, could alone be used for such a purpose. This French porcelain is typical of those hard-paste porcelains in which the proportion of kao-lin is pushed to the extreme limit. It is the most

\* "Traité des Arts Céramiques," Tome II., pp. 263 *et seq.*

refractory, and, shall it be said, also the least beautiful and the worse suited to colour-decoration of all the forms of porcelain that have ever been made. The body and the glaze, besides being exceedingly hard and durable, are capable of withstanding rapid changes of temperature, so that, apart from other considerations, this refractory porcelain will stand a good deal of handling and knocking about without damage, qualities which fit it admirably for scientific or culinary use. The high temperature required to porcelainise such a mixture is a serious drawback to its artistic value. In the case of underglaze decoration, it restricts the palette of underglaze colours within the narrowest possible limits, while such colour effects as are possible are exceedingly dry and harsh. Nor is the ware better adapted for decoration with on-the-glaze colours. Its glaze is so refractory that when these colours are used in thin layers, as in coloured grounds, the surface is positively harsh to the touch; and when on-the-glaze colours or enamels are painted on the glaze in the thick touches so effectively used on many other porcelains they simply scale off, on cooling or in use, bringing with them the skin of the glaze itself.

Compare this with Chinese porcelain of the finest type. Père d'Entrecolles, writing from Ching-tê-chên in the first part of the eighteenth century, tells us that the finest Chinese porcelain was made of equal parts of kao-lin and *Pe-tun-tse*, while for an inferior kind they used four parts of kao-lin to six parts of *Pe-tun-tse*, and the least that could be used was one part of kao-lin to three parts of *Pe-tun-tse*. Not only do these proportions differ entirely from those used in compounding the refractory porcelain of Sèvres, but we must remember that the Chinese aimed only at an æsthetic, not a scientific, result. They neither knew, nor cared, anything about the chemical composition of their indefinite mineral substances, kao-lin and *Pe-tun-tse*, but by making practical tests of each batch of material, they compounded such mixtures as gave the most beautiful porcelain. We know now, from many samples of their prime materials that have been examined by European chemists, that they used more complex mixtures than have been common in Europe, and every chemist knows that complex mixtures would be likely to



bring about such a change as porcelainisation at a lower temperature. But the temperature needed to porcelainise the body must also be that required for melting the glaze of true porcelain. Consequently, the glaze of Chinese porcelain is widely different from that of the most refractory European porcelains. We learn from Père d'Entrecolles that the purest fragments of the rock used as Pe-tun-tse were put aside to form the glaze, especially such as were marked with dendrites, or plant-like crystals of oxide of manganese. This selected Pe-tun-tse was levigated and washed, so as to ensure not only its purity but also a remarkably fine state of subdivision, and it was then mixed with about one-tenth of its bulk of a powder made by calcining limestone and ferns together. The Chinese prepared, in this way, both a body and a glaze that would mature at a temperature far lower than was needed for the more refractory French paste; for while the latter needed a temperature of about  $1,500^{\circ}$  C. to  $1,550^{\circ}$  C., the Chinese porcelain could be perfected at from  $1,350^{\circ}$  C. to  $1,400^{\circ}$  C. This lowering of the firing temperature is in itself a distinct advantage to the potter, but it is accompanied by enormous advantages in the softness and beauty of the colour-decoration, whether fired under, or on the glaze.

Between the two types of hard-paste porcelain here described it is obvious that there must be many different varieties, approaching one or the other end of the scale. Chinese porcelain itself, founded as it was on traditional rather than scientific knowledge, exhibits many departures from the best standard, and the porcelains produced in Germany and other European countries during the last two centuries display equally wide variations, some approaching the more refractory French type, while others are more like Chinese or Japanese porcelain. During the last thirty years or so increasing knowledge of the materials of Chinese porcelain, perhaps also an increasing appreciation of its artistic superiority, have led to the production of European porcelains more closely resembling the best Chinese pieces. In fact, we may say that the researches of Lauth and Dutailly at Sèvres, of Seger in Germany, and of many other workers whose names are not so famous, have produced

little less than a revolution in the composition of those European porcelains which aim at artistic excellence. The potters of Copenhagen and Rörstrand, using very pure kao-lin and the fine Swedish felspar and quartz, have produced a splendid porcelain resembling the Japanese\* rather than the Chinese types of Oriental ware; while at Sèvres and at Berlin new porcelains have been made of a far less refractory type, and capable, therefore, like the Chinese, of receiving brilliant colour decorations either under-glaze, in-the-glaze, or on-the-glaze, as the artistic fancy may require. The new porcelain of Sèvres may be taken as typical of the composition of the modern European porcelains which most nearly approach the best Chinese pieces in their tender translucence, and in the range of colour decorations of which they are susceptible. The body or paste is compounded of clays and rocks so as to give it a composition corresponding to that which would be produced by :—

Kao-lin	...	...	...	38 parts.
Felspar	...	...	...	38 "
Quartz	...	...	...	24 "

if each of these substances were chemically pure. For the glaze a mixture is made of :—

Biscuit fragments of the above paste	...	...	...	24 parts.
Siliceous sand	...	...	...	43 "
Chalk	...	...	...	33 "

A cursory glance at these mixtures is sufficient to enable one to realise how much softer—*i.e.* more easily fusible—they are than the body and glaze of the older French porcelain. In fact, a temperature of 1,350° C. is quite sufficient to bring them to perfection.

This new porcelain of Sèvres, as well as the similar porcelains now being made in other European factories, offers the greatest possible contrast in appearance, as it does in composition, to the older and more refractory porcelains, and it is interesting to see the great European establishments, which had been controlled for more than a century by scientific directors, at last applying their science to the

\* See]p. 142.

production of a material approaching in æsthetic qualities to that perfected long before by the patiently, perhaps painfully, acquired tradition of the Chinese.

#### CLASS II.—THE ARTIFICIAL GLASSY-PORCELAINS.

We have already seen that the European imitations of Chinese porcelain, made while its materials and methods were alike unknown, differed entirely from those of the substance they were supposed to reproduce. The first of these European substitutes of which we have precise knowledge was made at Florence, under the patronage of the Medici, toward the end of the sixteenth century. This Florentine porcelain was fabricated from a mixture of impure China-clay (Terra-di-Vicenza), fine white sand and powdered glass. It was only in France, however, at the end of the seventeenth and in the first half of the eighteenth centuries, that glassy-porcelain was manufactured to any considerable extent, and then by the use of mixtures of clay and glass. The method was afterwards carried to Belgium, England, Italy, and other countries, and throughout the eighteenth century was largely followed. We may take the body and glaze perfected at Vincennes, and afterwards transferred to the works established at Sèvres under the Royal patronage, as the finest type of glassy-porcelain, and from the accounts carefully treasured in the library at Sèvres, we can form a clear idea of how such glassy-porcelains were prepared. The first step was the manufacture of the special frit or glass. This was composed of sand, saltpetre, sea-salt, soda and alabaster. This frit, carefully selected and pounded, was then mixed with one-third of its weight of clay, and the mixture was ground together for about three weeks to reduce it to the finest possible state of subdivision. The clay used was not a kao-lin, for such substances were unknown in France until late in the eighteenth century, but a marl containing both clay and lime. Such a mixture, as we have said previously, was fabricated only with difficulty, for it had little plasticity. The pieces were then dried and fired to the "biscuit" state, and

the glaze, which was a very fusible glass rich in oxide of lead, was fired again on the piece at a lower temperature. The body of this artificial porcelain was fired at about  $1,100^{\circ}$  C. The earliest English porcelains were of the same type as the French glassy-porcelains; indeed, there can be little doubt in the mind of any unbiassed person that the process was brought into England from France. In this country, however, the porcelain-makers were not content to follow exactly the methods of their French rivals or predecessors. They soon began to introduce other ingredients into the paste to render it more manageable, for as the English factories were commercial ventures, they could not have supported the heavy losses that always accompanied such a hazardous manufacture. The earliest English porcelains are said to have been compounded of pipe-clay and pure white sand, with a sufficient proportion of glass to render the mass translucent. But within ten years of the appearance of the first English porcelains other substances were used in the body as well. At Worcester, for instance, soapstone or steatite was largely used, and at Bow and Chelsea bone-ash was added to the other ingredients; in each case the aim being to produce mixtures that would be less likely to go out of shape by slight variations of firing.

### CLASS III.—BONE-PORCELAINS.

The introduction of bone-ash into the paste of the English glassy-porcelains is worthy of a little attention, as it ultimately led to the evolution of the third type of porcelain; the English bone-porcelain. How the English potter ever came to add such a material to the clay, sand, and glass of the glassy-porcelain will never be known. English pottery was in a ferment of activity in the middle of the eighteenth century, and in the search for white materials we may be sure that the refractory white ash, left by burnt bone, would not escape attention. We know, indeed, that it had been used casually by many potters in other countries, but there its use never passed beyond the experimental stage. We know that the English porcelain-experimenters had read

the letters of Père d'Entrecolles with avidity, and it is just possible that they may have been led to use bone in their mixtures from a story he tells. "A rich merchant told me " that once the English or Dutch bought some *Pe-tun-tse* " which they sent to their own country to make into porce- " lain ; they, however, took no kao-lin and so their experi- " ment failed. The Chinese merchant laughed in telling " me this, and said, ' They wanted to have a body with no " bones to sustain the flesh.' " This was precisely the diffi- culty in which the makers of glassy-porcelain always found themselves, that of keeping their pieces from sinking out ✓ of shape in the firing, and more unlikely things have hap- pened than that the chance remark of the Chinese merchant, expressed in that particular way by Père d'Entrecolles, should have caused the English porcelain-makers of Bow and Chelsea to experiment with bone-ash. So long as the English porcelains, whether of Bow, Chelsea, Derby, Wor- cester, or elsewhere, were made from mixtures of clay, frit and bone-ash, they should be regarded only as a variety of artificial porcelain. Our true English porcelain was another material. In 1768 William Cookworthy took out a patent for a " true " porcelain made from China-clay and China- stone—analagous to the Chinese kao-lin and *Pe-tun-tse*— found in Cornwall, and from that time onwards these materials began to be used, more and more extensively, by English potters. The manufacture of " true " porcelain in England did not prove commercially successful; and the other English makers, though they introduced China-clay and China-stone into their mixtures, never abandoned the use of bone-ash. In this way the definitely English por- celain, which has been made in larger and larger quantities throughout the nineteenth century, and which is now being manufactured in various European countries as well as in the United States, came into being. No doubt every Eng- lish factory has its own special mixture, but the average bone-porcelain may be represented as made from a mixture of 4 parts of bone-ash,  $3\frac{1}{2}$  parts of China-clay, and 4 parts of China-stone. The pieces are first of all fired to a temper- ature approaching  $1,250^{\circ}$  C., when they become beautifully white and translucent. Nowadays the glazes are very

similar to those used on the finest English earthenwares, having a basis of felspar and China-clay, rendered more fusible by the addition of borax, lime, and oxide of lead. This bone-porcelain offers great advantages to the potter over either of the other types, for the paste is much more plastic than the glassy-porcelain mass, and quite as plastic as the best hard-paste. The method of biscuiting first and glazing afterwards also removes many difficulties that are met with in the supporting and placing of large and complicated pieces or groups, while the bone-porcelain offers the same range of colour-decorations as are possible with the finest glassy-porcelains of the eighteenth century.

In addition to the manufacture of bone-porcelain English potters have perfected another species of porcelain which is worthy of special mention. This is the ware known as "Parian," because of its resemblance, in the biscuit state, to a piece of fine statuary marble. This Parian body appears to have been invented at the works of Messrs. Copeland & Garrett, of Stoke-on-Trent, about 1845, and for thirty years at least it had a very great vogue in England and on the Continent, and was particularly used for the production of figures and groups. Some of the original Parians were made from mixtures of kao-lin, felspar and glass, and these must really be considered as hybrid forms of glassy-porcelain, but the best Parian bodies have been made from China-clay and felspar alone, so that they are entitled to be considered as a variety of true porcelain, even though the proportions in which the ingredients are mixed vary widely from those used in the best Chinese porcelains. We may recall in this connection what Père d'Entrecolles said about the mixtures used by the Chinese in the early part of the eighteenth century. He tells us that "at *Ching-tê-chên* the finest porcelain was made of equal parts of kao-lin and *Pe-tun-tse*, while for an inferior kind they used four parts of kao-lin to six parts of *Pe-tun-tse*, and the least that could be used was one part of kao-lin to three parts of *Pe-tun-tse*." For the English "Parian" body an ordinary mixture would be one part of kao-lin to two parts of felspar, so that it comes well within the limits which the Chinese are said to have used for their mixtures. It will at once

be understood that mixtures so rich in felspar and so poor in China-clay as these would reach translucence at a temperature much lower than that needed for hard-paste porcelain; as a matter of fact the Parian body is sufficiently fired at about  $1,150^{\circ}$  to  $1,200^{\circ}$  C., or below the temperature that is used for English bone-porcelain. Besides being largely used for artistic pieces in "biscuit," large quantities of Parian have been glazed with the ordinary lead glazes generally used on English porcelain. Perhaps the best known wares of this class were those made at the Irish factory at Belleek, but the Worcester works, and those of Copeland's and Minton's at Stoke-on-Trent, and of Moore Bros. at Longton, were famous for their productions in the same material between 1850 and 1870. It is interesting to note here that this Parian porcelain, glazed with a lead glaze, seems to correspond exactly to the so-called Chinese soft-paste porcelain for which such fabulous prices have been paid by American collectors, although the ware is nothing but a fusible porcelain body which was first fired to the biscuit condition and then glazed with a lead glaze, exactly as this better-known English ware was made.

Evidently, from what has been said in this chapter as to the nature and composition of the principal kinds of porcelain, the limits within which wares having the true porcelain quality can be made are so wide that endless combinations of natural and artificial substances are possible. It would be confusing, however, as it would be unnecessary, to treat the subject in greater detail in this chapter, and where porcelains have been made that present some marked divergence from the foregoing types, they will be described in their proper place.

The reader who is interested in the technical methods used in various countries, or at different factories, for preparing and mixing the bodies and glazes of porcelain, must consult the volumes, of which there are many, that deal particularly with such matters. The aim of all the processes is to prepare mixtures in which the various ingredients are present in such a state of purity as may be necessary; in a state of fine subdivision, so that the physical and chemical changes take place as readily and completely as possible;

and, finally, that one batch of substance is as nearly alike as possible, in composition, purity, fineness of grain and perfect admixture, to another. The processes used to attain these necessary ends in China and Japan, even in our own day, are extremely slow and primitive, involving, as it seems to us, a disproportionate use of menial human labour of a most exhausting kind. In Europe mechanical appliances have taken the place of this manual labour to a very great extent, but, judging by results, one is inclined to the opinion that up to the present the patient industry of the Oriental has been more than a match for the engineering skill of the European.



## CHAPTER III.

### THE SHAPING, GLAZING, AND FIRING OF PORCELAIN.

THOUGH the methods employed by potters for shaping their pieces differ in detail in different countries, they can all be grouped under the three following heads:—

1. Pressing;\* in which thin cakes of clay are pressed into or upon a mould of the required form.
2. Throwing; the method by which round articles are shaped on a revolving wheel.
3. Casting; in which a fluid mixture of the prepared clay and water, technically known as "slip," is poured into absorbent moulds.

Though the process of "throwing" upon the wheel can be traced to a period beyond the dawn of history, it is obvious that the method of pressing, or building up by hand is older still; for clay so readily manifests its power of taking and retaining the shape of any objects to which it has been firmly squeezed, that much primitive pottery was made by squeezing lumps or cakes of clay upon natural objects. We need only describe here the methods used in those districts where the potter's art has been practised over a considerable period. The first step in the process is the preparation of suitable working moulds. Nowadays these are generally made in plaster-of-Paris, but thick moulds of stiff clay have often been used (their use was, and probably still is, general in China), while metal or wooden moulds, especially for small and simple articles, have often been used in Europe. The moulds which may be in one piece or in sections, according to the form desired, are coated with thin cakes or "bats" of moist clay, which are firmly

\* This process is generally spoken of in books as "Moulding," from the French word "Moulage," but the English potter's term is always "Pressing."

squeezed or beaten until they adhere to the mould and spread equally over all the irregularities of its surface. In the case of moulds made in many sections, each section may be separately coated with clay and then they are set up and held tightly together by a strap or cord passed round the outside of the mould. Fresh rolls of clay are beaten into the joints or angles of the mould, and the parts are all worked together with a piece of damp leather or sponge until the clay "press" becomes one piece. The mould with its "press" is put aside to dry; the clay contracts as it dries, and thus releases itself more or less completely from the mould. In small and tapering pieces the pressed shape can be removed by turning the mould upside down, but in larger or more complex pieces the mould is unstrapped and its sections removed one by one. The vessel is finished by carefully paring down the seams left by the joints of the mould, and additional sharpness may be given to the modelled parts by the use of modelling tools. Sometimes a vase, a figure, or a group may be composed of many separately "pressed" parts, which can be fitted together while they are still moist, the joints being luted with a little "slip" to ensure perfect union.

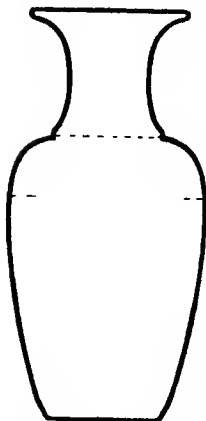
#### THROWING ON THE POTTER'S WHEEL.

The potter's wheel consists of a horizontal pivoted disc which may be made to revolve rapidly by the hand or foot of the workman, or which can be kept in motion by an attendant or by mechanical power. A piece of the mixed and prepared clay is thrown by the potter firmly on to the centre of this revolving disc, and as the disc spins the clay is first worked up and down under considerable pressure from the thrower's hands to render it perfectly uniform and sufficiently soft. Having been worked up and down into a cylindrical mass several times, the lump of clay is opened by the thrower's thumbs being driven into the centre of the top. The hands are then used to lift up the clay into a circular wall or ring of clay, which can be contracted or expanded at will, and a hollow shape is thus gradually formed in the rough. Common articles may be

finished sufficiently well on the wheel by the hands alone, and most writers on pottery have assumed that thrown ware is always so finished. As a matter of fact, when we are dealing with all the finer kinds of pottery, whether Greek terra-cotta vases or vessels of Oriental or European porcelain, we shall find that only a rough approximation to the shape is thrown in the moist clay. This is cut off the wheel by passing a knife or wire under its base, and is carried to completion in a variety of ways. The rough form, cut from the throwing table, may be placed in a mould of the required shape and squeezed to the walls of this mould carefully. As the clay dries it contracts, and on the mould being inverted the perfected shape can be removed. None of the porcelain mixtures are very plastic, so that this method of finishing has always been largely used in porcelain making. In other cases the "thrown" form after cutting from the wheel is allowed to dry in the sunshine, or by a fire, until it becomes what an English potter calls "leather-hard." It is then carefully re-centred on the throwing wheel, being luted on with some of the same clay diluted; or it is placed in a lathe, and turned down to the final shape by turning tools. In making large pieces of porcelain many practical difficulties are encountered owing to the want of plasticity in the clay, and frequently also to a want of tenacity which sets up cracks in drying. To meet both these difficulties it is customary to "throw" pieces of any considerable size in several sections. When these have hardened and partly contracted by drying, the sections are luted together with some thick slip of the same mixture and hammered together. The joints are then carefully pared down and the composite piece is turned or polished to its final shape on the wheel or in the lathe. The Chinese have long been adepts at this method of building up pieces\* from separately thrown sections. On the desk before me as I write is a Chinese porcelain vase of very simple outline (see cut), 9½ inches high and 5 inches wide in its greatest dimensions, such as any English

\* It was certainly also practised by the Greeks in many of their vase forms which are commonly supposed to have been thrown at one operation, and which look as if they might be until one comes to try.

thrower of to-day would make and finish on the wheel with the greatest ease, yet this piece has been thrown in three separate parts and then stuck together; the seams coming where the dotted lines are shown in the illustration. The Chinese with their true potter's instinct have, as a rule, kept to such simple forms as clay might be expected to give



SMALL CHINESE VASE.  
MADE IN THREE PIECES.

in the hands of the thrower, but European porcelain-makers in their efforts to imitate the metal forms with florid handles, masks, spouts, and wide-spreading feet, or plinths relieved by architectural mouldings absolutely foreign to pottery, have been driven to many unworkmanlike devices. Thus, the gigantic vases made at Sèvres, Meissen, Vienna, Berlin, and elsewhere during the nineteenth century, to meet the grandiose demands of the various European Courts, or for purposes of "swagger" at international exhibitions, were fashioned in many separate pieces, which were screwed together afterwards with metal screws and mounted with handles, feet, or

girdles of gilded metal, a device which no potter who loves his craft can regard with anything but abhorrence.

While vessels of porcelain are in the soft state, whether they have been thrown or moulded, they can be decorated with ornamental patterns in a variety of ways, or completed with handles or spouts. They may have a design incised in the clay with a sharp steel tool, a favourite device of the Chinese; or moulded ornaments separately pressed in moulds may be stuck to them by the application of a little water or slip to lute them together; separately moulded handles or spouts are applied in this way. Small pellets or rolls of clay are sometimes stuck on the piece and then softened with a wet brush or sharpened with a modelling-tool to give modelled relief. This process in its simplest form was used in the decoration of certain ancient Chinese porcelains, and

has been carried to its utmost limits of delicacy and refinement in the *pâte-sur-pâte* process invented at Sèvres, and used so freely in Europe in the latter half of the nineteenth century.

#### CASTING.

The third process used in forming articles of porcelain seems, curiously enough, to be unknown in China. As far as I can learn this process was invented by the Staffordshire potters, in the endeavour to make the famous salt-glaze ware produced before 1740 as thin as possible, so that it might more nearly resemble the Chinese porcelain which its makers were striving to rival. My friend Mr. Auscher states\* that it was first used in the fabrication of articles of *porcelain* at Tournay, whence the method slowly spread to the French porcelain factories—but the method was in use in Staffordshire before the establishment of the works at Tournay. This process has frequently been decried by arm-chair critics under the mistaken idea that it has something in common with the casting of metals, and must therefore be a false note in pottery manufacture. The fact is that the method has nothing in common with metal-casting, and is a more suitable method of forming vessels from clay-mixtures deficient in plasticity than either moulding or throwing. In practice a mould is used having the form of the vessel required, and made of some absorbent material, such as plaster-of-Paris or lightly-baked clay. The porcelain, in the state of "slip," *i.e.* diluted with water to a thick cream or batter, is poured into the mould. The porous mould absorbs water from the slip, so that a coating of clay is slowly deposited on its inner walls. Meantime drops of slip are added from time to time so as to keep the mould filled to the brim. When the clay deposit has reached a sufficient thickness the mould is turned upside down, and all the slip that will run out is poured off into a receptacle. †

\* "History of French Porcelain" (p. 85), by E. S. Auscher. Cassell & Co., 1905.

† It has been stated over and over again, by writers ignorant of the making of pottery, that having once been emptied the moulds may be again filled with slip, to thicken the cast. Such a procedure would simply end in disaster.

The mould with its clay coating is put aside to dry, and as the clay dries and hardens it contracts, so that after an interval it can be turned out of the mould, or in the case of complicated pieces the mould, made in many sections, can be taken apart, revealing the clay vessel. When such a piece of ware has dried sufficiently it can be finished in the same manner as a piece that has been thrown or pressed, and handles and spouts, cast in the same way, can be attached to it ; or a vase, figure, or group cast in many separate parts may be joined up into a complete whole. This method can be used with advantage for the fashioning of very light or delicate pieces of ware, so that it has often been used by European potters in their attempts to rival those miracles of delicacy, known as "eggshell porcelain," which the Chinese and Japanese first produced by scraping down their thrown or pressed pieces until the body became so thin that it almost disappeared between the two layers of glaze. The method has also been extensively used at Sèvres and other Continental factories for the production of very large pieces, but further mention will be made of this when we come to deal with the later productions of Sèvres.

All these methods of manufacture permit, and even compel, the exercise of individuality on the part of the workman where the conditions are such as to encourage the production of artistic pieces, for when a vase has been moulded, thrown, or cast, it is still a piece of moist clay ; and, in fact, it is in this stage that the conscientious and able potter gives us the final proof of his skill. Modern tendencies in all countries, even in China and Japan, unfortunately seem to be running most strongly at the moment in the direction of purely commercial production, where price and not quality is the desired aim ; machinery has been brought in to supplement, or even to replace, the dexterous hand of the workman, so that by far the largest proportion of modern porcelain is unworthy of serious attention from the artist. It would be out of place to discuss here the causes that have led to this deplorable change ; our only hope is that with the increasing knowledge and attention that is being paid to all the fine things of the past, a sufficient number of people

may be driven to demand work made and finished in harmony with the nature of the material, with due regard to its use, and with that dexterity and skill of which only a trained workman is capable.

A porcelain vessel having been shaped by any of the methods above described is then allowed to dry slowly, minute precautions being taken that the shrinkage, due to the loss of the water mixed with the paste to make it workable, shall be so regulated as not to twist the lines of the form, or cause the vessel to crack, by pulling it apart at the seams, or by undue strain on sharp or thin edges.

The methods of clay mixing and shaping are broadly the same for every kind of porcelain, whether true or artificial, felspathic or phosphatic. Where they have been modified in detail to suit the special requirements of certain wares, such variations will be pointed out when such wares are under consideration. But when we reach the firing processes there is at once a wide divergence between the felspathic porcelains and the "glassy" and bone-porcelains that have been evolved in Europe. For the most part the body and the glaze of "true" porcelain are perfected together at the same high temperature. In China this is carried out most perfectly, for, except for certain effects, the glaze is applied to the piece while it still remains in the state of clay. In Japan and in the European factories, however, the clay ware is submitted to a preliminary baking at a low temperature (the *feu dégourdi* of the French), which ranges from about 600° to 900° C. at different works.\* This preliminary hardening of the ware, for it is little more, serves to drive off the water and decomposes most of the carbonates that are present—as, for instance, when chalk has been added to the body mixture—but it is insufficient to bring about even incipient fusion of the natural silicates in the paste, and it is doubtful if it can make any difference to the reaction between the glaze and the body during the final firing. Personally I am inclined to regard the greater softness and mellowness which one generally finds in Chinese

\* I find that the temperature of the *feu dégourdi* at Limoges is from 600° to 700° C., and at Copenhagen about 900° C.

porcelain, as compared with Japanese or European, as due to the fact that the Chinese use more complex mixtures for their bodies and glazes, and so produce more fusible substances. Mention must be made here of the fact, too often overlooked, that the Chinese can only have obtained some of their oldest effects by firing the porcelain body to the full heat before the application of the glaze—"biscuiting" it, as a European would say—and then firing the glaze at a much lower temperature, just as the soft-porcelains of Europe are made. It is sufficient to mention various shades of turquoise and bright purple or plum-coloured glazes as typical of this class of Chinese manufacture, though these by no means exhaust the list.

With the glassy-porcelains first obtained in Italy and in France, and with the bone-porcelains evolved in England, an entirely different procedure is followed. The piece, having been shaped and fired, is then heated to the highest temperature the ware receives. With the glassy-porcelains this temperature was generally about  $1,100^{\circ}$  to  $1,150^{\circ}$  C., while with the bone-porcelains it is about  $1,200^{\circ}$  to  $1,250^{\circ}$  C. The pieces, as removed from the porcelain ovens, after this firing are slightly porous, and are said by the workmen to be in the "biscuit" state.\* The glaze, which is a mixture generally rich in oxide of lead, is applied to the "biscuit" piece, which is then fired at a lower temperature, just sufficient to melt the glaze-coating, viz. about  $1,050^{\circ}$  to  $1,100^{\circ}$  C. This important fact suffices to explain at once some of the differences in appearance between "true" porcelain and its rivals. In the first case the glaze is closely allied in composition with the body, and may be fitly described as forming only the outer layer of it; while in the other case, we have a thinner and more glassy coating spread over the surface,

\* This technical term "biscuit"—literally "twice-fired"—was borrowed by the French porcelain-makers at Rouen and St. Cloud from the word used to describe the *faïence* made at the same manufactories when it had been once fired and before it was coated with tin-enamel. In this condition it was a coarse material of pale yellowish colour, something like a biscuit. From the end of the seventeenth century, once-fired unglazed pottery has always been spoken of, in Europe, as "biscuit."



which may be looked upon as a separate layer—a varnish coating—melted over the finished piece. Analogies are admittedly dangerous, yet one may, not unfairly, liken the glaze of Chinese porcelain and its allies to a skin, and the glaze of the porcelains under discussion to a tight-fitting garment.

A word must be said as to the way in which the glaze is applied to the ware. The oldest method, and one still largely used by the Chinese, is that of sprinkling. The glaze mixture, ground to an extremely fine state of subdivision in water, is allowed to settle until it is about as thick as cream, and with a loose brush or with the hand it is sprinkled over the piece of ware. This process is most commonly used where the glaze has to be applied to unfired pottery, and that accounts for so difficult a method, and one calling for such dexterity, continuing in use in China.\* Sometimes, in China, the vessel, say a cup or a bowl, having been sprinkled with glaze inside, is then gently lowered to its brim in the bath of glazing fluid, and a coating is deposited on the outside by absorption. For certain glaze-effects the glaze is frequently blown on the ware, or pencilled on with a brush. The Chinese method of blowing is carried out by stretching a piece of fine muslin gauze over a bamboo tube about 12 inches in length. The glazing or colouring material is then poured into the tube or on to the gauze, and the workman blows it out in a shower of drops like rain. As in so many other instances, the very difficulties of the Chinese processes serve to exalt the dexterity attained by their workmen. After the sprinkling, dipping, blowing, or painting of the glaze, the piece is allowed to dry, and the powdery glaze-coating is carefully trimmed, and rubbed as level as possible, before firing. In the preparation of their finest wares incredible pains are taken with the glazing, many fine layers being applied one after the other either by pencilling or blowing; and doubtless in many cases the pieces are fired more than once, with a thin coat of glaze added between, to reach perfection.

\* Italian Majolica and other tin-enamelled wares of Europe, such as the wares of Delft and Rouen, appear to have been coated with glaze in the same way.

Wherever the porcelain is hardened by fire before the application of the glaze, another method of glazing, and that the simplest, can be used. This is the process known as dipping. The dipper has a tub or bowl of the glaze-mixture in front of him into which he dips the fired vessel, carries it through, and, with a dexterous shake of the hand, spreads the coating of glaze evenly over the piece. It is quite possible to dip vessels in the clay state, but only when they have sufficient thickness of substance to keep them from softening and being washed away by the water used to keep the glaze in suspension. In many cases, where the shape of the vessel would render dipping difficult, it is the custom of European potters to pencil on the glaze with a brush. The Chinese method of coating the piece of porcelain with glaze by "spraying" has also been largely introduced in Europe within the last few years, though in this case the glaze is sprayed on through a nozzle or spray-diffuser by a current of compressed air, and not, by actually blowing through a piece of gauze, after the manner of the Chinese.

The placing of the glazed pieces for the firing processes calls for the greatest care on the part of the workman, because none of the powdery glaze must be dislodged or rubbed, and arrangements must be made for the piece to stand, either on an unglazed rim or on sharp-pointed supports of refractory clay, so that the glazed vessel may be as slightly marked as possible.

During the firing process it is necessary to protect the porcelain from direct contact with the flames and smoke which are poured into the ovens or firing-chambers. This is effected by placing the pieces in boxes of refractory pottery or fireclay-ware, called in England "saggers." These receptacles are of varied shapes and sizes to accommodate with advantage the various shapes and sizes of ware. It is necessary that they should be refractory enough to support the high temperature without sinking out of shape; that they should be of a grain sufficiently coarse to endure rapid changes of temperature without cracking, and that they should be so carefully made on the inside as not to shower little particles of sand or clay on to the pieces they envelop. In every country the problem of

making clean and durable saggars is an important detail in the successful conduct of a manufactory ; and every potter strives to obtain mixtures of fireclay and pounded pitcher which will answer his requirements. The saggars, whether in China, Japan, or the European countries, are generally thrown on the wheel, or shaped on, or in, a mould. As they are filled with the porcelain pieces they are placed one upon the other in piles or bungs, so that each one forms a cover for the one beneath it ; the piles or " bungs " of saggars being so arranged in the oven as to permit of a ready circulation of the flame between them. Precautions are also taken by wedging the " bungs " with fireclay or fire-bricks that they shall remain upright during the firing, for if a bung of saggars reels or falls the consequences are disastrous.

It would lead us far beyond the limits possible in a work like this to describe the various types of furnace that are used for the firing of porcelain, either in the glazed or the unglazed condition. Full particulars of these will be found in the various technical works dealing with the manufacture of porcelain.

## CHAPTER IV.

### THE COLOUR DECORATION OF PORCELAIN.

FROM the earliest appearance of porcelain one great aim of its makers has always been to decorate it with colours, and, in common with every other species of pottery, the principal limitations of the painter's palette arises from the necessity of firing the colours at a high temperature, which has always prevented the employment of many of the best known pigments or colouring agents used by painters or dyers. Thus, all the organic colouring matters, including the madder of the ancients as well as the reprobate aniline colours of our own time, are alike useless to the potter, and the same applies to such brilliant pigments as vermilion and lapis-lazuli, for these substances are either volatilised or entirely decomposed by the lowest heat used in a potter's kiln. We have already seen that the temperature needed to make true porcelain is exceedingly high, so that it follows that its possibilities are the most restricted. Still, the practical experience of many centuries of work, as well as the chemical discoveries of the last century or so, have placed at the disposal of the porcelain-decorator resources wide enough to satisfy the most exacting demand. It is possible, for instance, to colour a white porcelain paste or a colourless glaze in a great variety of shades. Pigments may be prepared with which the painter can paint on the surface of the un-fired or slightly fired body, so that when the glaze and body are fired together, the painting lies under the glaze which thus protects it from the slightest wear; such colours are consequently known as underglaze colours. A fourth kind of pottery pigment may be prepared by mixing certain metallic oxides or other compounds with a large quantity of flux, exactly in the same way that one would prepare the colours used for painting on glass, or enamelling

upon metal. These colours are commonly known as enamels or on-the-glaze colours. The name enamels is doubtless applied to them because, as we have said, they are similar to the colours which had previously been used in enamelling upon metal; while the name "on-glaze colours" explains that they are used to decorate the surface of the already fused and completed glaze to which they are firmly attached (in many cases quite incorporated with) by subsequent firing at a lower temperature. It is practically a truism to say that every increase in the temperature needed to complete any one of these processes limits the colour effects that are possible. Thus, it is easy to obtain a great variety of shades and tones in on-the-glaze colours which would be entirely dissipated if they were used either under the glaze or incorporated with it. In the same way, because of the lower temperature at which the glazes of the glassy- and bone-porcelains are fired, many underglaze colour-effects are possible with them that are quite unobtainable with the true porcelains, where the glaze is fired at so much higher a temperature. Naturally, too, the modern potter, whether in China, Japan, or Europe, has many chemical compounds at his disposal unknown to his predecessor of the seventeenth or eighteenth centuries—particularly the compounds of chromium, uranium, platinum, and iridium, many of which have only been recognised and isolated by the labours of European chemists during the nineteenth century.\*

We do not propose here to enter into elaborate details of the composition and preparation of the various colours. The technical reader will find full discussion of these in special treatises. We must, however, enumerate the most

\* It is by no means safe to assume, as I think every writer on the history of porcelain has assumed, that because certain elements and their compounds had not been recognised by European chemists before the commencement of the nineteenth century, the Chinese had not previously made use of mineral colours containing some of these elements. It has always been assumed, for instance, that the chromium colours could not have been used before the date of Vaquelin's researches on the oxides of chromium, yet I am convinced that chromium colours were used by Chinese, Persian and Syrian potters centuries before the first mention of chromium in the literature of chemistry.

distinctive colours of each class, stating at the same time the substances from which they are prepared.

In the earliest Chinese porcelains the colour-effects were all of the nature of coloured glazes and singularly enough only two substances appear to have been used, for some considerable time, for this purpose. These were, oxide of iron, the most widely disseminated of Nature's colouring matters, and oxide of copper, which gives us some of the rarest and most brilliant of the potter's effects. It is difficult for anyone but a potter of wide practical experience in many branches of his art, to realise how varied are the colours that may be obtained from one mineral oxide or compound, like oxide of iron or oxide of copper, according to the nature of the flux or glaze, the conditions of firing, and the other compounds that are used in conjunction with the pure oxide. Oxide of iron, for instance, in different states of oxidation—with different fluxes or by the addition of some oxide which itself yields no colour—may run through the most protean changes. It is possible to have yellow, buff, brown, drab, red enamel-colours of many shades—all from oxide of iron. Dissolved in porcelain glazes, oxide of iron may give yellows, browns, and even certain bluish-purple shades; while under special conditions of firing, it gave the famous greyish-green porcelain glazes of the Chinese, known among Europeans as *Céladon*. Again, certain minerals are known, such as red jasper, Armenian bole, and *grés de Thiviers*, which contain oxide of iron in such a condition that they furnish a fine red underglaze colour, or coloured clay, which has been used in the decoration of glassy- or bone-porcelains, though the tint is impaired or destroyed by the high temperature needed to fuse the glaze of "true" porcelain. In the same way, oxide of copper with a flux or glaze rich in lead gives various shades of green; but when it is dissolved in a glaze consisting of alkaline or earthy silicates, particularly in compounds rich in soda and lime, it produces all those wonderful blue-green tints which the potter calls "Turquoise." The beautiful tint of this turquoise or Turkish-blue is, however, destroyed by the addition of lead oxide or by firing to a high temperature. On the other hand, if

the green or blue glazes obtained from copper oxide are fired in a "reducing" atmosphere the colour changes to a marvellous red, which may be either brilliant and vivid, as in the finest red *Lang-yao* glazes of the Chinese, or opaque and liver-coloured as in those tints more commonly known as *Sang-de-Bœuf*. It has been customary to speak of these green, blue, and red tints obtained from oxide of copper as due to the formation of different silicates of copper. Such a view is hardly tenable, however, for there is nothing to show that the copper-compound exists in any different state of oxidation when it gives a green tint in a lead glaze or flux, or a blue tint in an alkaline mixture; while as to the red, copper-glazes, it seems probable that the tint may be due to the presence of metallic copper in a state of excessively fine subdivision, and not to an oxide of copper at all. Speaking generally, too, it is wiser not to assume that any particular porcelain colour is due to the presence of a definite silicate of the metal, for it may more probably be due only to the solution of some simple or complex metallic compound in a mixture of glassy silicates, borates, &c.

We may now return to the various classes of porcelain colours, and give a brief account of their principal varieties, indicating the colouring substance, together with the conditions that are found to modify the tint given by any particular substance or group of substances.

#### COLOURED GLAZES.

The Chinese have used principally four substances to produce the great variety of coloured glazes for which they have been so famous, oxide of iron, oxide of copper, oxide of manganese and oxide of cobalt, and some of these have been used on the earliest porcelains of which we have any knowledge. Among the treasures of European and American collectors, the oldest examples of Chinese porcelain are those that can be referred to the twelfth or thirteenth centuries, when the Sung dynasty ruled in the Middle Kingdom. Judging by all the examples I have seen of

these early wares, it is evident that the Chinese at that epoch used only oxide of iron and oxide of copper as definite colouring matters in the glaze. The particular glazes will be described more fully in another place ; here it is sufficient to say that they obtained from these two mineral oxides, with the thick opalescent glazes of the period, a variety of greyish-green, drab, brown even verging on purple, as well as the famous early grey-green or bright-green glazes already mentioned under the name of Céladon.

At a later, though still a remote, date, probably in early Ming times, we find glazes coloured also with oxide of manganese (which gives tints ranging from a full bright purple to a purple-brown according to the nature of the glaze and the temperature of the firing), and oxide of cobalt, sometimes producing fairly pure blue glazes from the palest to the deepest, but more generally mixed with oxide of manganese or oxide of iron, when the full blue tones varied towards purple in the one case or to an indigo or grey-blue colour in the other. These typical coloured glazes, coloured by oxide of iron, oxide of copper, oxide of manganese, and oxide of cobalt, or their mixtures, have been continuously employed down to our own time, and, indeed, must always be employed as long as porcelain is made, for they are the sheet-anchor of every potter in the preparation of his colours. Certain coloured glazes, however, can only be obtained either with glazes of special composition or under definite firing conditions. The famous glaze, first made by the ancient Egyptians on their highly siliceous bodies, which is known to us as turquoise, is obtained from oxide of copper. But this special tint can only be developed in glazes rich in soda and lime, and, moreover, the fine blue tint which is its special distinction is destroyed at a high temperature. In the same way oxide of manganese will produce a beautiful purple colour comparable in depth and intensity to this turquoise, but only in an alkaline glaze fired at a comparatively low temperature. The appearance of glazes of fine turquoise and rich purple on Chinese porcelain is positive proof that the body of such pieces must have been first fired to the biscuit condition to make the ware translucent, and that



the glazes themselves were subsequently fired at a much lower temperature. It will be noted that this involves a departure from the ordinary Chinese method of porcelain-making, and yet we have ample evidence from some such pieces as are described on page 66, that this practice was followed as early as the fifteenth century, before any porcelains had been made in Europe at all.

Another coloured glaze, made in the same way, is coloured with a yellow made from antimoniate of lead (the Naples yellow of the painter), which is also incapable of enduring the temperature needed to fire the body of Chinese porcelain; yet there can be no doubt that this yellow glaze, described by the Chinese as "*Mi-se*," or "Millet-coloured,"\* made its appearance at a very early period.

We may also mention that the Chinese made another yellow glaze, coloured with oxide of iron alone, but this was only invented at a later date when the porcelain body was exceedingly white and translucent and the glazes highly refined. This is what is commonly known as "Imperial" yellow, and was first used on pieces of excessive thinness which are either perfectly plain or have designs incised in the paste.

It will be seen, therefore, that many of these glazes, especially the turquoise, purple, antimony-yellow and clear iron-yellow, afford indubitable proof that the Chinese first fired their porcelain to the biscuit condition, and then glazed it at a lower temperature, whenever it suited their purposes so to do.

So far, we have only spoken of the coloured glazes produced by firing the ware in an atmosphere which was highly oxidising, but, even as far back as authentic Chinese specimens will carry us, it is evident that some of their finest glaze effects were obtained by exposing the ware to a reducing or smoky atmosphere at certain stages of the firing. It would carry us too far here at the moment to discuss the *céladon* glazes made from oxide of iron and the blood-red or *flambé* glazes made from oxide of copper. These can best be considered, apart from the more ordinary coloured

\* Dr. Bushell states that this glaze was first invented under the Sung dynasty. See Bushell's "Chinese Art," Vol. II., p. 26.

glazes, in the detailed remarks on the Chinese porcelains; especially as they remained an absolute puzzle to European potters until well within living memory. Certain other coloured glazes may fitly be treated in the same manner, as until quite recent times they had no influence on the porcelains made in Europe. Indeed, it is not too much to say that in the development of coloured glazes as applied to porcelain, the Chinese have left all the other potters of the world far behind, and their masterpieces remain unrivalled in spite of the efforts of the most scientific European potters of our own time.

#### UNDERGLAZE COLOURS.

When the mineral pigment is of such a nature that it can be painted or otherwise applied to the porcelain before it is glazed, which means, of course, that the pigment is one which will resist the high temperature needed to melt the glaze, we describe it as an under-glaze colour. The most extensively used, perhaps also the most beautiful of all underglaze colours, is that obtained by the use of minerals rich in oxide of cobalt. Many such minerals occur in China, but there are two interesting points about the underglaze blues of the Chinese which may be mentioned here. In the first place, Chinese porcelains had made very considerable progress before patterns painted in underglaze blue made their appearance, although, centuries before that time, the potters of Persia and Syria had made the most extensive use of this mineral. In the second place, the native ores of cobalt found in China are never very pure, and often contain a considerable percentage of oxide of manganese and oxide of iron which entirely modify the resultant tint. It seems probable that the Chinese adopted the method of decoration by painting in underglaze blue from the Persians, and it is also likely that they obtained the mineral pigment from which their finest colours were prepared, either from Persia itself or from the mountainous districts of what we call Baluchistan. Apart from the importation of the early céladon porcelains, pieces of Chinese



PLATE II.—PLUM-BLOSSOM JAR, WITH BELL-SHAPED COVER.



blue-and-white formed the bulk of the earlier examples that came to Europe, and it is significant that the first European porcelains of which we have any knowledge, those of Florence, Rouen, and St. Cloud, were generally decorated with paintings executed in the same manner. One might almost say that the quantity of porcelain decorated in underglaze blue has equalled the amount of the other varieties of decorated porcelain combined.

Though oxide of cobalt forms the basis of all the underglaze blues, the tone of the colour is dependent on many factors. The brightest and richest blue is, of course, obtained by the use of the purest oxide; but the same chemical substance gives widely different tones of colour on Chinese porcelains, and on European porcelains, varying as we know according to the nature of the body on which it is painted, and the glaze which covers it. Nothing else has ever equalled in pellucid depth and vibrating tenderness the finest examples made by the Chinese, and it is indeed singular that the European blue-and-white pottery, which most nearly approaches it in colour-quality, is not to be found among the porcelains, but rather in the choicest examples of the "Delft" ware made in Holland during the seventeenth century. The reasons for this are not perfectly clear even yet, though we know that the more siliceous and calcareous glazes used by the Chinese would all help in this direction. It should be said further, that when oxide of cobalt is mixed with alumina, or with oxide of zinc, the compound pigment always produces tones considerably lighter and brighter than those given by oxide of cobalt itself. A small proportion of oxide of manganese gives a purplish tone to the colour, while a larger proportion of manganese, especially if a small quantity of oxide of iron be present, gives grey tones, approaching to a greyish- or steely-black. With a lead glaze the tint given by oxide of cobalt painted under the glaze is always darker than that given when the glaze contains no lead.

Underglaze red, the only other important colour produced by the Chinese for painting under the glaze, was a brilliant red pigment, derived from some obscure compound of copper, which made its appearance in the times of the

Ming dynasty, and, with many fluctuations in quality, has continued intermittently in use to our own times. This colour, when at its finest, is of a deep, juicy, transparent red, which has been compared to drops of freshly drawn blood, but it is inclined to be opaque, when it assumes a somewhat brown tint, and very often examples are found where a yellow stain has flowed out from the colour, and the colour itself is flecked with green spots. It must be said that this particular underglaze red, made from copper, has proved a greater stumbling-block to European porcelain-makers than the blood-red glazes themselves, and in spite of many attempts I have never yet seen a specimen made in Europe that approached the quality of the finest Chinese examples. The most accurate information we have of this colour has been derived from the researches of M. Scherzer, formerly French Consul at Hankow, who made several journeys to the famous pottery-centres of China and collected information and material for the authorities at Sèvres.

During the nineteenth century many new compounds were applied to the decoration of porcelain in Europe, though it can hardly be said that any of them rival in beauty the exquisite quality of these blue and red colours of the Chinese. Oxide of chromium, which resists the heat of the porcelain furnace perfectly, gives a rich underglaze green, while mixtures of oxide of cobalt and oxide of chromium are used to prepare blue-green colours of different shades. The difficulty about the underglaze chromium colours is their intense opacity, which gives them a certain dulness and heaviness of tone. Another underglaze colour, this time invented in England, is the "rose-pink" obtained by calcining together oxide of tin, carbonate of lime, and a trace of oxide of chromium; but this forms a very inefficient substitute for the older underglaze red of the Chinese. Underglaze black pigments can be prepared by mixing the oxides of cobalt, iron, and copper together, and if such a mixture is diluted by adding porcelain clay to it, greyish tones can be obtained. The finest underglaze greys and blacks are, however, made from oxide of iridium, one of the rare metals of the platinum

group ; while stable brown colours are furnished by the mineral "chromite," which is a compound of oxide of chromium and oxide of iron.

#### ENAMELS, OR ON-GLAZE COLOURS.

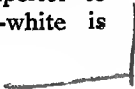
The enamels of this class are all prepared by mixing various mineral substances with a soft flux or glass, so compounded that it will melt at a clear red-heat far below the melting point of the glaze. The colour and flux may be either intimately mixed, or, in some cases, fused together. The mixture is then finely ground, and is applied to the fired glaze with some medium, such as fat, oil of turpentine, oil of lavender, oil of aniseed, or even sugar and water or gum and water. The pieces are afterwards placed in a muffle kiln, *i.e.* a kiln in which the flame and products of combustion pass round and over the kiln in separate flues. Such a kiln thus plays the part of one big sagger, though it may hold scores or even hundreds of pieces. In this way the ware is heated to a temperature of 700° or 800° C., while it is at the same time effectually protected from contact with flame or smoke. At such moderate temperatures many colours can be obtained which would be entirely dissipated or altered under other conditions, and the palette of serviceable on-the-glaze colours is practically as extensive as anyone can wish. The most useful colouring-base is undoubtedly oxide of iron, from which, by careful preparation, various shades of earthy-yellow, light and dark brown, pale and bright red, and even a dull purple can be obtained. Other yellow colours are obtained by using antimoniate of lead, or mixtures of antimoniate of lead and oxide of iron for a more orange tint, while particularly beautiful and transparent yellow on-the-glaze colours have been prepared in Europe with fluxes containing silver and uranium. Greens in great variety are obtained by melting together oxide of copper with an appropriate flux, and the tint may be modified not only by the composition of the flux used but also by the addition of other oxides. Opaque greens are made from oxide of chromium. Oxide of cobalt again forms

the basis of the blue colours, but the tint is greatly modified by the other oxides used in conjunction with it. The ordinary black and grey enamel-colours are simply made by mixtures of some of the foregoing, though, of late, greys and blacks of platinum and iridium have been used in Europe. The finest on-glaze red is that obtained by carefully prepared oxide of iron, mixed with a flux rich in lead. This is the coral-red of the Oriental potter, which has been so much used in Europe, especially in the so-called "Old Japan" patterns. But no account of the enamel-colours would be tolerable that did not mention the on-glaze colours obtained from gold. These include various shades of carmine, rose, pink, crimson and purple, all of which made their appearance during the eighteenth century. The basis of all these gold colours is a preparation containing gold, known as purple of Cassius; from its discoverer, Andrias Cassius. The first information respecting this substance was only published in 1684 or 1685. Within a very short time purple of Cassius was used to produce ruby glass, and it soon made its appearance among the on-glaze porcelain colours, as well as on the painted faïence of Strassburg and elsewhere. From Europe this gold colour, or the knowledge that gold would produce a rose-coloured enamel, was transmitted to China, probably by the Jesuit missionaries, and so led to the production of the Chinese on-glaze decorations of the eighteenth century in which ruby and rose-coloured enamels predominate.

Before leaving the subject it is necessary to point out how differently the Oriental and European porcelain-makers have used their enamel-colours. If one compares, for instance, a piece of Oriental porcelain, say one of the famous ruby-backed plates of the eighteenth century, with a piece of painted porcelain of Sèvres or Dresden, it is impossible not to be struck with the great difference in the way in which the colour is applied. In the former, the enamel-colours are of great purity and transparence, and stand up on the glaze in jewel-like masses of considerable thickness. In the European pieces the colours are less transparent, more heavily charged with colour, and the result is far less brilliant, because the colours are applied



in thinner washes or touches. We have already stated the technical reasons for this difference of treatment (see p. 14), but the advantage thus gained by the Chinese renders their best work in on-glaze colours as much superior to European work as the best Chinese blue-and-white is superior to the European imitations of it.



## CHAPTER V.

### OUR KNOWLEDGE OF CHINESE PORCELAINS.

To speak of porcelain is to think of China, for not only were all our European porcelains made in rivalry with the wonderful ware brought from that country, but every connoisseur and every unprejudiced potter will admit, in his lucid moments, that the porcelain of the Chinese marks the very crowning point of the potter's achievements. We may single out the glazed work of the ancient Egyptians or Assyrians, the painted terra-cotta vases of the Greeks, the brilliantly-enamelled faïence of the Persians, or the majolica of the Italians, as worthy of our high regard, yet Chinese porcelain surpasses all these as much in sheer beauty of colour as in technical skill and in the wide range of its accomplishment. Our knowledge of Chinese porcelain is, however, by no means commensurate with the supreme position it occupies. Whoever would inquire into its origin, the date of its first appearance, or the successive steps by which it was perfected, finds himself confronted by a jumble of incomplete, unsatisfactory, and often mutually contradictory ideas. When the first porcelain came westward the most wonderful legends concerning its origin, its materials, and the methods of its fabrication were repeated among the learned scholars of the time. That it was composed of materials that had lain for a century buried in the earth, that it was shaped (*i.e.* carved) from a precious mineral found only in China, or that, after making, it was perfected by a long interment in the earth, are comparatively simple legends. Much more extraordinary was the idea that it possessed mystical virtues which enabled it to protect its owner from poison—that constant dread of great personages throughout the Middle Ages.

Yet the idea that a cup of porcelain changed colour and flew into pieces directly a poisonous draught was poured into it, was implicitly believed for many centuries. This belief was current not only in Europe but in Persia, India, and other Asiatic countries where porcelain was not made, so that we should probably be justified in regarding these false notions as the fables invented by cunning dealers, whether Chinese or Arab, anxious to enhance the value of their wares.

It seems incredible to us now, when the latest discoveries of modern science are discussed, with more or less intelligence, in the daily press often before the results themselves have been confirmed in the laboratory of the scientist, that such childish ideas should have held their ground for so long, ever growing wilder and more fantastic by repetition. We shall never know how much the spread of knowledge was retarded and the practical achievements of remote ages overlaid and obliterated by the absurd jargon and mystical reasoning of the alchemists and adepts of the Middle Ages. By intelligent inquiry, European scholars of the fourteenth or fifteenth centuries might have obtained specimens of the earliest porcelains, as well as some sound knowledge of the Chinese methods, but for some centuries after the ware first made its appearance among us there was absolutely nothing known of its history or its manufacture.

The first information of any value that is known to have reached Europe was contained in two letters written by Père d'Entrecolles, a French Jesuit missionary resident in Ching-tê-chên or its neighbourhood during the first quarter of the eighteenth century. These letters are noteworthy for the accuracy of the observations and information contained in them, for the writer was at great pains to correct the information obtained from his Christian converts employed in the porcelain works by comparing it with what he found in older Chinese writings.

The first letter was written in 1712, and the second, evidently in reply to a demand for fuller information, in 1722. They were published, the first in 1717 and the second in 1726, in that famous chronicle of the Jesuit Missions to distant parts

of the earth known as "Lettres édifiantes et curieuses."\* They were also used as the basis of the account of the manufacture of porcelain in Duhalde's "History of China," published in 1736, and we find frequent mention of them, in this connection, in the correspondence of the early English porcelain-makers of the eighteenth century.

Père d'Entrecolles also forwarded to Europe samples of the various materials used at Ching-tê-chên, which were submitted to Réaumur, a distinguished French *savant* of the time, but the natural science of that period was insufficient to enable him to derive much information from them. More than a century passed by, during which an increasing trade was carried on in the porcelains of China and Japan by the various India companies, but little seems to have been gathered during all this time concerning the history or the nature of Chinese porcelain. Instead we have a gradual accumulation of tales told by travellers and dealers, to which we can trace much of the confusion of dates and names from which we are only just freeing ourselves. During this period, too, originated that confusion between the porcelains of China and Japan that has caused so much misapprehension.

It was the French, once more, who obtained fresh information on a subject in which they had never ceased to take the liveliest interest. When Brongniart embarked on his great scheme of collecting every kind of pottery made in the world, for the museum at Sèvres, he sought the aid of the French missions in China, and Father Ly despatched to Sèvres a rich collection of the materials and colours used by the Chinese, which, together with others collected by a M. Itier, of the diplomatic service at Canton, were analysed by MM. Ebelmen and Salvétat. Much fresh knowledge was gained in this way, even though the analytical methods used are now known to have been imperfect. Though we are unable to place implicit confidence in Salvétat's results, we must accord him the honour due to a real pioneer in

\* These letters appear to have been reprinted in France several times after the annual series finished. Thus, an edition was published at Paris in 1781, and another in 1843, while there are probably others of which I have no knowledge.

the scientific examination of Chinese materials. Fresh material was gathered by the late M. Scherzer, formerly French Consul at Hankow, who, in 1883, was enabled to make a journey of investigation to Ching-tê-chên by the intervention of the French Minister at Peking. The information derived from this source, together with a scientific account of the analyses and researches made on the materials thus obtained, has been published by Mr. G. Vogt, the present scientific director of the works at Sèvres.\* It is certain, therefore, that we now possess a more accurate and systematic knowledge of the Oriental materials than the Chinese themselves.

On the historical and descriptive aspects of our subject we have by no means been so fortunate. Again, it is to the zeal of French scholars that we owe the first systematic ideas of the history of Chinese porcelain, for much that still passes current among us has been borrowed from the work of Stanislas Julien, who, in 1856, published the famous volume entitled "Histoire et Fabrication de la Porcelaine Chinoise." This was a partial translation of a native account, largely based on earlier histories, which had been compiled by a magistrate of Ching-tê-chên in 1815. This translation formed the basis of all the European writings on Chinese porcelain for many years, but unfortunately Stanislas Julien, though a learned Chinese scholar, had little acquaintance with China or with porcelain, and he perpetrated many blunders, which were, of course, copied by the writers who followed him.

During the following twenty years or so, many comprehensive works were written on the history of the potter's art, such as those of Marryat in this country and of Jacquemart in France. The information furnished by Stanislas Julien was completely accepted by these writers, but Jacquemart, a collector of distinction with a fervid admiration for Oriental porcelain, perpetrated some extraordinary blunders in his desire to exalt Japanese porcelain at the expense of Chinese. The entire scheme of classification proposed by

\* "Bulletin de la Société d'Encouragement pour l'Industrie Nationale," April, 1900, pp. 530—612.

Jacquemart, and adopted by so many subsequent writers, is indeed a striking instance of the mischief that can be wrought when the enthusiasm of the collector is not sufficiently tempered by the disciplined knowledge of the scholar. It was reserved for that prince of European collectors, the late Sir Augustus W. Franks, of the British Museum, with his unerring instinct as well as sound learning, to lay the foundations of a more accurate classification of the Chinese and other Oriental porcelains. His catalogue of "A Collection of Oriental Porcelain and Pottery," issued in 1876, was at once our first important English contribution to the study of Chinese porcelains and an example for all time of what such a work might be. Since then, notwithstanding the appearance in France of the famous monographs by M. du Sartel and M. Grandidier (whose marvellous collection is now exhibited in a department of the Louvre), it is mainly to the labours of English and American students and collectors that we are indebted for the latest and most reliable accounts of the history of Chinese porcelain. It is not too much to say that the writings of Dr. F. Hirth (formerly a member of the Imperial Maritime Customs Service of China), of Mr. A. E. Hippiusley (also at one time in the Chinese Customs), and most of all of Dr. S. W. Bushell, for many years physician to the British Legation at Peking, have completely revolutionised many of the ideas promulgated by earlier writers. These men enjoyed the inestimable advantage, during their long residence in China, of being able to acquire rare examples of porcelain that had never been exported, and still further of gathering and sifting the knowledge current among Chinese scholars, dealers, and collectors. As an illustration of this, one cannot do better than quote the modest and dignified opening words of Dr. Bushell's introduction to his famous "Oriental Ceramic Art": "During a residence of twenty-five years at Peking as physician to her Britannic Majesty's Legation the study of Chinese ceramics has been my chief distraction. I have obtained access, in the exercise of the duties of my profession, to several palaces and private houses, and have in this way had many opportunities of seeing the treasures of native collectors,

which are usually so rigidly closed to foreigners. The Chinese themselves maintain a profound interest in the subject, especially from an antiquarian point of view, and the literature which relates to it is very extensive, ranging as it does over many centuries." He then goes on to speak of his translation of the best Chinese works on the subject, and particularly of the "T'ao Shuo" ("A Description of Chinese Pottery"), published in 1774; the "Ching-tê-chên T'ao Lu," published in 1815 (the work previously translated in part by Stanislas Julien), and other Chinese writings; so that it is difficult to imagine how we are likely to get more exact ideas, from the literary and historical side, than those with which Dr. Bushell has furnished us.

The sketch of the historical development of Chinese porcelains which follows can only claim the merit of having been carefully compiled from these latest sources, though it is possible that a potter may read into some of the statements a meaning which would not be apparent to others.

We have already stated that the researches of these English and American students during the last thirty years have reversed many of the former notions that were current about Chinese porcelains. Formerly there seemed to be an idea that the origin of Chinese porcelains was buried in the mists of a most remote antiquity. Indeed, the only possible interpretation that one could put on certain statements was that porcelain had been developed among the Chinese almost as soon as the more ordinary forms of pottery; that in fact it emerged, as it were, at one bound, peerless and complete. Another idea, doubtless due to a misunderstanding of the Chinese reverence for all their ancient things, was that the oldest Chinese porcelains were the most beautiful. We know, as might have been expected from our knowledge of every other form of artistic handicraft, that both these ideas were erroneous, and that Chinese porcelain, like every other species of artistic pottery, had its origin at a respectable, though by no means fabulously early period; that it was gradually improved and perfected in fineness and purity of material, and skilful workmanship, and only reached its highest development during the eighteenth century,

when it had already been known to Europeans during several centuries, and was indeed being actively imitated among us.

We will first give a brief account of what is known or can be surmised as to the historical development of porcelain in China, and then we must add a condensed description of the principal varieties of the wares made by the Chinese.



## CHAPTER VI.

### THE EARLIEST CHINESE PORCELAINS.

THE Chinese have always shown such a reverence for their past, and such an attachment to its forms, that we may quite understand, while we cannot accept, much that they have written as to the origin of their manufacture of porcelain. With great national pride certain native writers have ascribed the invention to a period as remote as 2697 B.C. Later writers have, however, admitted that no greater antiquity can be claimed, for even the rudest porcelains, than the period of the Han dynasty (202 B.C. to 220 A.D.).

The balance of opinion among contemporary European students would fix the date later still, say, during the latter part of the period of the Tang dynasty (618 to 907 A.D.). This, to say the least of it, is a date of respectable antiquity, but when we inquire as to the evidence on which such an opinion is founded we are referred only to Chinese writings; and when we ask for authentic specimens, all the authorities are agreed that no porcelain pieces are now known which are earlier than the Sung dynasty (960 to 1259 A.D.), while the Sung productions have become so scarce that they are hardly to be procured by the most princely purse, even in China itself.

We may read poetic accounts, by ancient Chinese writers, of early porcelains made before the times of the Sung emperors as being "sky-blue in colour, brilliantly glazed, thin as paper, and emitting a clear musical note when sounded," but nothing even remotely approaching such a wonderful description has survived to our time. Even in the sixteenth century a Chinese writer, extolling the merits of this supposed earliest porcelain, was driven to admit that: "In the present day men search for a fragment of this porcelain without being able to find one, and

declare it to be but a phantom.”\* It may be pointed out that there is not a word in this description which would distinguish porcelain from any other species of hard-fired pottery, and that, indeed, the characteristic quality of translucence is never mentioned in any of the ancient accounts of the so-called porcelains. Perhaps a potter may be allowed to add that a careful examination of the best authenticated specimens of the wares attributed to the days of the Sung dynasty leaves little doubt that we are here in the presence of the very birth of Chinese porcelain, when the first steps were being taken which ultimately led to the appearance of the perfect ware. If we examine all the specimens, in the best European collections, that can with any probability be ascribed to the Sung epoch we find only heavy, even clumsy, pieces of moderate size and great solidity, with a thick, dullish glaze on a dense opaque body, so that it is difficult to decide whether the ware should be regarded as porcelain or as stoneware. They are indeed such productions as one would expect to find at the very commencement of a manufacture so difficult, and technically so advanced, as that of porcelain. Moreover it is possible to trace by well-marked steps, about which there can be little or no argument except as to a few years one way or the other, the successive stages by which Chinese porcelain reached its full glory of technical and artistic skill. To such common-sense argument the believers in Chinese legends advance the ingenious theory that, during the lapse of ages, all the finer and more delicate specimens of porcelain mentioned by old Chinese writers have been destroyed, by reason of their very fragility and delicacy; the later thick and heavy wares alone surviving. Such a view is remotely admissible, but we shall be on safe ground if we take the surviving Sung pieces as our starting point in the history of the development of Chinese porcelain.

The distinguishing features of the Sung wares may be summarised as follows:—

1. The pieces are simple, often clumsy in shape, and obviously derived from the shapes of earlier bronze vessels.

\* Dr. S. W. Bushell: "Chinese Porcelain before the Present Dynasty," p. 72.

2. The body is never white ; at best it is greyish, but it is generally drab or even reddish-brown in colour.

3. The walls of the pieces are exceedingly thick, and seldom show the precious quality of translucence.

4. The glazes are decidedly imperfect, being unevenly fused, full of bubbles, or clouded with opalescent patches. Frequently also the glazes are so imperfectly vitrified that they hang from the rims or other projections in large tear-like drops, or gather up into thick patches.

5. The colour effects are always obtained by the use of simple coloured glazes, and never by the use of painted colour under the glaze.

It is significant, too, that the glazes of these early pieces seldom indicate the use of oxide of cobalt or oxide of manganese, by far the larger portion of their colour effects being due only to the presence of oxide of iron and oxide of copper. The colours obtained from these two oxides were, however, very different from those produced in later times with the perfected porcelain body and glaze. The ancient glazes and bodies were made from minerals far less carefully washed and prepared than those we have spoken of in the previous chapters. The dark colour of the body is one proof of this—the imperfect nature of the glazes furnishes additional proof. Yet from these defective materials the early Chinese potters managed to win many artistic triumphs ; for the glazes, from their very want of clearness and homogeneity of structure, are famous for their opalescent quality. This opalescence manifests itself in a variety of ways ; sometimes the glaze is delicately veined with lines of more opaque whiteness ; sometimes it is irregularly splashed or blotched with soft cloudings, which render the glaze-colour so subtle and delicate that it reminds one of the changing lights on the breast of a dove, or the play of translucent shadows in a piece of Mexican onyx. At times the opalescent cloudings or veinings in the glaze appear of a delicate, brilliant blue—no doubt from the way in which the light is scattered by these infinitely fine white particles.\* This blueness has generally been

\* We may note that the blue and purple streaks or patches so often seen in the finest Flambé pieces produced in the eighteenth century are

attributed to the use of cobalt in the glaze, but I am strongly of opinion that cobalt was so seldom used that we may leave it out of account among the genuine Sung pieces. It is impossible to describe, except to those who have had the privilege of handling and examining actual specimens of these wares, how much the artistic charm of these fore-runners of true porcelain is dependent on the vaporous softness imparted to the glaze by this opalescent quality, nor how much the later porcelain-makers sacrificed, in certain directions, in their attempts to obtain that pure and uniformly white glaze so necessary for the display of painted decoration. There are certain technical points of great interest to be drawn from a study of the Sung productions. In the first place they prove that the Chinese, from a very early period, had learnt to fire their pottery at a much higher temperature than the contemporary potters of the West were using. Secondly, there can be little doubt that they had already learnt to fire the body and glaze at one operation, another feature which differentiates their practice from that of Egyptian, Persian, or European potters. The roundness of the edges of the pieces, the way in which the glaze has attacked the body and certain other peculiarities leave no doubt on this point. A third point of even greater interest, which seems to have escaped the notice of every previous writer, is that the method of firing used by the Chinese naturally produced glazes in which the oxide of iron and oxide of copper were present in the lowest state of oxidation; and this is the explanation of the seeming paradox that the green glazes, known to us as Céladon, and the Copper-red glazes, were amongst the earliest productions of the Chinese porcelain-makers, while in Europe they have been among the latest secrets to be acquired.

It should be stated that during the period of the Sung dynasty artistic wares were being made in many parts of the vast empire, for Chinese writers enumerate no less than sixteen different varieties of ware made at this time. Of these, however, we need only mention the four most due to the same cause, though they, too, have generally been erroneously attributed to the presence of oxide of cobalt.

celebrated, viz. *Ju-Yao*, *Kuan-Yao*, *Ko-Yao*, and *Ting-Yao*,\* together with the Céladon wares of Lung-Ch'uan, and the *Flambé* wares of Chün-chou.

The *Ju-Yao* was the ware made at Ju-chou in the province of Honan. This was supposed to be a reproduction of one of the earlier mythical wares which was described by the too enthusiastic Chinese writers of the period as "Blue as the sky after rain when seen between clouds." Dr. Bushell mentions a fine piece of *Ju-Yao* in his possession, which, however, has a delicate greenish glaze with no trace of blue. This is one of those pieces with a refractory glaze of such sluggish fluidity that it has never flowed over the whole piece. There seems little doubt that this ware was an early type of Céladon, and we shall probably be nearer the Chinese meaning if we read "*Green* as the sky after rain," &c.

The *Kuan-Yao* (Imperial or official ware) was made at Pién-chou. Here the first Imperial factory was founded in the eleventh, or early in the twelfth, century. When the Tartar invasion drove the Court further south, the factory was transferred to Hang-chou, the southern capital. The original *Kuan-Yao* was also a glaze-decorated ware, the colours of the glaze varying through the various tones of bluish-green, emerald-green, and grey-green Céladon wares. This ware was made on a red—or reddish-brown—body, due to the amount of iron in the materials used, and on the feet and rims where the glaze ran thin, the body showing through, gave a distinctive colour, so that the epithet of "Ware with iron-coloured feet and brown mouths" was frequently applied to it. When the potters of the eighteenth century made reproductions of these famous Sung wares, their purer materials would not give any such effect, and so they imitated it, as well as they could, by artificially colouring the rims and feet.

The *Ko-Yao* was another ware of the Sung dynasty said to have been produced by a potter named Chang the Elder; hence the name, which means "Elder-brother's ware." This again must have been a glazed-ware of Céladon type, though Dr. Bushell speaks of pale purple and bright yellow

\* *Yao* is equivalent to our English word "ware" or "pottery."

glazes from the same kilns. One great feature of the *Ko-Yao* was that the best glazes are very finely cracked, *i.e.* the glaze is apparently cracked or broken with a network of fissures, so that it resembles cracked ice.

The *Ting-Yao* was made at Ting-chou in the province of Chihli, it is said, as early as the eleventh century. This factory was also moved further south in 1127, and the ware was then known as Southern Ting (*Nan-ting*). Dr. Bushell states that this *Ting-Yao* forms the great bulk of the Sung pieces found in European collections. The ware is generally decorated with patterns incised in the paste, or with moulded reliefs, but its most valuable quality is in the soft white glaze, which is always more or less opaque, so that it gives a beautifully tender effect to the pieces. This opaque dull glaze is a good indication of the early period of its manufacture, and the fact that in the genuine pieces the glaze is generally far from perfect, being gathered up in drops like pieces of congealed fat, is another proof that the Sung wares mark the very beginnings of porcelain manufacture.

The *Lung-ch'uan Yao* is in some respects the most important of Sung wares, from its position in the general history of pottery, for it was the classical Céladon ware, *par excellence*; that grey-green, yellow-green, or grass-green pottery which first made Chinese porcelain a material to be coveted, from Japan and the East Indies to the Straits of Gibraltar. Dr. Bushell states that the *Lung-ch'uan* porcelain was distinguished by its bright grass-green colour, which the Chinese liken to fresh onion sprouts, a more pronounced colour than the greyish-green or sea-green of later Céladons. But it must never be forgotten that at all the important Sung factories Céladon wares, of various shades of green, always owing their colour to ferrous oxide, were produced, and we have stated above the technical reasons why these glazes came so naturally from the methods of the Sung potters, with their impure materials and their imperfect methods of firing.

The *Chün-chou* wares, made at a town of that name in the province of Honan, have given rise to considerable difficulty in classification. They are variously described as porcelain and as stonewares, for the body was of a coarse

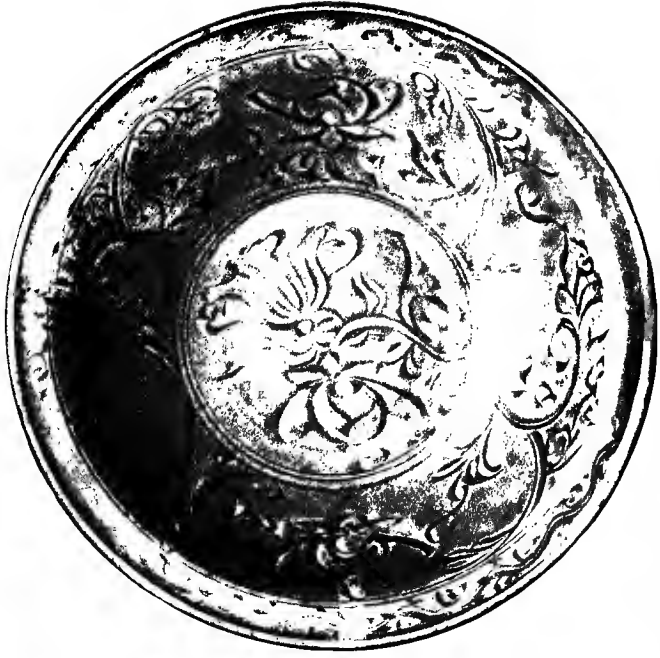


PLATE IV.—BALUSTER PORCELAIN VASE AND LUNG CH'UAN CELADON DISH.

*(By kind permission, from Bushell's "Chinese Art.")*





reddish substance. The glazes were very brilliant, and are said to have comprised various shades of vermilion red, bright onion-green, purple, rose colour, and pale blue. It has been generally assumed that these colours proved the use of oxide of cobalt and oxide of manganese at this early date, but I am strongly of opinion that they mark only the first appearance of the Flambé glazes made from oxide of copper and oxide of iron. On that account alone they are particularly worthy of notice.

A word must be added as to the shapes and decorations of the Sung wares. We have already stated that the pieces are generally thick in substance and clumsy in form—it should be added that the shapes are often derived from those of earlier bronze vessels, and that such ornamental devices as occur are either incised in the clay or added in the shape of modelled ornament, separately pressed in moulds and applied. The bronze shapes are invariably “pressed” in moulds, but a good deal of simple tooling and modelling is done on the pieces after they have been first shaped, and it is exceedingly rare to find any two pieces that are really duplicates.

A word of caution may be added for the benefit of the collector. Genuine Sung pieces are so rare as to be almost unobtainable even in China, but from the high esteem in which they have been held both by Chinese and Japanese collectors they have been extensively imitated (1) by the Chinese themselves from the sixteenth to the eighteenth century; (2) by the Chinese and Japanese of our own times. The Chinese imitations of the eighteenth century were largely made for the Imperial service, for the Emperor Yung-Chêng ransacked the empire for ancient specimens, which were sent to Ching-tê-chên to be copied. These reproductions, from the fineness of their paste and the more perfect glaze, ought not to deceive anybody. But, apart from these, clever forgeries have been made at Ching-tê-chên since the sixteenth century—ever since, in fact, the early wares became scarce in China—and in this case every effort has been made to imitate all the technical imperfections of the earliest pieces, so that it seems to me to be absolutely impossible to distinguish some of these imita-

tions from genuine pieces, a fact which renders a correct ascription of the Sung wares one of extreme difficulty. Of course, much of the modern Chinese and Japanese ware can be told at a glance, but everyone needs to be on his guard when he wishes to acquire even a reasonably old copy of the wares of the Sung dynasty.

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Note on the distribution of the early Céladon wares :—

We have seen that the oldest porcelains have few of the qualities that are now generally associated with the name. They should rather be regarded as marking the embryonic stage, out of which white porcelain was evolved. But even in this primitive stage the material was so different from the other species of pottery made in foreign countries, that it was exported to all parts of the world, and this diffusion of the early porcelains demands a little notice.

In these days of trans-continental express trains and trans-oceanic steamships we are apt to imagine that in bygone times intercommunication between far-distant countries was so difficult as to be well-nigh impossible. On the contrary, the more we know of the history of the peoples of the Old World the more we stand amazed at the intercommunication that had been developed among them. What an infinitely more difficult thing it was for the old Phœnician to sail his frail bark from Tyre to the distant Cassiterides, or for the caravans of Chinese merchants to find their way to the inhospitable shores of the Baltic in search of that marvellous substance, amber, which was so highly prized as to repay the cost of such a toilsome and difficult journey. The study of the most ancient trade routes of the world is one that no geographer has ever yet completely charted, but year by year evidence accumulates to prove that in times which are historically most remote no nation possessed any natural or manufactured product of great price, but it was, in a relatively short space of time, diffused through the then known world.

Chinese porcelain, even the oldest, is a comparatively modern thing in the world's history, and, discarding as we must the old ideas as to the remoteness of the period when

porcelain was first made in China, we perceive at a glance that during the Sung epoch, when we have real evidence that porcelain was made in China, it would very soon become an article of commerce to the other parts of the world. It has even been imagined that the enigmatical Murrhine vases of the later Roman Empire were in the nature of Chinese porcelain, but such a belief is untenable in face of the latest knowledge of the origin of porcelain itself. The fact, however, that competent scholars should have imagined the possibility that the Murrhine vases described by Pliny might have been Chinese porcelain is only another proof of how much closer the connection was between the older civilisations of the East and West than is generally imagined. It is incredible that a material so fine, so precious, so mysterious, and so beautiful as porcelain could have been made in China for many centuries before some specimens of it found their way into the hands of European monarchs or collectors. If, therefore, the most diligent researches of historians and *savants* can find no mention of Chinese porcelain in European archives or writings earlier than the twelfth century, while quite a respectable number of references to such material are to be met with after that date, this is in itself fairly strong presumptive evidence that the date of the invention of porcelain was such as we have surmised on other grounds, rather than the remote date which the Chinese, in their national pride, would have us believe.

Every text-book on the history of porcelain gives the date of the first record of Chinese porcelain finding its way into the West as the year 1171,\* when Saladin sent a present of forty pieces to the Sultan of Damascus. At this time there existed a long-established caravan traffic passing through Mongolia and Turkestan to the ports of the Persian Gulf and of the Levant, while the growing importance of Cairo as a centre of Arab power soon raised the bazaars of that city into a great mart of exchange for the products of East and West, so that from the eleventh or twelfth centuries onwards there must have been some traffic in Chinese porcelain in the countries round the Mediterranean Sea.

\* Mr. A. E. Hippisley states that the correct date was 1188.

As early as the fourteenth century we begin to find mention of Oriental porcelain in the inventories of the kings and great nobles of Europe, and about the year 1447 Chinese porcelain was so well known that Mathieu de Coussy, the historian of Charles VII. of France, records a letter addressed to the Sultan of Babylon by the hand of a certain Jean de Village, the agent of the famous French merchant, Jacques Cœur of Bourges, asking for certain trading privileges in the dominions of the Sultan. This letter concludes with the curious request: "*Si te mande par le dit Ambassadeur un present a savoir trois escuelles de pourcelaine de Sinant, deux grands plats ouvertz de pourcelaine; deux touques verdes de pourcelaine, deux bouquetz de pourcelaine ouvré.*"

From this period, when Chinese porcelain was so highly esteemed that it was solicited as a present from one monarch to another, Oriental porcelain was collected by the crowned heads of Europe, and such princes as the Medici of Florence, the great Emperor Charles V. and his contemporary, Francis I. of France, all collected this rare and beautiful material. At the period of which we speak, viz. from the twelfth to the fifteenth century, the export trade of China for its natural and artificial products was, however, so extensive that this overland trade by the ancient caravan routes to the West can have formed only an insignificant part of the whole. Chinese junks from the waters of Amoy had established a lucrative trade with the East Indies, with Borneo and Sumatra, which was in time extended to the whole Indian peninsula and the island of Ceylon. We learn, from Chinese sources, that during the reign of Yung-lo (1403-1425) the famous eunuch general Chênggho conducted a victorious Chinese mission as far as Ceylon, while in the succeeding reigns some of Chênggho's lieutenants were despatched on trading expeditions even as far west as Jeddah, the port of Mecca.

By both these trade routes, the overland and the over-sea, Chinese porcelain became well known, at a very early period of its manufacture, to the keen traders of the Arab empire, so that we cannot be surprised that fragments, of early date, should be found in excavations on the

sites of all the Arab cities or settlements from Mombasa or Zanzibar, on the east coast of Africa, round to Morocco, on the north-west.

It follows as a logical deduction from the facts here stated, which are all established beyond dispute, that we ought to find, if not the very earliest Chinese porcelains that were ever made, at least fragments or examples of the earliest kinds that ever reached any marked degree of excellence or perfection, from the countries where a trade was established at such an early date. This being admitted, we find a striking confirmation of the views put forward above, based on a knowledge of the probabilities of porcelain manufacture, in the fact that such early Chinese porcelains as exist in the countries named, or as have been discovered in excavations of old sites, show the remarkable and altogether disproportionate preponderance of the porcelain with a green glaze known as *Céladon*. Thus, at this day, the Dyak of Borneo regards as his most sacred treasure vessels of old Chinese *Céladon* porcelain which have been handed down with the utmost reverence from generation to generation; because, according to a native superstition, they are made of the remnants of the same clay from which the Almighty first created the sun and then the moon; so that the most miraculous virtues are attributed to them in the power of curing diseases, while no evil spirit will approach the house in which they are kept. Similar vessels, reputed to possess equally miraculous properties, have for many centuries been highly prized in both Persia, Syria, and Arabia, while Sir John Kirk, during his residence in Zanzibar as British Consul-General, formed a collection of ancient Chinese *Céladon* porcelains, many of which were dug up from the ruins of the ancient Arab trading stations on the east coast of Africa, and with some of these Chinese coins of the Sung dynasty were actually disinterred.\*

This prevalence of *Céladon* among the fragments of what we know to be the earliest exportations of Chinese porcelain, also corresponds to the mention of "Green

\* I am informed by Rear-Admiral Gissing, who was associated with Sir John Kirk in many of these excavations, that a great part of the collection was sunk in a wreck on the east coast of Africa.

porcelain vases" (" *deux touques vertes* ") in the letter mentioned by Mathieu de Coussy, as well as with the fact that the earliest known piece of porcelain to reach England, "Archbishop Warham's Cup," still preserved at New College, Oxford, is a Céladon bowl mounted in silver-gilt, which must have been imported before the reign of Henry VIII.

The great prevalence of Céladon porcelain, especially in the countries open to the Mohammedan traders during the early Middle Ages, has led learned Arab scholars like Professor Karabacek, of Vienna, to propound the theory that this ware was really a product of Mussulman skill, and had its origin in some Mohammedan country. This theory is, however, untenable on many grounds, and there can be no reasonable doubt that the old Céladon, which must be regarded as one of the earliest forms of porcelain, originated in China. That Céladon porcelain was made elsewhere has been most conclusively proved, within the last few years, by the discovery at Sawan-Kalok, 300 miles north of Bangkok, in Siam, of the site of pottery kilns and heaps of waste pieces, kiln-supports, &c., where the greater part of the waste appears to consist of fragments of Céladon (see p. 149). The legendary account of these kilns among the natives of the district is that the potteries were founded by Para Roang, the King of Sawan-Kalok (*circa* 1350), but he is said also to have brought 500 artificers from China, a belief which still further confirms the view as to the Chinese origin of the Céladon wares.

## CHAPTER VII.

### PORCELAINS OF THE MING DYNASTY—1368-1643.

DURING the three hundred years when China was ruled by this famous dynasty we get the first really great period of Chinese porcelain, and it is worthy of remark that it was also during this time that the manufacture became concentrated at Ching-tê-chên, for, with the exception of the factory at Têhua, in the province of Fuchien, all the other Sung factories either disappeared altogether or followed up their early successes by the manufacture of commoner wares quite unfit to rank with the gradually improving porcelains made at Ching-tê-chên. The first factory here had been destroyed during the wars which marked the close of the Tartar overlordship, but it was rebuilt by Hung-wu in 1369, and as it became the site of the Imperial manufactory and the Imperial patronage has continued ever since, it is easy to understand how other porcelain makers from the old Sung factories settled there, and Ching-tê-chên gradually became the most famous centre of porcelain making that the world has ever known. With the exception of the Fuchien factory, ever famous for its white porcelain, which was founded during the early years of the Ming dynasty, it must be borne in mind that practically all the artistic Chinese porcelains we are acquainted with in Europe have emanated from this one town. It follows as a matter of course that great improvements were soon introduced as a result of this focussing of the manufacture in one centre, and it is not too much to say that the potters of Ching-tê-chên, besides reproducing, time after time, all the glaze effects of the earlier potters of China, have added to them a wonderful variety of new colours and new methods which the ancient potters never dreamt of. The first productions of the kilns of Ching-tê-chên under

the Ming dynasty must have resembled the earlier wares already described, but we soon find considerable advances being made in the methods of decoration. Hitherto, as we have seen, all the colour effects were in the nature of coloured glazes applied either on plain shapes or on vessels that had previously been decorated with incised or embossed ornament. The first new departure, and a most natural one, was to decorate the piece with ornamental schemes, either of conventional foliage or of figure subjects, in which the different patterns of the design, isolated by raised lines, could be filled in with different glazes so as to produce an effect roughly analogous to that of a design in cloisonné enamel. (See Plate 4.)

It may be that this early method of porcelain decoration was inspired by the practice of the enameller upon metal, though it must not be forgotten that, centuries before this, the ancient Egyptians had used an identical method in some of their ceramic work. Be this as it may, there are to be found in all the great collections of Chinese porcelain a few examples of very early manufacture, such as the specimen illustrated in Plate 4. These pieces, which are commonly attributed to the earliest period of the Ming dynasty (1368-1643), but which may be somewhat earlier, are massive, even clumsy, both in form and substance. They are composed of a coarse porcelain which is so far removed from white that the raised parts which have been left unglazed are almost the colour of an oatmeal biscuit. The ornament, whether of conventional diaper pattern or consisting of bands of flowers or figures of men and animals, is strongly, almost brutally, executed with a broad raised line silhouetting the figures. The colours are all in the nature of coloured glazes, and we generally find only three colours used, viz. : an ochreous yellow glaze, which is always very thinly applied; a rich turquoise blue colour, obtained from copper; and an amethystine purple obtained from oxide of manganese, though occasionally an opaque white glaze is used. That this technique was invented at an early period is proved by the fact that in the Buddhist temple Pao-kuo-ssü, at Peking, there is a celebrated image of Kuan-Yin decorated in this way, which the monastery





PLATE V.—BLUE-AND-WHITE, WITH BANDS OF BROWN AND RINGS OF CRACKLED AND PLAIN CELADON.



IMPERIAL CH'YEN-LUNG VASE, DECORATED IN KU-YUEH HSÜAN STYLE.



records prove to have been deposited there in the thirteenth century;\* while everything about the pieces of this type found in European collections betokens their genuine antiquity. The coarseness of the paste, its want of whiteness, the clumsiness of the forms, and the fact that the decoration is entirely in glazes, betokens their relationship to the earliest porcelains already described. In some respects they differ materially from the pieces described in the previous chapter, for it is evident, from the fact that turquoise and purple glazes are used in their decoration, that the porcelain was "biscuited" first, and then the glazes, which are alkaline glazes resembling those used on Persian faience, were fired at a lower temperature. (See p. 38.)

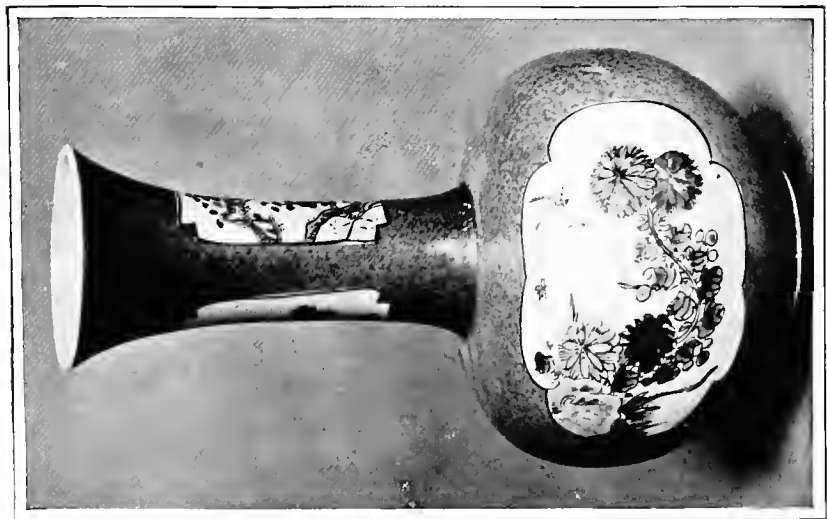
With the discovery and the extended use of the materials of true porcelain, *kao-lin* and *pe-tun-tse*, the possibility must soon have presented itself to the delighted potter of preparing an absolutely white translucent porcelain, and when once this possibility had been realised there can be no doubt that everything else would give way before it. The same tendency had manifested itself many centuries earlier in that other great centre of early civilisation found in the countries bordering the eastern end of the Mediterranean Sea. The potters of Egypt and of Syria were long content to make vessels of coloured clay, but as soon as a white clay was known it was eagerly resorted to as a means of preparing a white coating for vessels of strongly-coloured clay on which colour decoration could be applied. In China the refinement of the porcelain materials led at first to the exaltation of the qualities of whiteness and translucence. We read at an early period of pure white porcelain made of the utmost thinness and delicacy, so that its translucence might be most apparent, and decorated only with delicate patterns, generally of dragons, waves or clouds, sharply engraved with a steel point in the dry clay before it was glazed and fired. Ware of this kind is said to have been produced at the famous factory of Ting-chou early in the twelfth century of our era. Occasionally the same ware was produced with a bright purple glaze having a tint like

\* Dr. Bushell: "Chinese Art," Vol. II., pp. 23, 24.

that of ripe grapes, and more rarely still with a beautiful clear black glaze. Dr. Bushell has translated a description of some of these early pieces left by a Chinese connoisseur of the sixteenth century, who, in describing a duck-headed vase of this Ting-chou porcelain, says: "I have seen hundreds of specimens of the white, scores of the purple-brown, but only this one of black in all my life."

Considering the great predominance in collections of Chinese porcelain of blue-and-white pieces, and that to so many people the mention of Chinese porcelain calls up blue-and-white painted porcelain only, it may seem somewhat surprising that no mention has been made hitherto of white porcelain painted with blue. Contrary to common notions on this point, we believe, however, that underglaze blue was little used in China before the early part of the fifteenth century. Considering that the Persians and other potters of Western Asia had made the most extensive use of underglaze blue decoration many centuries before this time, such a statement may seem remarkable, but it must be borne in mind how conservative the Chinese have shown themselves in their arts, and how slow they were, at this time, to adopt the methods of foreigners. Moreover, such ores of cobalt as are found in China appear to be of no great purity, and there is much to be said for the idea that the Chinese not only derived the notion of painting in blue under-the-glaze from the Persians, but obtained their material from the same source. The Chinese esteem most highly the blue-and-white of the Hsüan-tê period (1426-1435), and of the period Ch'êng-hua (1465-1487), while they relegate to the third place the blue-and-white produced during the reign of Yung-lo (1403-1424).

It is significant that the cobalt used during these reigns should be spoken of as Mohammedan blue, so that it evidently was obtained from some Mohammedan source, either as tribute or by way of exchange. My own theory is that it was obtained from the district now known as Baluchistan, as in that mountainous region there have been found deposits of the purest cobalt ore, a mineral sometimes called cobalt-bloom, which is a compound of cobalt and arsenic, which might be used without any other preparation than



POWDER-BLUE, WITH POLYCHROME DECORATION  
IN RESERVED PANELS.



PLATE VI.—K'ANG-HSI VASE, DECORATED WITH  
LIONS AND BROCADED BALLS.



that of grinding and levigation. However this may be, it is certain that when the supply of Mohammedan blue failed, as it did in the latter part of the fifteenth century, and the Chinese had recourse to their own native ore, the character of the blue colour changed at once, and instead of the pure and brilliant blue, whether dark or light in tone, of these early periods, the colour became so much greyer, owing to the presence of manganese in the native ore, that it looks both dull and heavy in comparison. It seems that during the Chêng-tê period (1506-1521) the governor of Yunnan, in Southern China, succeeded in obtaining further supplies of this Mohammedan blue at a cost of twice its weight in gold, and at this exorbitant price the material remained available down to the middle of the sixteenth century, when the Chinese seem finally to have lost it, and to have become entirely dependent upon the cobalt pigment, prepared by many refinings of their native ore.

The tint of this unrivalled cobalt blue on the fifteenth-century Chinese porcelains must really be seen in relation to the later blue to be appreciated at its full value. Pieces of later date may often be found with a blue of very fine quality, but it is certain that nothing was produced to equal in brilliance this early blue which is so often spoken of as rivalling the blue of a sapphire. From its first appearance the blue was used in two shades, probably the same colour more or less diluted. In every case, however, one cannot but admire the harmony maintained between the blues themselves and the colour of the glaze and body, a clear proof of the fact that when once the Chinese did adopt a foreign material they used it with the greatest artistic skill.

Recalling the early use of the transmutation glazes, especially those produced by the action of gases in the kiln rapidly changing from a reducing to an oxidising condition so as to produce from the oxides of copper all the beautiful *Flambé* and *Sang-de-Bœuf* glazes, it is perhaps not to be wondered at that an underglaze red, made from copper, should have been used by the Chinese at a very early date. Remembering, too, how difficult it has proved, even for the most expert of modern scientific potters, to produce the same underglaze red colour, it only deepens our respect and

admiration for the potters of China that the two earliest underglaze colours should be blue and red. It is not too much to say that all the examples of underglaze red of this character that have been produced outside of China would have formed an insignificant portion of the output of a single Chinese porcelain-maker of the Middle Ages. So beautiful is this colour, like deep drops of freshly-drawn blood, yet so rarely was it produced to perfection, that Chinese dealers, to enhance its value, long ago evolved the legend that it was made of powdered rubies. We may smile at the conceit, knowing how impossible it would be to make the colour in any such way, but the legend no doubt served the dealer's turn well enough, for however rare and beautiful in itself an effect may be, the ignorant are always impressed with something of a sense of awe when they are told that gold or rubies, or such costly things, are used in the production of a colour or a glaze. This magnificent underglaze red appears to have been obtained in its utmost perfection during the early part of the Ming dynasty, for we find it especially mentioned in the Hsüan-tê period (1426-1435). At first it appears as a ground colour used for decorating the outsides of bowls and cups. So much was it admired that vessels were made in forms specially adapted for the display of its qualities, while they admitted also of the use of other colours in conjunction with the precious red. Thus we frequently read of objects shaped like a persimmon fruit, with a piece of twig and a few leaves forming the handle; the fruit is coloured in underglaze red, while the leaves and the piece of stalk are coloured green and brown respectively by the use of ordinary coloured glazes. Later, we find the underglaze red used in the execution of painted designs, under a white glaze of exceptionally fine quality. A Chinese connoisseur of early times describes one of his pieces as being decorated with "Three red fishes on a white ground, pure as driven snow, the fish boldly outlined and red as fresh blood, all with colour so brilliant as to dazzle the eyes." Such pieces were, however, described by the collector, Hsiang Tzu-ching, who lived in the latter half of the sixteenth century, as being in his day exceedingly rare; while of another style



of decoration in which three pairs of peaches are painted in underglaze red on a white ground he says, "only two or three are known to exist within the Four Seas," *i.e.* within the Chinese Empire. Rare as such pieces were, even in the sixteenth century, they have not quite vanished yet, for a few specimens, which appear to be quite authentic, have found their way into the great European and American collections of our times.

It was during the early times of the Ming dynasty, too, that the wonderful eggshell porcelain pieces, called by the Chinese "Bodyless," first made their appearance. The true eggshell porcelain must always have required the utmost skill and dexterity of manipulation, for its substance has been reduced to so thin a layer that in a fine specimen it almost seems as if there could be no clay left between the two layers of glaze. At all events, from the Yung-lo period (1403-1424) eggshell porcelains of varying degrees of delicacy, attesting the skill of different generations of potters, have been made practically without interruption. In spite of the extreme thinness of such pieces, the finest specimens had elaborate designs engraved, with a steel tool, in the paste before firing. The designs generally take the form of dragons in the midst of clouds or waves, the whole work being executed with such delicacy and precision as to leave us absolutely amazed at the audacity which could conceive, and the patient skill which could execute such marvels of technique. The finest early eggshell pieces, covered with incised patterns of this nature, were generally in pure white; so that the design is barely visible unless the vessel be held against the light or filled with a liquid. Considering that the difficulties of manufacturing such pieces must always have been formidable, it was only natural that a similar style of incised or engraved decoration should have been used on vessels of ordinary thickness, and these were often covered with delicately coloured glazes, of which a beautiful pale-yellow seems to have been most highly prized, especially in the Hung-Chih period (1488-1505), and the Chêng-tê period (1506-1521).

At the same early date, too, another delicate and difficult method of decorating white porcelain was invented. This

is the decoration so often known among modern collectors as "grain of rice" pattern, where the design is actually cut out of the vessel while it is yet in the clay state, and then, when the glaze-coating is applied, the glaze fills up the perforations, which become like so many window-openings in the piece. This particularly charming method of decoration, which was also adopted by the Persian potters for their transparent ware, has excited the greatest interest among modern European porcelain-makers. The Worcester Porcelain Company exhibited in 1872 many delicate pieces made in this way, in which the perforated patterns had been filled with coloured glazes; while more recently M. Camille Naudot, of Paris, has carried the same process to the highest degree of perfection. It must be stated, however, in justice to the Chinese potter, that these modern wares are made in soft-paste porcelain, baked at a much lower temperature than the ancient porcelains we are now describing, and that, brilliant and striking as they are, with their perforations filled with coloured glazes showing almost like a design in stained glass upon a white ground, they can never rank for subtle beauty and delicacy with the dainty white Chinese pieces.

Toward the close of the Ming dynasty, *i.e.* in the latter part of the sixteenth and the commencement of the seventeenth century, we get the first indications of the Chinese use of on-glaze colours in the decoration of porcelain, thus foreshadowing the course which the decoration of pottery has practically taken in all the great pottery-centres of the world. First, always, comes the decoration with various coloured clays; then with various coloured glazes; afterwards with colours painted under the glaze; and finally with colours painted on the finished, fired glaze and fused into its surface by re-firing at a lower temperature. This change of technique is always an important one, because the new manner of working, *i.e.* painting on the fired glaze, replaces the freedom and abandon as well as the rich depths of colour of the earlier work by finer, more delicately drawn, more precise, and, as an artist would say, "tighter" work, inevitable from the changed technical method.

It has been surmised that at first these enamel-colours



PLATE VII.—VASE DECORATED IN CORAL RED



were simply the enamels used in enamelling on metal, an art which had travelled westward from the Byzantine Empire, but which the Chinese practised with very great success. Originally, the enamel-colours appear to have been merely applied as thin ground-washes to enhance the value of the decoration painted in underglaze blue, but the brightness and the jewel-like quality of the enamels, as well as the precision and delicacy with which they could be handled, soon brought them into more extended use, and we get the earliest pieces of the decoration so well known under its French title of *famille verte*, because of the predominance of a fine green-enamel, made from oxide of copper with a lead flux, which shines with the greatest brilliancy.

Chinese porcelain decorated with on-glaze colours in which green predominates as here described, is almost invariably called "Ming" porcelain by the dealers, but the true collector will not need to be told that ninety-nine per cent. of such pieces now to be met with are of much later date than the close of the Ming epoch.

The first of these Ming schemes of decoration in on-glaze colours was practically a three-colour decoration (the Chinese *San ts'ai*) consisting of green, purple, and yellow; the green being due to copper, the purple to an impure oxide of manganese, and the yellow probably to an ochreous earth. In the reign of the Emperor Wan-li we find an advance on this scheme in the famous five-colour scheme (*Wan-li wu ts'ai*), in which the same three colours were combined with underglaze blue, and an on-glaze red made from oxide of iron, which was introduced to take the place of the more beautiful underglaze copper-red already referred to, which was exceedingly difficult to produce just as the potter wished it. We can only repeat that the genuine Ming pieces, either of the three or five-colour decoration, are exceedingly rare in Europe, for the Chinese, with their great reverence for antiquity, value them even more highly than the Western collector does.

During the reign of the Emperor Wan-li the demands made on the potters of Ching-tê-chên by the Court were so enormous that in the year 1583 one of the supervising censors, remonstrating with the Emperor, declares that the

number of pieces required in one year comprised no less than 20,000 boxes of different patterns, 4,000 vases and 5,000 jars, with covers of divers shapes and decorations, amounting, with bowls and other things, to a total of over 96,000 pieces. It was doubtless owing to such profuse orders that the porcelain of this reign is generally of rather coarse material and somewhat inferior workmanship. Dr. Bushell says, "the colossal production of the reign of Wan-li is shown by the abundance of porcelain of this time to be found in Peking at the present day, where a garden of any pretensions must have a large collection of bowls or cisterns for goldfish, and street hawkers may be seen with sweet-meats upheld by dishes a yard in diameter, or ladling syrup out of large bowls, and there is hardly a butcher's shop without a cracked Wan-li jar standing on the counter to hold scraps of meat."

At the same time, too, the European demand for Chinese porcelain began to assume considerable proportions, and cargoes of blue-and-white porcelain were sent to Europe. This fact heralded the coming of a change, for with the increased demand for porcelain made more or less in accordance with European ideals the ancient Chinese productions were to some extent interfered with, and we may safely take this period as marking the end of the ancient Chinese porcelains.

## CHAPTER VIII.

### PORCELAINS OF THE CH'ING DYNASTY (1644 TO DATE). THE REIGN OF K'ANG-HSI.

THE political disturbances that marked the downfall of the Ming dynasty definitely closed the first important period of Chinese porcelain, and for half a century, say from 1620 to 1670, the famous porcelain works at Ching-tê-chên passed under a cloud. With the accession of the second Emperor of the present dynasty, the famous K'ang-hsi, who reigned from 1662 to 1722, the Imperial attention was again turned to the production of artistic objects of every kind, and we see the commencement of the culminating period in the long history of Chinese porcelain. This period is really covered by three reigns, those of K'ang-hsi (1662-1722), Yung-chên (1722-35), and C'hien-lung (1736-95), and in this century-and-a-half, the high-water-mark was reached and passed. It cannot indeed be too clearly known that so far as our collections go there is comparatively little Chinese porcelain to be met with of any earlier period. Fortunately then, the Imperial factory was under the succession of a series of able overseers, who not only strove to reproduce the porcelains of bygone centuries, but added to them many discoveries and refinements of their own. The first of these directors is said to have been Lang t'ing-tso, Viceroy of Kiang-si, the province in which Ching-tê-chên is situated, down to 1668. At all events, the Chinese attribute to him two of the most beautiful of all their glazes, both of which bear the name of *Lang-yao*. The first and the rarest of these is of a blue-green colour, known as apple-green, while the second is the famous blood-red, which collectors are agreed is the crowning achievement in all that class of copper-red glazes, best known under their French title of *Sang-de-Bœuf*. We shall refer more particularly to these

glazes in a subsequent chapter, here we need only say that we see in them one more instance of the Chinese reverence for their own antiquities, as there can be no doubt that they were obtained in an attempt to reproduce the earlier blood-red glazes, like the sacrificial red of Hsun-tê so often referred to by Chinese connoisseurs. It may perhaps be added that the two glazes, the green and the red *Lang-yao*, are apparently identical in composition, the remarkable difference in appearance being due to the fact that the green was fired in an oxidising, and the red in a reducing kiln-atmosphere.\* We have no other wares associated definitely with the first part of the reign of K'ang-hsi, for the works at Ching-tê-chên were once more destroyed during a rebellion of the native Chinese that lasted from 1674 to 1678. It was shortly afterwards rebuilt, and rose to greater fame than ever under the superintendent Ts'ang Ying-hsüan, who was appointed to the post in 1683. It is agreed by all connoisseurs that the porcelains produced during his superintendence are the most admirable specimens of the art—how magnificent can best be judged by such a collection as that of Mr. Salting, housed at the Victoria and Albert Museum, which contains a wealth of choice examples of this time. In the first place all the materials used were most carefully purified and prepared; the pieces were made and finished with the utmost precision (see the letter of Père d'Entrecolles), and the painting was executed with remarkable freedom and dexterity; so that even the traditional Ming decorations that were still continued take on a character of their own. This is apparent even in so simple a style as the blue-and-white vases, for though the blue pigment is not so pure as that used in the best Ming periods (see pp. 68 and 69), and though it is of every tone of colour, now blackish, now clear, but more generally greyish, the quality of the blue and the white in relation to each other is strikingly beautiful. Though pieces of Ming blue-and-white are to be found in some of our finest collections, the K'ang-hsi wares are the best that are at all plentiful,

\* It may be noted that the authorities are not in agreement as to the origin of these *Lang-yao* glazes, but Dr. Bushell gives this attribution after a careful investigation of the question.





PLATE VIII.—VASE, WITH BLACK ENAMELLED  
GROUND.



for in the later reigns blue-and-white fell into disfavour, so that it rapidly deteriorated in quality. The subjects of the blue decorations are exceedingly varied, flower paintings either slightly or highly conventionalised, hunting subjects, battle subjects, ceremonial, religious, or mythical groups or processions, scenes of homely life, as of ladies and children amusing themselves in gardens, or animals, birds, dragons, and other mythical creatures disporting themselves in waves or clouds. Most highly valued of all—if modern sale prices are to be taken as a guide—are the so-called “Hawthorn ginger-jars,” a specimen of which changed hands at the Louis Huth sale at the fabulous price of £5,900. “These charming jars,” says Dr. Bushell, “originally intended to hold New Year’s\* gifts of fragrant tea, are painted with a floral, symbolical design appropriate to the season. The prunus flowers are bursting forth in the warmth of the returning spring, while the winter’s ice, seen through their meshes, is just melting.” Another style of design, where the separate opening blooms and buds are in white on a dazzling blue ground with a network of darker blue lines, represents a shower of blooms fallen on to a mass of ice which is cracking under the heat of the returning sun.

Another favourite design of this period, which, however, made its first appearance in Ming times, has the underglaze blue used as a ground to relieve freely drawn sprays of magnolia with the flowers reserved in white—sometimes modelled in slight relief, probably by being painted on in slip. (See Plate 10.)

The tall covered jars with panelled designs in which Chinese ladies, vases with growing plants, and sprays of flowers alternate, are best known by the name “Lange Eleizên,” given to them by the Dutch, who first brought them to Europe. (See Plate 9.)

There is a distinct class of blue-and-white design evidently founded on earlier bronze work where the pattern takes the form of arabesques of white upon blue, and, from among the arabesques grotesque eyes and faces peer out. In the bold floral designs of lotus, chrysanthemum, peony,

\* The New Year in China commences from three to seven weeks later than with us.

or aster, more or less conventionalised, the blue is generally of an indigo tone, sometimes indeed quite blackish.

A word must be added as to the so-called soft-paste Chinese porcelain of this period, for which enthusiastic Americans are said to have paid high prices. This appears to have been a new porcelain compounded much like our English "Parian" body (see p. 20), that is, with such a proportion of fusible ingredients as would enable it to be porcelainised at a lower temperature than usual. The body was "biscuited," then painted, and coated with a lead glaze and fired again at a lower temperature. Dr. Bushell surmises that this is the porcelain spoken of by Père d'Entrecolles as fabricated from a recently discovered mineral called *hua-shih*,\* and that indeed seems highly probable. Père d'Entrecolles states that the ware was surprisingly light, and that the blue painted upon it resembled a painting on vellum in its neatness and precision. These are the very qualities which distinguish the so-called Chinese soft-paste. The glaze is generally badly crazed, and presents a somewhat pitted surface, while the colour is greyish and rather pale in tint.

What is known as powder—or powdered-blue, was apparently first produced in this reign. Here the cobalt pigment, instead of being applied with a brush, was blown on to the piece in a rain of minute drops (see p. 32). The coat of pigment was of varying thickness, but, in any case, owing to the sluggish fluidity of the glaze, many separate particles remained unsoftened, so that we get the effect of sparkling dark points on a broken ground of brighter blue. In the finest pieces the powder-blue was used as the sole decoration, but more often a design in gold was pencilled on over the glaze, or shaped panels were reserved in the white, and painted either with designs in blue, or with designs in the ordinary *famille verte* style (see Plate 6).

The underglaze red which has already been referred to was also produced during the K'ang-hsi period; indeed, it

\* *Hua-shih* has generally been assumed to be a kind of talc or steatite—but none of the specimens obtained by Europeans have been of that nature. The material obtained by M. Scherzer at Ching-té-chên in 1883 proved on analysis to consist of a mixture of white mica and kao-lin.



PLATE IX.—BLUE-AND-WHITE VASE AND COVER,  
WITH LADIES AND FLOWERS.



is probable that the fine pieces painted with designs in underglaze red, and in underglaze red and blue, which form such a feature of the Franks collection in the British Museum, date from this period. In the succeeding reigns decorations in enamel-colours became the rage, and then the painting in underglaze blue and red, receiving less attention, became of poorer quality. Decoration in enamel-colours, which has been already noted as appearing under the later emperors of the Ming dynasty, made great progress also; the three-colour and five-colour decorations reaching the highest perfection during this reign. The three-colour decorations represent the apotheosis of the *famille verte* pieces, which dealers are in the habit of speaking of as Ming porcelain, and we also get a style of five-colour decoration, the K'ang-hsi *wu ts'ai*, which differs from the five-colour schemes of Wan-li porcelain (p. 73) in the fact that the underglaze blue of the latter is replaced by an enamel blue of poorer quality, so that *all* the colours are now painted upon the fired glaze.

From this period we date the large covered jars, beakers, and vases painted with gorgeous flowers and birds, and all the range of Chinese subjects, on grounds of white or powder-blue (q.v.), or brilliant grounds of yellow, green, coral-red, or black obtained by painting these enamel-colours over the white glaze. This is in itself a technical departure, and such pieces, especially those with a shining black ground, are prized most highly by present-day collectors. They may be seen in full perfection in the collection of Mr. George Salting. The black ground demands a word of explanation. In the earliest examples, probably belonging to the Ming times, where the ground is dull and heavy, the colour was obtained by mixing together the cobalt pigment and an ochreous red clay, so that the colour is really due to an indefinite mixture of the oxides of cobalt, manganese, and iron painted under the glaze. When the custom of washing enamel grounds on to the fired glaze came into vogue, it was soon found that this dull underglaze black could be rendered glossy and brilliant by superposing a coat of the green enamel-colour over it for the final firing, and this was how all the finest pieces were produced. A careful

examination of such pieces often reveals little touches where the green enamel has extended beyond the underglaze black, so that it shows itself on the white glaze. In Plate 10 one of these fine vases is represented, while as an example of the decoration in enamel-colours on the fine white porcelain of the period we reproduce a famous egg-shell lantern which is one of the treasures in the collections of the Victoria and Albert Museum (Plate 3).

Towards the end of the long reign of K'ang-hsi a new style of on-glaze decoration, distinguished by the use of the rose-coloured enamels which owe their colour to the presence of gold, made its appearance, but there are weighty reasons why this new style should be considered as belonging to the later reigns, when pink and rose-colour were so extensively used as practically to supersede many of the earlier colour schemes.

Just as the superintendent Ts'ang Ying-hsüan developed and improved the painted wares, we must attribute to his time not only the revival of many old effects in coloured glazes, but the invention of new effects as well. The *Lang-yao* red and green glazes have already been mentioned (see p. 76), and it is probable that we see in them the commencement of a practice which at once widened the range of single-colour effects, and added fresh colours to the palette of the Chinese potter. In the earliest glazed pieces that we know—say of Sung and Yuan times—the colouring substance was dissolved in the crude glaze and fired along with it. The first advance, said, by Dr. Bushell, to belong to the later Sung times, was that of first “biscuiting” the porcelain and then firing at a lower temperature glazes of the alkaline type used by the Persian and Syrian potters so as to obtain the turquoise tint from copper and the violet-purple colour from manganese. This plan has been followed at all subsequent periods, and in the reign of K'ang-hsi the turquoise coloured glazes, distinguished by the Chinese as “Peacock green” and “Kingfisher blue,” according as the tone is more green or blue (a change easily effected by a slight difference in the firing temperature), were produced with surpassing excellence. Purple glazes of equal brilliancy were also obtained, and it is customary to find the two glazes



associated on the same piece. With the more carefully prepared pastes, and the greater skill of the potters, these K'ang-hsi pieces mark a great technical advance on the earlier productions described in previous chapters.

Another coloured-ground effect made its appearance in Ming times, but was only fully developed at this later period. A yellow ochreous clay called *tzü-chin*,\* reduced to the "slip" state, was either painted, dipped, or blown upon the unfired ware, and was then coated with the usual white glaze; or a mixture of yellow-clay slip and white glaze was made, which was used instead of the ordinary glaze. By this simple means the various brown or bronze-coloured grounds were made, in a great variety of shades from a yellow-ochre-like tint, which the Chinese liken to "Old Gold," through dead-leaf brown, bronze-colour, chamois, coffee-brown, and a reddish chocolate colour. Where the colour was laid on as a slip under a white glaze it was often applied in bands, as in Plate 5, or as a uniform coating on which designs in white slip were afterwards painted, so that we get a primitive type of *pâte-sur-pâte* decoration.† In other cases the clay and glaze were mixed together in various proportions to give a slip-glaze, and according to the proportions of the two ingredients, and the method of firing, a great variety of yellowish or golden brown or bronze-coloured glazes were obtained. It should be added that these brown grounds of various shades were also applied so as to leave reserved panels in the white glaze, which were then decorated with paintings in enamelled colours after the manner of the powder-blue pieces already described. These brown pieces decorated with enamelled paintings were made in enormous quantities for the Dutch, who distributed them all over Europe. They still retain the old trade name

\* It must not be assumed that the same clay was always used under the name of *tzü-chin*. Many native clays are known which would answer for such a purpose, and some of the varieties of brown produced may well have been due to nothing but the use of a different clay.

† This slip-decorated brown porcelain seems to have been greatly favoured by the Persians, and much of the ware was decorated in the Persian style for export to that country. Certain writers have even described it as a variety of Persian porcelain.

of "Batavian" porcelain, though there is no longer any mystery as to their origin.

A further method of producing coloured grounds, invented at this period, has already been referred to in speaking of the painted pieces with green, red, and yellow enamelled grounds. Besides being used to form a background for painted decoration, these enamel-colours were also used to cover the whole piece so as to give the effect of a coloured glaze. It is generally easy to distinguish pieces of this kind from genuine coloured glazes, not only because some of the colours, such as the brilliant copper-green and iron-red, would have been decomposed by the temperature required to melt the glaze, but also from the fact that the pure white glaze is seen on the inside of the vase, bottle, cup, bowl, or what-not. The so-called cucumber-green, green snake-skin and eel-yellow glazes, are all produced in this way, as well as a purplish brown colour from manganese. These enamel-colours were prepared with a flux rich in lead, and the slight surface decomposition, due to the action of the air on the lead flux, generally gives them a brilliant iridescence, which some collectors have mistakenly compared to the lustre effects of the earlier Persian faïence.

One of the most inartistic effects which the Chinese have ever made, though they attribute it to Ts'ang Yung-hsüan, is the so-called tiger-skin glaze, where a piebald effect was obtained by dabbling the white glaze with patches of yellow, green, and purple-brown enamel-colours.

Speaking of the work of this period a later director of the Imperial factory said: "When Ts'ang was director of the porcelain works, the finger of the god was often seen in the midst of the furnace fire, either painting the designs or shielding them from harm, so that the porcelain came out perfect and beautiful,"\* and we cannot close this rapid review of his successful labours better than by mentioning last the famous glaze known as "peach bloom," which in the opinion of collectors rivals in value the richer and more magnificent *Lang-yao* red. This colour has none of the brilliance of the blood-red glaze, but "it has a special charm of its own in

\* Dr. S. W. Bushell: "Oriental Ceramic Art," p. 306.



PLATE X.—BEAKER-SHAPED VASE, WITH MAGNOLIAS  
ON BLUE BACKGROUND.



its soft, velvety tones, which remind one of the colouring of the rind of a peach ripening in the sun." The red is pale and inclined to vary from pink to russet—often the colouring matter is aggregated in spots which softly blend into a tender background, which may be greyish, pale céladon, or even apple-green in tint. The Chinese esteem these pieces highly, especially for the decoration of their writing-tables. They designate the colour either as apple-red, or haricot-red, comparing it with the mingled red and green shades of a ripening apple, or the colouring of a native kidney-bean, the *Dolichos sinensis* of botanists. Recently, wealthy European and American collectors have disputed with the Chinese for the possession of these masterpieces of their skill, as much as 4,000 dollars having been paid in America for a tiny specimen of the finest quality.

It seems appropriate, that, at the very time when the factory at Ching-tê-chên was thus working under the stimulus of one of its greatest directors, the first authentic account of the town and its productions should be sent to Europe. During the reign of the Emperor K'ang-hsi, the French Jesuit missionaries gradually attained to a position of some consideration at the Court, and were able to extend their missions in many parts of the empire. One of the missionaries, named Père d'Entrecolles, was stationed in the province of Kiang-si during the opening years of the eighteenth century, and he sent to the head of the missions in Paris two letters, the first in 1712, and the second in 1722, which are notable not only for the acuteness and general accuracy of the information they contain, and for the picture they give us of the conditions under which the industry was conducted, but must always be interesting from their charm of style, and from the glimpses they afford of a delightful personality, whose name will be remembered as long as Chinese porcelain is spoken of.

## CHAPTER IX.

### THE LETTERS OF PÈRE D'ENTRECOLLES.

THE first letter was addressed to Père Orry, procureur of the Chinese and Indian missions, and is dated from Jao-chou—the capital of the district—September 1, 1712. He says : From time to time I have stayed in Ching-tê-chên to administer to the spiritual necessities of my converts, and so I have interested myself in the manufacture of this beautiful porcelain, which is so highly prized, and is sent to all parts of the world. Nothing but my curiosity could ever have prompted me to such researches, but it appears to me that a minute description of all that concerns this kind of work might, somehow, be useful in Europe.

Besides what I myself have seen, I have learnt a great many particulars from my neophytes, several of whom work in porcelain, while others do a great trade in it. I also confirmed the truth of the information they had given me by a study of the Chinese books on the subject, so that I believe I have obtained a pretty exact knowledge of all that concerns this beautiful art, so that I can talk about it with some confidence. Among these books I examined the history of Fou-liang, and I have read carefully, in the fourth volume, the article on porcelain.

It says in these annals that formerly the porcelain was of exquisite whiteness and free from fault, so that when the pieces were transported into other countries, they were known only as the precious jewels of Jao-chou. Further on, it says the beautiful porcelain which is of such vivid whiteness or of a beautiful celestial blue, all comes from Ching-tê-chên; there is some made in other places, but it is quite different in colour as well as in finish.

Without mentioning examples of the pottery that are made all over China, but which are not called porcelain,

there are some provinces such as Fuchien and Canton where porcelain is made, but foreigners can make no mistake for the porcelain of Fuchien is white like snow without sheen, and it is not decorated with colours. Some workmen of Ching-tê-chên formerly transported themselves and their materials there, hoping to make considerable profit by reason of the great European commerce at Amoy; but this scheme came to naught as they were not successful in their manufacture.

The reigning Emperor, who neglects nothing, had porcelain workers sent from Ching-tê-chên to Peking, together with everything proper for this kind of work; nothing was omitted that would have enabled the work done under his eyes to succeed, but it is stated that this also ended in failure. It may be that political or other interests had something to do with this want of success, but, however that may be, Ching-tê-chên alone has the honour of sending porcelain to all parts of the world; even the Japanese buy from there.

[Then follows an account of the situation and appearance of Ching-tê-chên—its population and government—which may be omitted here.]

After these few particulars of the situation and present conditions of Ching-tê-chên, let us come to the porcelain in which its whole wealth consists. Let me state all that I know as to the materials used in its composition and their preparation; as to the kinds of porcelains and the way to make them; as to the oil\* that gives them their brightness and their several qualities; as to the colours which are their ornaments, and the art of applying them; as to the firing and the precautions that are taken to give the suitable degree of heat: finally, I will conclude by making some reflections on the old and modern porcelains, and on certain shapes or designs which the Chinese find it impracticable to manufacture. *These things that the Chinese cannot do might, perhaps, be easily done in Europe if one could find there the same materials.*

The material of porcelain is composed of two kinds

\* Père d'Entrecolles here uses the Chinese word. They speak of the glaze of porcelain as "oil."

of clay, one called *Pe-tun-tse* and the other *Kao-lin*. The latter is disseminated with corpuscles which have some shimmer,\* the former is simply white and very fine to the touch. While a large number of big boats come up the river from Jao-chou to Ching-tê-chên to be loaded with porcelain, nearly as many small ones come down from Ki-mên laden with *Pe-tun-tse* and *Kao-lin* made up into bricks, for Ching-tê-chên does not produce any of the materials suitable for porcelain. *Pe-tun-tse*, which is so fine in grain, is simply pulverized rock taken from quarries, and then shaped into bricks. Every kind of stone is not suitable, or it would not be necessary to go for it, twenty or thirty miles away, into the next province. The good stone, the Chinese say, must have a slight tinge of green. The pieces of stone are first broken with iron hammers, and the fragments are reduced to a very fine powder in mortars by means of certain levers which have a stone head shod with iron. These levers are worked incessantly, either by men or by water-power, in the same way as the tilt-hammers in paper-mills. The powder is then put into a great vessel filled with water, and stirred vigorously with an iron shovel. When it has been allowed to stand several minutes, a kind of cream forms at the top four or five fingers thick; this they take off and put into another vessel full of water. The mixture in the first vessel is stirred up several times, and each time they remove the scum that gathers on the top, until nothing is left but the larger particles, the weight of which makes them sink to the bottom; these are finally taken out and again pounded. With regard to the second vessel into which they put all that has been skimmed out of the first, they wait until a kind of paste has formed at the bottom, and when the water above it seems very clear it is poured off so as not to disturb the sediment. This paste is then thrown into moulds which are a kind of large and wide wooden box, the bottom of which is a bed of bricks with an even surface. Over this brick bed a coarse cloth is stretched, up to the sides of the case; this cloth is filled with the paste, and soon afterwards they cover it

\* Evidently a reference to the particles of white mica which had not been separated from the Kao-linite. (See p. 11.)



with another cloth on the top of which they put a layer of bricks laid evenly, one by the side of the other. This helps to squeeze out the water more quickly without losing any of the porcelain material which, as it hardens readily, takes the shape of the bricks.\* Before it has become quite hard the paste is divided into little bricks, which are sold by the hundred; this colour and the shape have given it the name *Pe-tun-tse*. There would be nothing to add to this preparation if the Chinese were not in the habit of adulterating their merchandise; but people who roll little grains of paste in pepper dust, and mix them with real peppercorns, are not likely to sell *Pe-tun-tse* without mixing it with coarser materials, so that it has to be purified afresh before it is used.

*Kao-lin* requires a little less labour than *Pe-tun-tse*; nature has done the greater part. Mines of it are found in the heart of certain mountains, which on the outside are covered with reddish earth. These mines are fairly deep; it is found there in masses, and it is also made up into little squares in the same method as described above for the *Pe-tun-tse*. I should be inclined to think that the white clay of Malta, known as the clay of St. Paul, approaches in its nature to the *kao-lin* I am speaking of, although one cannot perceive in it the small silvery particles with which the *kao-lin* is sown. Fine porcelain owes its strength to the *kao-lin*; it is only the mixture of a soft earth or a soft clay which gives strength to the *Pe-tun-tse* obtained from the hardest rocks.

A rich merchant told me that the English or Dutch (the Chinese use the same name for both nations) bought, several years ago, some *Pe-tun-tse*, which they took to their own country to make porcelain with, but, having taken no *kao-lin*, their undertaking failed, as they afterwards owned. The Chinese merchant said to me, laughing, "They wanted to have a body without bones to support its flesh."

Besides the boats laden with *Pe-tun-tse* and *Kao-lin*—with which the river bank at Ching-tê-chên is lined—others

\* It is interesting to see this rudimentary filter-press being used in China nearly one hundred and fifty years before filter-presses were introduced in Staffordshire.

are filled with a whitish liquid substance. I have long known that this substance is the oil \* that gives porcelain its whiteness and its sheen, but I did not know its composition, which I have since learnt. It seems to me that the Chinese name "*Yeou*" which they apply to different kinds of oil suits the liquid I am speaking of less than the word "*Tsi*," which means glaze, and I should think that people would call it by that name in Europe. This oil or glaze is extracted from the hardest stone; which is not surprising, as it is said that stones are chiefly formed out of the salts and oils of the earth, which mix and closely unite together. Although the same kind of stone from which *Pe-tun-tse* is prepared may also be used for the preparation of this glaze, they generally select the whitest pieces and those which have the greenest spots.

The history of Fou-liang, though it does not enter into details, says that the best stone for the glaze is that which has spots similar in colour to the cypress leaf, † or with reddish marks on a brownish ground something like toad-flax. The rock is first well washed, and then prepared in the same way as *Pe-tun-tse*; when the purest stuff has all been collected out of the first vessel into the second one they add to about every hundred pounds of the cream one pound of a stone or mineral like alum, named *Shih-kao*. ‡ This has to be first roasted in a fire and then pounded; it acts like rennet in coagulating the material, though care is taken to keep it liquid. This stone glaze is never used alone, but another is mixed with it which acts like its essence. The composition of this is as follows: They take big pieces of quicklime, on to which a little water is thrown by hand to reduce them to powder; a bed of dried bracken is spread upon this and then another layer of slaked lime, and so on alternately; then the ferns are set on fire. When all is consumed the ashes are spread upon new beds of dried bracken. This is repeated five or six times running; it

\* The word "oil" is always used for glaze by Père d'Entrecolles. But we shall now translate it *glaze* to avoid confusion.

† Dr. Bushell says this refers to dendritic markings of oxide of manganese.

‡ Gypsum or sulphate of lime.

can be done still oftener, and the glaze is all the better for it. Formerly, so it says in the history of Fou-liang, they used besides the bracken the wood of the tree *Se-tse*. I should think by the tartness of this fruit when it is not ripe, and by its little crowning husk, that it is a kind of medlar. My converts tell me that this wood is no longer used, seemingly because it has become very scarce in this district. It was perhaps owing to this wood that the porcelain made in early times is more beautiful than that which is made nowadays. The nature of the lime and the bracken contribute also to the quality of the glaze, and I have noticed that that which comes from certain places is much more esteemed than that which comes from elsewhere. When they have obtained a certain quantity of the ashes of lime and bracken, they are thrown into vessels full of water. In one hundred pounds they dissolve a pound of *Shih-kao* (see above). The mixture is stirred up and then left to stand until there appears on the surface a scum or crust, which is skimmed off and thrown into a second vessel, and so on several times. When a kind of paste has collected at the bottom of the second vessel they decant the water, and the liquid sediment is used as the second oil to be mixed with the previous one. For a proper mixture it is necessary that the two *purées* are equally thick; to ensure this they dip into each little squares of *Pe-tun-tse*, which they dip in several times, and then take out to judge if the thickness of the deposit is the same with both.

The best glazes are made from a mixture of ten parts of the stone glaze with one part of the glaze of lime and fern ashes, and the most economical never put less than three parts. The merchants who sell the glaze, however little inclined they are to cheat, do not think much of increasing its volume; they put water to the glaze, and, to disguise their fraud, they add *Shih-kao* in proportion to thicken the liquid.

Before I explain the way in which this glaze is used it will be better to describe how the porcelain is made. In the less frequented districts of Ching-tê-chên are vast sheds surrounded by walls, where one sees ranged, stage upon stage, a great number of jars of earth. Within these walls

live and work an infinite number of workpeople, who each have their allotted task, and a piece of porcelain, before it is ready to go into the oven, passes through the hands of twenty persons, and that without any confusion. Doubtless they have proved that the work is done much more quickly in this way. The first task consists in purifying again the *Pe-tun-tse* and the *Kao-lin* from the waste added to it when it was sold, which is performed by the same washing and settling as before described. It is not necessary to break up the pieces of *Kao-lin*; these are simply put into a very open basket, which is placed in a vessel filled with water, where the *Kao-lin* easily liquefies of itself, though there is generally a residue left which must be thrown away. By the end of a year this waste accumulates, and forms big masses of a white spongy sand, which the workmen must clear out from their workshops.

When the two materials have been prepared in this way they must be mixed in their proper proportions. For the fine porcelains they put as much *Kao-lin* as *Pe-tun-tse*; for the inferior ones they use four parts of *Kao-lin* and six parts of *Pe-tun-tse*; while the least that they use is one part of *Kao-lin* and three of *Pe-tun-tse*.

The mixture is thrown into a big pit well paved and cemented, where it is trodden and kneaded until it becomes stiff; this is very laborious work; those Christians who are employed at it find it difficult to attend church; they are only allowed to go if they can find substitutes, because as soon as this work is interrupted all the other workmen are stopped.

From the mass thus prepared, lumps are taken and spread on large slates. The workmen knead, beat, and roll them thoroughly, taking care that no hollows are left inside the mass and that no foreign bodies get into it. A hair, a grain of sand would spoil the whole work. If this mass is badly worked the porcelain cracks, splits, drops or bends. From these prime materials such beautiful works of porcelain are produced, some by shaping on the wheel, others only in moulds; and they are afterwards finished with a knife. All the plain pieces are made in the first way. A cup, for example, when it leaves the wheel, is very roughly

shaped, almost like the top of a hat before it has been blocked. The first workman only gives it the required diameter and height, and it leaves his hands almost as soon as it is commenced, for he receives only three *deniers* per board, and on each board are twenty-six pieces. The foot of the cup is then nothing but a piece of clay of the necessary width, and it is only hollowed out with a knife when the other operations are finished, and when the cup is dry and firm enough. When the cup leaves the wheel it is taken by a second workman, who puts it straight upon its base. Shortly afterwards it is handed over to a third man, who puts it on its mould and gives it its shape; this mould is mounted on a kind of wheel. A fourth workman trims and polishes the cup, especially the rims, with a knife, and pares it down as much as necessary for its transparency; he scrapes it several times and moistens each time, however little he may have pared it, if it is too dry, for fear he should break it. In taking the cup from the mould they turn it softly on the same mould without pressing it more on one side than the other, otherwise it would develop cavities in the clay or it would go out of shape. It is surprising to see the rapidity with which these vessels pass through so many different hands; and I am told that a piece of fired porcelain has passed through the hands of seventy workmen. I can easily believe this by what I have myself seen, for these great workshops have been for me a kind of Areopagus, where I have preached Him who fashioned the first man out of clay, and from whose hands we depart to become vessels of honour or of shame.

The large objects of porcelain are made in two pieces; one half is lifted on the wheel by three or four men, who support it on each side while it is being shaped; the other half, which is almost dry, is put on to it, and they join the two together with the same porcelain materials diluted with water, which serves as a sort of mortar or glue. When these pieces, so glued, are quite dry the seam or join is polished inside and outside with a tool, so that, with the help of the glaze, no inequality is left. In this way, too,\*

\* That is by the use of "slip."

they put handles, ears, and other pieces on to vases. This relates chiefly to the pieces that are made in moulds or by hand, such as fluted pieces, or those of bizarre shape; animals, grotesques, idols, the busts ordered by Europeans, and such-like things. This kind of moulded piece is made in three or four parts, which are joined together and finished by the use of tools, by which means they are polished, carved, or hollowed and perfected in details that the mould does not give. As for flowers and other ornaments which are not in relief, but in *intaglio*, they are impressed in the porcelain by seals or stamps; reliefs, ready prepared, are also applied in the same way, almost as gold lace is put on a coat.

I have recently learnt something concerning these moulds. When they obtain a model of any required piece of porcelain, which is such that it cannot be made by hand on the wheel, they impress on the model some moulding-clay, and when this has been properly impressed it is cut up into pieces of pretty large size, which are left to stiffen. When the moulds are to be used the sections are put in front of the fire, after which they are coated with the porcelain material according to the thickness required. They press this coating firmly by hand, and then the mould with the coating is put for a moment in front of the fire, to detach the clay press from the mould. The various sections of the whole piece, after being separately moulded, are joined together with a thick slip of the porcelain materials. I have seen animal figures of large size made in this way, and after they had left the substance to get hard it was shaped and finished with a tool and the separate parts were then united together. Afterwards pieces are glazed and fired. If it is desired to have a decoration of different colours this is afterwards painted and the gold is applied, and then it is fired a second time. This kind of porcelain, which is made with great care, is of course very dear. . . .

[Then follows a paragraph relating to the kind of clay from which the moulds are made, and to the advantage a merchant has in the rapidity with which he can execute European orders if he possesses a good stock of moulds, so that he can employ many gangs of workmen at the same time.]

It is time to ennoble the porcelain by passing it over into the hands of the painters.\* These porcelain painters are not less poor and wretched than the other workmen, which is not very surprising when we remember that in Europe they would only pass for apprentices of a few months' standing. All the science of these painters, and of Chinese painters in general, is based on no principles, and only consists in a certain routine helped by a limited turn of imagination. They know nothing of the beautiful rules of this art; though it must be acknowledged that they paint flowers, animals, and landscapes which are much admired, on porcelain as well as on fans and lanterns of the finest gauze. The painting is distributed in the same workshop among a great number of workmen. One workman does nothing but draw the first colour line beneath the rims of the pieces; another traces flowers, which a third one paints; this man is painting water and mountains, and that one either birds or other animals. Human figures are generally treated the worst. Certain landscapes and plans of towns that are brought over from Europe to China will hardly allow us, however, to mock at the Chinese for the manner in which they represent themselves in their paintings.

As for the porcelain colours, they are of every kind. In Europe people hardly see anything else but a vivid blue on a white ground, though I believe that our merchants have also imported some of the other kinds.† There are some pieces the ground of which is like that of our polished metal mirrors; others are wholly red, and among these some have the red in the glaze, while others are of a *soufflé* red,‡ and are sprinkled with little dots almost like our miniatures. When these two kinds of work are successfully produced—which is rather difficult—they are highly prized and extremely dear.

Finally there are porcelain pieces where the landscapes with which they are painted are formed of nearly all the

\* *Hua-p'i*: literally "painters on the unfired clay."

† A further proof of the predominance of blue-and-white pieces among the porcelains first imported into Europe in large quantities.

‡ *Soufflé* glazes or colour-effects are those obtained by blowing the pigment through a gauze, generally on to the fired glaze.

different colours, enhanced by the brilliance of gilding. These are very beautiful when no expense is spared, but the ordinary porcelain of this kind is not to be compared with that painted in blue alone. It says in the annals of Ching-tê-chên that formerly the people only used white porcelain; apparently they had not found in the neighbourhood of Jao-chou a blue equal to that which comes from a great distance and which is very dear.

It is said that a porcelain merchant, having been wrecked on a desert coast, found there more riches than he had lost. While he was roaming about the shore, and his servants were making a small vessel out of the remains of his ship, he perceived that stones fit to make the most beautiful blue were quite common there. He took with him a big load, and they say that such beautiful blue had never been seen at Ching-tê-chên. Later on the Chinese merchant tried in vain to find the coast where chance had once sent him.\*

The blue is made in the following way: It is buried in the gravel that lies half a foot deep on the bed of the porcelain furnace, where it is roasted for twenty-four hours; then it is reduced to an impalpable powder in the same way as other colours, not on a marble slab, but in a large porcelain mortar, the bottom of which is left unglazed, as is also the head of the pestle which is used for pounding.

The red is made from copperas (crystals of sulphate of iron), and as it may be that the Chinese have something special in it, I will report their method. They put a pound of copperas into a crucible, which is well luted to a second crucible used as a cover, in which they make a small hole, which is covered so that it can be easily uncovered if needed. The whole is surrounded by a large charcoal fire, and in order to have more heat reverberated upon it they put bricks all round about it. As long as the smoke that rises (from the hole in the top crucible) is very black the material is not yet ready, but it is finished as soon as a kind of thin fine cloud appears. Then they take some of the stuff, mix it with water, and make an experiment by rubbing it on a piece of fir wood. If it produces a beautiful red they take

\* Is this some legendary Chinese account of the imported Mohammedan blue of the fifteenth century?



away the charcoal fire and partially cover the crucible. When this has cooled down a small cake of the red colour is found at the bottom of the crucible, but the finest red is that which is stuck to the inside of the covering crucible. One pound of copperas makes four ounces of the red colour.

Although porcelain is naturally white, and the glaze adds to its whiteness, there are certain decorations for which they use a special white on the porcelain that is painted in different colours. This white is made from the powder of a transparent rock, which is calcined in the oven in the same way as the azure blue.\* To half an ounce of this powder they put an ounce of white lead. This powder also is used in the preparation of other colours; for example, to make a green they take half an ounce of the powder of this pebble, and they add one ounce of white lead and three ounces of the very purest scorizæ of copper.

The prepared green becomes the matrix of the violet colour, which is obtained by adding a dose of white. The preparation of the green is varied according to the tint of violet they wish to produce.

A yellow colour is made by taking seven drachms of white prepared as above, to which they add three drachms of the red colour made from copperas.

All these colours, put on to the porcelain that is already fired after having been glazed, appear green, violet, yellow, or red only after the second firing. The Chinese books say that these colours can only be applied with white lead, salt-petre, and copperas. The Christians who are employed in this work have only spoken to me of white lead, which is mixed with the colour diluted with gum-water. The red of which I have been speaking, with the ordinary porcelain glaze, and another glaze made from white pebbles, are prepared in the same way as the ordinary glazes. I have not been able to learn the quantity either of one or the other; neither how much red is mixed with this glaze; but experiments will reveal the secrets. They then put the porcelain

\* Dr. Bushell suggests that this transparent white pebble is native white arsenic. It must be pointed out that the accounts given in the first letter of the preparation of colours are very imperfect—they are largely corrected in the second letter (q.v.).

to dry, and fire it in the ordinary oven. If after the firing the red comes out pure and brilliant without blemishes, they have obtained the perfection of the art. These porcelain pieces have no resonance when they are struck.\* The other kind of red, known as *soufflé* red, is made thus: The colour having been prepared, they take a tube, one end of which is covered with very fine gauze; they softly apply the bottom of the tube to the colour; the gauze being filled with colour, they blow into the tube, and the porcelain is covered all over with little red spots. This kind of porcelain is rarer and dearer than the other, because it is more difficult to make if they must observe the necessary precautions. The black porcelain has also its value and its beauty; this black contains lead, and is not unlike our polished metal mirrors. When this is gilded it is still more charming. The black colour is given to the porcelain when it is dry, and for this purpose they mix three ounces of blue with seven ounces of ordinary glaze.† Experiments will tell you exactly how to make this mixture according to the required shade. When the colour is dry they fire the porcelain, and afterwards they paint the gold upon it and fire it again in a special furnace.

Another kind of porcelain that is made here I have not seen before. It is all perforated like cut paper work, while inside it is a cup for holding a liquid. The cup is in one piece with the perforated envelope. I have seen other porcelains on which Chinese and Tartar ladies were painted in natural colours. The drapery, the complexion, and the features were all exquisite, so that from a distance one might have thought they were pieces of enamel.

It may be remarked that when they use on their porcelains the glaze made from white pebbles, the ware becomes a special kind which they call *Tsoui-ki*. This is all marbled and cracked with an infinity of veins, so that from a distance one might think it was shattered into a thousand fragments without falling to pieces, so that it resembles a piece of

\* This is the famous *Sang-de-Bœuf* glaze which the Chinese regarded as such a precious secret, that Père d'Entrecolles never obtained accurate information about it.

† Another piece of partial information which is corrected in the second letter. (See p. 115.)

mosaic work. The colour which is given by this glaze is a somewhat ashen white. If the piece of porcelain has been painted in blue and this glaze is used upon it, it appears likewise cracked and marbled when the colour is dry.

When they wish to apply gold they beat it and grind it in water in a porcelain dish until they see underneath the water a little golden cloud. This they leave to dry, and in use they mix it with a sufficiency of gum-water, and with thirty parts of gold they incorporate three parts of white lead, and put it on the porcelain in the same way as the colours.

Finally there is a kind of porcelain made as follows : They give it the ordinary glaze and fire it, then they paint it with different colours and fire it again; sometimes the painting is reserved intentionally until after the first fire, and sometimes they use this method to hide defects in the porcelain pieces by painting colours on the defective places and firing them a second time. This porcelain, though it is over-coloured, is, however, liked by many people. It often happens that one feels unevennesses on porcelain of this kind, which may be due to the want of skill of the workman, or it may be that it was necessary to give shadows to the painting, or that it was intended to cover the defects of the porcelain body. When the painting is dry, as well as the gilding, if there is any, they pile the porcelain pieces into the kiln, putting the small ones into the big ones. The kilns for firing the goods may be made of iron if they are small, but generally they are of clay. The one I saw was as high as a man and nearly as wide as our biggest wine cask; it was made in several pieces, and from the same materials as the porcelain saggars, the separate pieces being a foot high and a foot and a half long, though they were only a finger's breadth thick. Before they were fired they had been rounded into the proper shape; they were put one over another and well cemented. The bottom of the kiln was raised half a foot from the ground. It was put on rows of thick but not very big bricks, while round the kiln was a wall of well-baked bricks, which had at the bottom three or four holes like the hollows of a fireplace. This brick wall left an empty space of about half a foot, with the exception

of three or four places which were filled up so as to make ribs for the kiln. I believe they erect the kiln and its enclosure at the same time, otherwise the kiln would have no support. They fill the kiln with the porcelain pieces that are to be fired a second time, putting them in piles, the smaller pieces into the bigger ones, as I have said. When all is ready they cover the top of the kiln with pieces of pottery like those used for the sides; these pieces, which cross one another, are closely united together by a clay mortar. Only in the middle do they leave a hole through which they can see when the porcelain is sufficiently fired. They light a quantity of charcoal under the kiln as well as on the top, and they put pieces into the space between the brick enclosure and the kiln, the hole on the top of the kiln being covered with a piece of broken pitcher. When the fire has become bright they look from time to time through this hole, and when the porcelain seems shiny and the colours are bright and glossy they pull out the fire and afterwards the porcelain.

An idea comes into my mind about these colours which are used on porcelain pieces that have already been fired, and are rendered glossy by means of white lead, to which, according to the annals of Fou-liang they formerly added saltpetre and copperas. If one were to use white lead with the colours that glass quarries are painted with, and if, afterwards, one were to give them a second firing, should we not recover the secret formerly possessed of painting upon glass without losing anything of its transparency? One might try by an experiment. This secret which we have lost makes me recall another secret that the Chinese regret they possess no longer. They once knew the art of painting on the sides of porcelain pieces fishes or other animals that could only be seen when the piece was filled with some liquid. They call this kind of porcelain "azure put in the press," because of the position in which the blue colour is placed. I will give an account of what they have retained of this secret, *in the hope that Europeans may be able to contrive what the Chinese no longer know.* For this method the porcelain must be very thin; when it was dry they put the colour rather plentifully, not on the

outside of the piece as is their usual custom, but on the inside. They generally painted fishes, as if they were more suitable to be revealed when the cup was filled with water. When the colour had dried, they put a thin layer of dilute slip upon it. This layer pressed the blue between the two sheets of clay. When the layer was dry they put glaze inside the porcelain piece, and some time afterwards they put it on the mould on the wheel. As it had been thickened from the inside they pared it down on the outside without going as far as the colour, and after that they dipped the outside of the porcelain piece in the glaze, and, all being dry, it was fired in the ordinary way. This was exceedingly delicate work, and required skill that apparently the Chinese no longer possess. From time to time they try to recover the art of this magical painting, but in vain. One of them assured me a little while ago that he had made fresh trials, and that he had been nearly successful.

Be that as it may, it is possible to say that even now a beautiful blue colour reappears on porcelain after having been lost for some time. When the colour is first painted it is of a pale black; when it is dry and the glaze has been put upon it, it disappears entirely, and the porcelain seems quite white, the colour being buried under the glaze; but the fire makes it appear in all its beauty, almost in the same way as the natural heat of the sun makes the most beautiful butterflies, with all their tints, come out of their eggs. I will add a circumstance that I must not forget, viz.—that before the porcelain is glazed they polish it, and remove the slightest irregularities. For this purpose they use a brush made of very small feathers; the brush being slightly dipped into the water and passed over the piece with a very light touch. Great skill is required in putting the glaze on to the porcelain so that it is not too thick, and that it is evenly spread over the piece. For porcelain pieces that are very thin and light, they apply two slight coats of glaze. If the coats of glaze are too thick the thin sides of the vessel cannot support them, and will instantly sink out of shape. These two layers are equal to one ordinary layer of glaze such as is put on the thicker pieces. The first coating is put on by sprinkling, the other by

immersion. The cup is held in the hand from outside, sloping over the vessel that contains the glaze, and with the other hand they pour inside as much glaze as is needed to wet it everywhere. This is done to a great many cups, and when the first ones are dry inside, the glaze is put on the outside as follows: The workman puts one hand into the cup, and, supporting it with a little stick under the middle of its foot, he dips it into the vessel filled with glaze, and quickly draws it out again.

I have before remarked that the foot of the porcelain piece was left solid; in fact, only after it has been glazed and is dry do they put it on the wheel to hollow out the foot. After that they paint on it a little ring, and often a Chinese letter, and when this painting is dry they glaze the part that has just been excavated, and that is the last thing they do to it before it is taken to the firing.

I have been surprised to see how a man can balance on his shoulders two long and narrow planks on which the porcelain pieces are carried, and that he goes like that through several well-populated streets without breaking his ware. It is true that the people carefully avoid knocking against him, however slightly, because they would be obliged to pay for the damage they had caused, but it is astonishing that the carrier himself controls his steps and all the movements of his body so well that he does not lose his balance.

Where the furnaces are we find another scene. In a kind of vestibule before the furnace one sees piles of boxes and cases made of clay prepared for holding the porcelain. Each vase of porcelain, however small it may be, has its case; the pieces that have covers as well as those that have none—these covers are only slightly attached to the bottom part during the firing, so that they easily come apart by a little blow. The small porcelain pieces, like tea- and chocolate-cups, are placed a good many in one case. In this operation the workman imitates Nature, who to ripen the fruit and bring it to perfection, puts it into a case so that the heat of the sun gets at it little by little, and its action inside is not too much interfered with by the air that comes from outside during the fresh nights.

These cases (saggers) are lined inside with a kind of sand-down, for they are covered with *kao-lin* dust as this sand does not stick too much to the foot of the piece that is put on it. The bed of sand is first pressed and given the shape of the bottom of the porcelain piece, which does not itself touch the sides of its case. The top of the case has no lid; a second case, after the shape of the first and similarly filled with porcelain, comes on it, so that it covers it completely without touching the porcelain underneath. In this way they fill the kiln with big cases all containing porcelain. Thanks to these thick veils the beauty, and, if I may say so, the complexion of the porcelain piece is not sunburnt by the heat of the fire.

With regard to the small pieces of porcelain which are enclosed in the big round cases, each one is put on a saucer of clay about as thick as two crown pieces, and as wide as the foot of the piece itself; *kao-lin* dust is also strewn over these supports. When the cases are a little too wide, they do not put porcelain pieces into the middle, because these would be too remote from the sides, so that they might fail in strength and open and sink, and thus cause damage to the whole pile. It is well to know that these cases are one-third of a foot in height, and that they are partly filled before they have been fired at all. Those that have been fired previously and are still serviceable are filled entirely.

I must not forget the manner in which the pieces of porcelain are placed in these cases. The workman does not touch the pieces directly with his hands as he might break them, for nothing is more fragile. He takes them off the planks by means of a little cord. This cord is attached to a two-pronged wooden fork which he holds with one hand, while with the other he holds the two ends of the string that are crossed or opened according to the size of the piece; the cord is passed round the piece, which is then gently lifted and placed in the case or on its little saucer. All this is done with incredible quickness.

I have already said that the bottom of the furnace is filled with gravel to the depth of half a foot. This gravel serves to steady the piles of cases, which in the middle

of the furnace rise to a height of at least seven feet. The two bottom cases of each pile are left empty, because they would be insufficiently fired, and also because the gravel bed partly covers them. In the same way the case which is placed on the top of the pile is left empty. The piles in the middle of the furnace are filled with the finest porcelain; at the far end they place those pieces that are less fine, and near the mouth they place those that are very strong, which are composed of equal parts of *kao-lin* and *Pe-tun-tse*, and which have been glazed with a stone that is somewhat black or reddish, because this class has more substance in it than the other. The piles of cases are placed close together, and are united by pieces of clay put between them, at the top, at the bottom, and in the middle, but so that a free passage is left for the flame to penetrate everywhere evenly.\*

Every kind of clay is not equally suitable for making the cases; here they have three kinds; a common yellow clay which predominates in quantity, a hard clay, and a very unctuous clay. The last two kinds of clay are mined in the winter in very deep mines, where it is impossible to work in the summer.

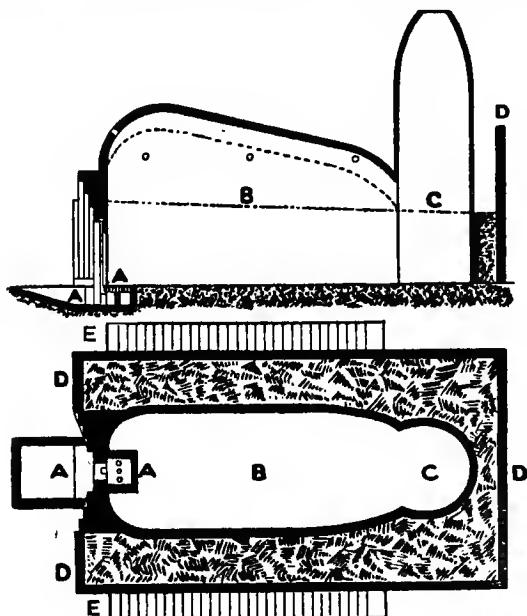
Before the cases are fired they are yellowish; after the firing they are of a very dark red. For the sake of economy the yellow clay is largely used, and that is why the cases only stand two or three firings, after which they break completely. If they are only slightly cracked or split, an osier ring is used to hold them together; the ring burns away, but the case can be used this time without the porcelain being injured. They have to take care not to fill an oven entirely with new cases; at least half of them must have been fired before. These are placed at the top and the bottom of the piles, while in the middle they place those that are newly made. It is stated in the history of Fou-liang that the cases were formerly fired alone before

\* The porcelain oven or furnace described by Père d'Entrecolles is that which is used in China to this day; it is practically a deep horizontal reverberatory furnace; a similar kiln has even been used in Europe, especially in Germany, but has almost entirely been abandoned for many years now on account of the uneven way in which such kilns fire.



they were used for firing porcelain ; no doubt in those days they thought less of the expense and more of a perfect piece of work.

[Here follows an account of the construction of the Chinese porcelain furnace, but in place of it we reproduce the plan and elevation of a furnace in use at Ching-tê-chên at the present time, which will explain its construc-



A. FIRE MOUTH. B. BODY OF FURNACE. C. CHIMNEY. D. RETAINING WALL.  
E. STEPS TO ASCEND TO CROWN OF FURNACE.

tion much more clearly than the account given in the letters.]

On the top of the furnace there are three little peep-holes, covered with some broken pieces of pot, and they relieve the air and smoke of the oven. The workmen judge the progress of the firing by uncovering the peep-hole which is nearest to the chimney, and with some irons they uncover one of the cases. They judge that the porcelain is finished

by the brightness inside the oven and especially how the colours shine in their brilliance.\* Then they leave off the firing and close up the furnace for some time. The furnace is fired as follows: They first heat it for a day and a night, then two men, who relieve each other, keep on putting in wood, of which they burn as much as 180 loads. It is stated in the annals that formerly they used 240 loads of wood, and twenty more if the weather was rather rainy, although at that time the ovens were only half as large as at present. They first kept up a small fire for seven days and nights, and on the eighth day they made a very fierce fire. It will clearly be seen, therefore, that the old porcelains must have had more substance than the modern ones. Formerly they observed one thing that is neglected nowadays. When the firing was finished they did not open the furnace for ten days for the big porcelain pieces, and for five days for the small ones. At the present time they wait, it is true, a few days before they open the furnace and take out the big pieces, for without this precaution they would crack, but the small pieces are taken out the following morning if the fire has been put out at the beginning of the previous night. When the porcelain is burning hot the workman who pulls it out can only touch it by protecting his hands with the ends of a long scarf which hangs round his neck. I have been surprised to hear that, after having burned in one day as much as 180 loads of wood, there were no ashes left in the fireplace the next morning.

After all I have said no one can be astonished that porcelain is so dear in Europe, and still less so when they hear that, besides the great profits of the European and Chinese merchants, the whole oven-full is hardly ever successful. Sometimes it is quite lost, and when they open the furnace they find the porcelain pieces and the cases reduced to a mass as hard as rock. Neither is it easy to regulate the fire, for the state of the weather instantly changes the action of the fire, the quality of the material it acts upon, and that of the wood which keeps it going. For one workman who gets rich there are a hundred others

\* By this he must mean the colours of the glazes, or of the underglaze colours, for no others are fired in these furnaces.

who ruin themselves, though they still try their fortunes further in the hope that they may save enough to become shopkeepers. Moreover, the porcelain that is sent to Europe is made after new models that are often eccentric and difficult to reproduce; for the least defect they are refused by the merchants, and so they remain in the hands of the potters, who cannot sell them to the Chinese, for they do not like such pieces.

I have said that the difficulty of making certain models sent from Europe is one of the reasons why the pieces are so costly. It is almost impossible for the Chinese to make some of the shapes sent to them from foreign countries, although they make many things at which foreigners are astonished, or that they would consider impossible. For instance, I have seen a large porcelain lantern made in a single piece, through which a candle lit up the whole room; this piece was ordered seven or eight years ago by the heir-apparent.\* (See Plate 3.)

The same Prince ordered also different musical instruments, amongst others a kind of little organ called *tseng*, which is about a foot high and contains about fourteen pipes, the melody of which is agreeable enough; but every attempt to make this failed. They were more fortunate in making flutes and flageolets, and another instrument, called *Yun-lo*, which is composed of a set of little round, somewhat concave, plates, each of which gives a particular note. Nine of these are hung in a frame in different rows and played upon with small sticks like the dulcimer; they ring like little bells and are used to accompany other instruments or the voices of singers. They had, so they tell me, to make many experiments to find out the thickness required and the correct firing needed to produce all the tones and get all the notes that are necessary for a chord. I had thought they must have the secret of inserting a little metal in the body of these porcelain pieces to vary the note, but they have undeceived me. Metal is so ill-adapted to combine

\* This heir-apparent was the fourth son of the Emperor K'ang-hsi. He came to the throne under the title of Yung-chêng in 1735, and in the next chapter it will be seen what attention he paid to the porcelain manufactured in his reign.

with porcelain that if a copper coin be put on the top of one of the piles of porcelain in the oven the coin, as it melts, would pierce through all the cases and the porcelain pieces below it, leaving a little hole in the middle of each one ; nothing can give one a better idea what movement the fire gives to everything in the oven, where they assure me everything is, as it were, fluid and flowing.

Let us return to the Chinese pieces of porcelain that are rather rare. The Chinese are particularly successful in their grotesques and in their representations of animals. The workmen make ducks and tortoises that will swim in water. I have seen a cat painted to the life, in the head of which a lamp had been put, the light of which shone through its two eyes, and they assured me that in the night the rats were terrified by it. They still make here many statuettes of *Kuan-yin* (this is a goddess famous all over China). She is represented holding a child in her arms, and is worshipped by sterile women who wish to have children. She may be compared with the antique statues we have of Diana and Venus, with this difference, that the statues of *Kuan-yin* are very modest.

There is another kind of porcelain which is very difficult to make, and which has therefore become exceedingly rare. The body of this porcelain is extremely thin, and its surface is very smooth both inside and out. Notwithstanding this, one sees in it engraved or moulded designs such as a wreath of flowers or such-like ornament. These pieces are made in this way : When the piece leaves the wheel it is put on to an engraved mould, which impresses the ornament on the inside, and then it is shaved down outside with a knife, working it on the wheel, and after that it is glazed and baked in the ordinary way.

European merchants sometimes order from the Chinese porcelain slabs, so that one piece should cover a table or a chair or make a picture frame. Such works are impossible ; the widest and longest slabs that can be made measure only a foot or thereabouts, and if they go beyond that, however thick they may be, they bend. The extra thickness does not make it any easier to execute such works ; therefore, instead of making thick slabs, they form them from two

thin slabs with a space between, joining them together only by cross-bars. These slabs have two holes pierced at either end, so that they may be inserted in some cabinet work or upon the back of a chair, where they look very effective.

The history of Ching-tê-chên speaks of different pieces, ordered by the Emperors, that the potters have tried in vain to make. The father of the reigning Emperor ordered some boxes, three and a half feet long and two and a half feet high, and the bottom was to be half a foot thick and the sides a third of a foot. They worked at these pieces for three consecutive years, and made nearly two hundred examples, not one of which was successful. The same Emperor ordered some slabs for the front of an open gallery ; each slab was to be three feet high and two and a half feet wide, and half a foot thick. All these, said the old people of Ching-tê-chên, cannot be done, and the Mandarins of this province presented a petition to the Emperor supplicating him to stop this work.

The Mandarins, knowing how great is the genius of Europeans in inventions, have often asked me to procure from Europe new and curious designs so that they might present something unique to the Emperor. On the other hand, the Christians beg me very strongly not to procure such models, because the Mandarins cannot be so easily convinced as our merchants when the workmen tell them that something is impracticable, and often the *bastinado* is liberally administered before the Mandarin will abandon a scheme that he thinks may be of profit to him.

As each profession has its particular idol, and as Divinity is conferred here as easily as the rank of count or marquis in some European countries, it is not surprising that they have a god of porcelain. *Pou-sa* (the name of this idol) owes its origin to those designs which the workmen find it impossible to execute. They tell us that formerly the Emperor decreed positively that some porcelain pieces should be made after a pattern which he gave. He was told several times that it was impossible, but all these remonstrances only served to excite his desire. His officers redoubled their demands, and used all kinds of severities to the workpeople. These unfortunates spent all their money and tried their

utmost, but they received only beatings in return. At last one of them, in a moment of despair, threw himself into the burning furnace and was consumed in an instant. The porcelain in that furnace, so they say, came out perfectly beautiful and to the satisfaction of the Emperor, who asked for nothing more. From that time the unfortunate man was regarded as a hero, and became in consequence the idol that watches over the workers in porcelain. I do not know whether his elevation has tempted any other Chinese to follow the same route with a view to a similar honour.

As porcelain has been so highly esteemed for many centuries, one would wish to know how the porcelain of the earliest times differs from that of our own days, and what the Chinese themselves think about it. There is no doubt that China has her antiquaries who greatly favour old things. The Chinaman himself is naturally prone to respect ancient productions, though one finds those who defend modern work; but porcelain is not like ancient medals, which reveal the science of bygone times. Ancient porcelain may be decorated with Chinese characters, but these do not denote any historical period, so that the curious can only prefer them for something in the style and the colours. I think I have heard it said, when I was in Europe, that porcelain to be perfect must have been buried for a long time in the ground. This is a false opinion which the Chinese ridicule. The history of Ching-tê-chên, speaking of the most beautiful porcelains of earlier times, says that it was so much sought after that the furnace was hardly opened before the merchants were disputing for the first choice. It cannot be supposed from that that it had been buried. It is true that in digging in the ruins of old buildings and especially in cleaning out old, disused wells, beautiful pieces of porcelain are sometimes found which have been hidden there in times of revolution. This porcelain is beautiful because at such times people would only think of hiding what was precious, that they might recover it when the troubles were over. If it is esteemed now it is not because it has acquired any fresh beauty in the heart of the earth, but because its old beauty has been preserved, and this alone is prized in China, where they give large sums for the

smallest utensils of the common pottery that was used by the Emperors *Yao* and *Shun*, who reigned several centuries before the *T'ang* dynasty, during which porcelain began to be used by the Emperors. All that the porcelain acquires in growing old in the earth is a slight change in its colourings or, if you prefer, in its tint, which shows that it is old. The same thing happens to marble or ivory, but more readily, because the glaze prevents the moisture penetrating so easily into porcelain. I can say this, that I have found in old ruins porcelain pieces that were probably very old, but I have not noticed anything special about them. If it is true that in growing older they become more perfect, they could not have been like the porcelain made nowadays when they left the hands of their makers. What I believe is, that formerly, as at the present time, there was porcelain of all prices.

The Mandarin of *Ching-tê-chên*, who honours me with his friendship, makes his patrons at the Court presents of old porcelain that he has the talent of making himself. I mean that he has found the art of imitating old porcelain, or at least that of a moderate antiquity; he employs at this work a number of workpeople. The materials of these false antiques is a yellow clay found in a place near to *Ching-tê-chên* called *Ma-an-shan* (Saddle-back Hill). The pieces are very thick, for a plate that the Mandarin has given me weighs as much as ten ordinary ones. There is nothing special in the workmanship of these pieces, only that they are given a glaze made from a yellow stone which is mixed with the ordinary glaze, the latter predominating; this mixture gives the porcelain a sea-green colour. These false antiques also resemble genuine pieces in that they do not ring when struck and make no humming noise when held close to the ear. After it has been fired it is boiled for some time in a very fat broth, and after that it is placed in the foulest sewer, where they leave it for a month or more. When it comes out of this sewer it passes for being three or four centuries old, or at least of the preceding dynasty of the *Ming*, when porcelain pieces of this colour and thickness were highly esteemed at Court.

They have brought me from the *débris* of a large shop

a small plate that I value more highly than the finest porcelain pieces made a thousand years ago. On the bottom of this plate is painted a crucifix between the Holy Virgin and St. John; I am told that formerly they used to export such pieces to Japan, but that none of them have been made for sixteen or seventeen years. Apparently the Christians of Japan made use of this industry, during their persecution, to procure images of our sacred mysteries; this porcelain piece, mixed in the case with the rest, might have escaped the search of the enemies of our religion. These pious artifices must have been discovered in the course of time and rendered of no avail by a stricter search, and that is no doubt the reason why they have ceased to make this kind of ware at Ching-tê-chên.

[The letter concludes with some general remarks which need not be given here, but we cannot refrain from quoting the final sentences.]

Ching-tê-chên owes to the liberality of M. le Marquis de Broissia a church which has a numerous congregation, increasing considerably every year. May God pour His benedictions more and more over these fresh faithful: I recommend them to your prayers. If they were helped by some assistance to increase the number of catechists the people of China would be enabled to learn that not only the luxury and cupidity of Europeans make them send their money as far as Ching-tê-chên, but that there are zealous persons who have nobler intentions than those who bring from there such fragile jewels.

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The second letter is dated from Ching-tê-chên itself, on the 25th of January, 1722, and we translate its essentials:—

However much trouble I have taken in informing myself as to the way in which the Chinese make porcelain, I am far from thinking that I have entirely exhausted the subject. You will see by the new observations I send you that fresh researches have given me fresh knowledge. These observa-



tions I will unfold to you without any order, just as I have put them down on paper as I have had opportunity, either in going through the workshops and instructing myself with my own eyes, or by asking different questions of the Christians who are occupied in the manufacture.

I. As gold on porcelain wears away from time to time and loses much of its lustre, it may be restored by moistening the porcelain with clear water, and then rubbing the gilding with an agate, though one must be careful to rub always in the same direction, say from right to left.

II. The edges of porcelain pieces are especially subject to chip off; the Chinese strengthen them so as to obviate this inconvenience by mixing with the glaze some bamboo-charcoal. They edge the porcelain pieces with this mixture when they are already dry, putting them on a wheel for the purpose; afterwards they put the glaze on the edge as well as on the rest of the piece, and after firing the edges are just as white. As Europeans have no bamboo, I think they might use in its place willow-charcoal, or still better that of elder, which somewhat approaches bamboo. It must be noted that before the bamboo is reduced to charcoal, the green skin is removed, because they say that the ashes of this skin makes the porcelain pieces burst in the oven. It should also be noted that the workmen must be careful not to touch the porcelain with greasy or oily hands; the place that had been touched would crack infallibly in the firing.

III. Speaking of the colours, I mentioned that there are red ones that are blown (*soufflé*), and I have explained how to make this colour, but I do not remember having said that there are blue *soufflé* pieces which are easier to make. No doubt people will have seen some of these pieces in Europe. Our workpeople agree that if expense were no object, it would be possible to blow gold or silver on to the porcelain, such as those that have a black or blue ground, so as to produce a decoration of gold and silver rain. This kind of porcelain, which would be in a new style, would surely please people.

Glaze can be blown in the same way as the red colour. A little while ago they made for the Emperor pieces that

were so thin and fine that they had to put them on cotton wool, because they had no other means of handling the pieces without great risk of breaking them. It was not possible to dip these pieces into the glaze, so the glaze was blown on, and the pieces entirely coated in this way.

I have noticed that, in blowing the blue colour, the workpeople are careful to lose as little as possible of the colour. They take the precaution to place the vase on a pedestal, and under the pedestal they put a large piece of paper, which can be used for some time. When the colour that falls on the paper is dry it is gathered together with a little brush, so that nothing is lost.

IV. They have recently found a fresh material fit to be used in the composition of porcelain; it is a stone or a species of chalk, which is called *Hua-Shih*, which the Chinese doctors also use to make a draught, which they say is detergent, aperient, and cooling. The men who work in porcelain have thought of using this stone in the place of the *Kao-lin* spoken of in my last letter. It may be that some place in Europe may be found which supplies this stone *Hua-Shih*, even if there is no *Kao-lin*. It is called by this name because it is somewhat glutinous, and in a way like soap.\* Porcelain made with *Hua-Shih* is rare, and is much dearer than the other. It has an extremely fine grain, and with regard to the work of the brush, if it be compared with ordinary porcelain, it is like vellum compared with ordinary paper. Moreover, this porcelain is so light as to surprise one who has been accustomed to handle other porcelains; it is also much more fragile than the commoner kind, and it is difficult to seize the proper moment of its firing. Some do not use *Hua-Shih* to make the body, but content themselves with making a kind of thin glue with it, into which they dip the porcelain when it is dry, so that it is coated with a layer of this material before it receives the colour or the glaze, and in this way they obtain a certain degree of beauty. When the *Hua-Shih* is mined it is first washed with water to clear

\* It is pretty clear from this where so many of the English potters of the eighteenth century, at Bristol, Liverpool, Worcester, and elsewhere, got the idea of using soap-stone.

away the yellowish clay with which it is coated, and it is then prepared in the same way as *Kao-lin*. I am assured that porcelain can be made of these substances alone without any addition, but one of my converts, who has made this porcelain, tells me that he mixed eight parts of *Hua-Shih* with two parts of *Pe-tun-tse*. I have also been told that if they were to put more than two parts of *Pe-tun-tse* and eight parts of *Hua-Shih*, the porcelain would sink in the fire because it would not be firm enough. It is five times the price of *Kao-lin*, so that this kind of porcelain must be dearer than the common kind. They can also trace designs with this material, using it as a slip to paint upon the porcelain pieces, and when the painting is dry the pieces are glazed. After firing, the designs are of a whiteness different to that of the porcelain itself; it seems like a thin vapour spread over the surface. The white of this *Hua-Shih* is known as ivory white.\*

V. Designs are also painted on porcelain with *Shih-kao*; † as well as with *Hua-Shih*, which gives another cast to it; but the *Shih-kao* has this peculiarity, that before it is prepared it has to be roasted in the oven, and after that it is treated in the same way as *Hua-Shih* or *Kao-lin*. This *Shih-kao* cannot be used to make the body of porcelain, and up to now they have only found the material *Hua-Shih* that can take the place of *Kao-lin*, and give firmness to the porcelain.

VI. I have not spoken of a kind of glaze called *Tsū-chin*, that is, burnished-gold glaze. I should be more inclined to call it bronze, coffee-coloured or dead-leaf coloured glaze. This glaze is a new invention. ‡ To make it they take common yellow clay and give it the same treatment as *Pe-tun-tse*, and then they use it in a liquid state like ordinary glaze. This fluid yellow clay is first mixed with

\* The latest opinion is that the mineral used by the Chinese potters under the name of *Hua-Shih* is not soapstone at all, but an impure kao-lin containing a large proportion of white mica. (See p. 12.)

† Gypsum or sulphate of lime.

‡ Dr. Bushell points out that the worthy father must be mistaken here, as he has found this glaze recorded in Ming times. It is the well-known *fond laque* of French writers.

powdered *Pe-tun-tse* and some of the ashes of lime and fern. The proportions of these ingredients are varied according as they intend the colour to be darker or lighter. They tried to make a mixture of gold-leaf with glaze and powdered flint, which they applied in the same way as the red glaze, but this experiment was unsuccessful, and they have found that the burnished-gold glaze just mentioned is more elegant and more brilliant. There was a time when they made cups that had a golden glaze outside, with the purest white glaze inside; since then they have adopted another method, and on the cup or vase that they intend to glaze with this burnished-gold glaze, they attach to the vases in one or two places, shaped pieces of moistened paper, and after the brown coating is applied, the paper is taken off and the reserved white panels are painted with a design in red or blue colour. When the piece is dry it is coated with the ordinary glaze, either by being blown or by any other method. Sometimes these spaces are left with a blue or black ground on which designs in gold are applied after the first firing, but in this style one can imagine many different combinations.

VII. They have shown me this year for the first time a kind of porcelain that is now in vogue, which is olive-green in colour, and to which they give the name *Lung-Ch'uan*.<sup>\*</sup> I have seen some that were called *Ch'ing-kuo*, the name of a fruit very like our olives. This colour is obtained by mixing seven cups of the above-mentioned *Tzū-chin* glaze with four cups of stone glaze, and two cups, or thereabouts, of lime and fern-ash glaze with one cup of powdered flint; all these being mixed in the slip state. The addition of the flint slip produces little veins in the porcelain. When this is applied by itself the porcelain is very fragile, and does not sound when it is struck, but when it is mixed with the other glaze the porcelain, although covered with a network of veins, is no more fragile than usual. †

\* This is Dr. Bushell's modernisation of Père d'Entrecolles' word, "Long-tsvem."

† This evidently refers to a kind of crackled céladon porcelain, made in imitation of the Lung-ch'uan céladons of Sung times.

VIII. The shining black or mirror-black glaze is obtained by dipping the porcelain in a fluid mixture composed of the prepared blue colour. It is not necessary to employ for this purpose the finest blue, but it must be used to considerable strength, and mixed with the glaze used for the burnished-gold glaze as well as with the ordinary glaze. This mixture is a glaze in itself, and in firing the ware they take care to place it in the middle of the oven, and not near the vault where the firing is most active.

IX. I was mistaken when I said in my previous letter that the red glaze called *Yu-li-hung* was made with the red colour from copperas, such as is used for painting red colour on the fired white glaze. This red glaze is made from granulated red copper, and the powder of a certain stone or flint that is a little reddish in colour,\* pounded together in a mortar, and mixed with a boy's urine and with the ordinary white glaze. I have not been able to learn the preparation of these ingredients, and those who know this secret are very careful not to divulge it. The mixture is applied to porcelain that has not been fired, and no other glaze is necessary, but they have to be careful during the firing that the red colour does not run to the bottom of the vase. I am assured that for this red glaze they use no *Pe-tun-tse* in the porcelain paste, but they employ with the *Kao-lin* a yellow clay prepared in the same manner as *Pe-tun-tse*. It is likely that such a clay is more suitable for developing this particular colour.

[Then follows an account of the preparation of the granulated copper, which is of purely technical interest. The worthy father also tells us that the Chinese at this time were unacquainted with *aqua-fortis* or *aqua-regia*, and he adds with the utmost naïveté, "their inventions are all extremely simple."]

X. They have executed this year designs of a kind which they assured me were impracticable. These are vases three feet or more in height with a lid, which is a pyramid, rising a foot higher. These vases were made in three

\* Dr. Bushell makes the excellent suggestion that this is Amethystine Quartz; though Père d'Entrecolles says that a Christian doctor told him the stone was a species of alum which was employed in medicine.

pieces, joined together with so much skill and neatness that they form one whole without showing the seams. In showing them to me they stated that out of eighty specimens they had made eight only successfully; all the others being lost. These were ordered by merchants from Canton who trade with Europeans, for in China they do not desire such expensive porcelains.

XI. They have brought me one piece of porcelain called *Yao-pien* or transmutation. This transmutation takes place in the furnace, and is caused either by excess or lack of heat, or by some other obscure causes which are not easily guessed at. This piece, though the workmen tell me it is the result of mere chance, and is a failure in manufacture, is not less beautiful nor less highly prized. It was the intention to make vases in *soufflé* red, and a hundred pieces were entirely spoiled; the piece that I am speaking of came out of the oven like a piece of agate.\* By incurring the necessary risk and expense of various experiments, it might be possible to discover the art of making with certainty what has once been the result of chance. The brilliant mirror-black glaze is an instance of this—where what was once the caprice of the oven has been converted into a successful manufacture.

XII. When they want to use an extremely white glaze they mix only one cupful of the glaze of the fern ashes with thirteen cupfuls of the stone glaze. This glaze is a very strong one, and cannot be used with underglaze blue colour, for the colour would not show through it when it was fired. The porcelain to which this strong glaze has been given may be exposed without any fear to the greatest heat of the oven. Pieces altogether white are fired in this way, or for subsequent decoration with gilding, or for colours that are fired another time; but if they want to paint the porcelain in blue or any other underglaze colours, then they mix with one cupful of the ashes of lime and bracken only seven cupfuls of the stone glaze. It should be observed that when the glaze contains a good

\* Such an occurrence as this may have furnished the starting point of the porcelains made in imitation of agate and other stones some twenty years after the date of this letter. (See p. 128.)

deal of the ashes of lime and bracken, the porcelain must be fired in a temperate part of the oven ; that is to say, either after the first three rows of cases or about a foot or a foot and a half from the bottom ; for if they were fired higher up in the oven the glaze ashes would melt rapidly and flow down on the porcelain. The same thing follows with the red glaze, on account of the granulated copper which enters into its composition, while on the contrary the cracked glaze can be fired higher up in the oven.

XIII. There is something to correct in what I said in the previous letter about the colours fired on the finished glaze. [The worthy father then gives an account of the Chinese weights, which need not be translated.] I spoke in a previous letter about the on-glaze red made from coppers or *Tsao-fan*. The red powder is mixed with five times its weight of white lead, and the mixture sifted together. The mixture after being sifted is incorporated with water thickened with a little ox-glue, something like isinglass. They make a white colour by using the most transparent pebbles they have calcined in a porcelain crucible buried in the gravel at the bottom of the oven, and afterwards reducing it to an impalpable powder.\* To make the white colour they mix thirty-three parts of this white powder with 100 parts of white lead, and apply it with plain water. A dark green colour is made by mixing together one hundred parts of white lead, thirty-three parts of powdered flint, and eight parts of copper scales, the scum which forms on the surface of copper when it is melted, and this scum has to be carefully ground and washed to remove from it any granulated copper that is mixed with it. A yellow is made from a mixture of one hundred parts of white lead, thirty-three parts of powdered flint, eighteen parts of pure oxide of iron, or of the pure red made from coppers ; though another workman tells me that he uses twenty-five parts of primitive red.† A dark blue colour with a tinge of violet is made by mixing

\* Dr. Bushell points out that this most transparent powder used for the white is probably native white arsenic.

† The primitive red appears to be a fine oxide of iron, probably a pounded hæmatite.

one hundred parts of white lead, thirty-three parts of powdered flint, and 0·2 parts of azure blue,\* though I am told by another workman that it requires 0·8 parts of this azure blue. A very clear green called water-green is made by mixing one part of the dark green colour with two parts of the white colour, while a mixture of two parts of dark green and one part of yellow produces a yellowish green which resembles a slightly faded leaf. To make a black pigment,† they dilute the azure blue largely with water and mix it with a little gelatine. When this colour is painted on it looks black, and the black parts are covered with white, which incorporates with the black during the second fire, just as the glaze is incorporated with the underglaze blue in common porcelains.

There is another colour called *Tsiu*‡ from which they make a deep violet colour. There is some found in Canton, and some comes from Peking, but the latter is much the best. Like the other colours just described this is used only on the porcelain which is re-fired.

[Père d'Entrecolles then describes how the porcelain painters prepare this *Tsiu*. He was informed that it was a natural mineral, but the whole account shows that it was simply a blue glass, which was ground, washed, and prepared for porcelain painting.]

To gild or silver porcelains they put one part of white lead to ten parts of finely-ground leaf-gold or silver. When silver is used on the brown glaze it has a beautiful sheen. If some pieces are painted in gold and others in silver, the silvered porcelain must not stay so long in the little furnace as the gilded, otherwise the silver will disappear before the gold has reached the point of heat required to give it its proper brightness.

XIV. There is a cheaper kind of coloured porcelain made here, and it may be that some of the information I am about to give may be of some use to the makers of

\* The azure blue is the impure manganiferous oxide of cobalt used as the underglaze blue of the Chinese.

† For painting on the glaze.

‡ Dr. Bushell says this must be a misprint for Ts'ui, which is the name of a blue glass used in China by enamellers on metals.



faïence, if they are unable to make Chinese porcelain to perfection. For this kind of work it is not necessary that the materials should be so fine. Cups are used which have already been fired in the porcelain oven without glaze, and which are, of course, quite white. If these are wished to be in one colour they are dipped in the simple colour, but if they are to be in many colours, the colours are applied with a big brush. No other preparation is used for these colours, except that sometimes, after they have been fired, a little vermilion is put upon certain parts, as for example on the beaks of birds; but this colour would disappear if it were fired in the ovens, and so it lasts but a little time. These pieces are re-fired in the large furnace along with the other porcelains that have not been fired, but they are placed in the coolest parts of the oven, where the fire is not so active, because an intense heat would destroy the colours. For this kind of porcelain the colours are prepared as follows:—The green is made of oxide of copper, saltpetre, and powdered flint; the commonest azure-blue material, similarly mixed with saltpetre and powdered flint, forms the violet colour; the yellow is made by mixing one part of copperas-red with ten parts of powdered flint, and ten parts of white lead; and the white colour by a mixture of four parts of powdered flint to ten parts of white lead. All these ingredients are mixed together with water, and that is all I have been able to learn about the colours of this kind of porcelain, as none of my converts are employed in this business.\*

XV. I said in my previous letter that when the painted porcelains were put into the kiln for the second firing, that the smaller ones were placed into the larger, and that they were arranged like that in the kiln. To this I must now add that they have to be careful that the porcelain pieces do not touch one another in places where they have been painted, or the pieces would be spoiled. The work-people arrange the pieces in the following way:—They fill

\* These porcelains were either single-colours of turquoise, purple-violet, or yellow glaze—or were pieces painted in coloured glazes after the style of the earliest Ming painted pieces (see p. 66 and Plate 4).

the bottom of the kiln with the porcelain pieces, and then they cover these with lids made of the same clay from which the sides of the kiln are made, or even with pieces of broken sagger, for in China everything is made use of; on this cover they lay another range of these porcelain pieces, and so on up to the top of the kiln.

XVI. I was not very well informed when I said in my first letter that they recognised that the painted or gilt porcelains are sufficiently fired when they see the gold and colours shine out in all their brightness. I have since learnt that the colours only reveal themselves after the re-fired porcelain pieces have had time to cool. They judge that these pieces are sufficiently fired when, looking through the top hole they see that all the pieces are red down to the bottom, and, through the fire that surrounds them, they can distinguish one form from another. Likewise when the painted porcelains have lost the unevenness where the colour has been piled on, and the colours have sunk well into the glaze.

With regard to the porcelains that are fired in the big ovens, they judge that the firing is perfect (1) when the flame that comes out from the top is no longer red, but is white; (2) when looking through the holes they see that the saggars are quite red; (3) after having opened one of the top saggars and taken out a piece of porcelain they find when it is cool that the glaze and colours are as they should be; and finally (4) when in looking through the top of the oven they see the gravel at the bottom is all glittering. It is by these signs that the workman judges if the porcelain pieces are fired to perfection.

XVII. When they wish to cover a vase entirely with blue, they use the blue mineral prepared and diluted in water to the right consistency, and then they dip the vase into it. For the powder-blue they use the most beautiful azure prepared in the way that I have already explained. This is blown on the vase, and when it is dry they cover it with the ordinary glaze, or with glaze mixed with powdered flint if they want the glaze to be crackled. Certain work-people trace figures on this azure-blue with the point of a long pin. The pin makes as many little dots in the dry

azure as is necessary to represent the figure, and after that the glaze is applied. When such a piece is fired the design seems to be performed in the style of a miniature.

XVIII. The pieces on which one sees embossed flowers, dragons and such-like things, are not so difficult to manufacture as one might think. The designs are first traced with a graver on the body of the vase, and then the ground about it is cut away so as to form the relief, and afterwards the piece is glazed.

XIX. When I spoke in my first letter of the way in which the azure colour is prepared, I omitted to give three particulars, which are worthy of attention. First, before it is buried in the gravel on the bed of the oven, where it is to be roasted, it is well washed to remove the clay that adheres to it. Second, it must be put into a well-luted porcelain crucible. Third, when it is roasted it is broken up, sifted, and put into a glazed vessel; boiling water is then poured over it and well stirred. The scum that floats on the top is removed, and the powder is washed as much as may be necessary. The washed paste is then thrown into a mortar, where it is ground for a considerable time. They have assured me that the azure is found in coal-mines or in the red clay which occurs in the neighbourhood of these coal-mines. Sometimes fragments are found on the surface of the earth, and that is a sure sign that more may be obtained by digging. It occurs in small pieces not bigger than the large finger, but flat and not rounded.\* The ordinary mineral is fairly common, but the fine kinds are very rare, and it is not easy to distinguish them by their appearance. They can only be proved by experience. If good azure-blue or enamel-blue could be supplied by Europe, a valuable trade might be done with Ching-tê-chên in very little bulk, and they would exchange for it their most beautiful porcelains.

XX. They have attempted to make black designs on porcelain vases with the finest Chinese ink, but this attempt has been unsuccessful, for when the porcelain is fired it

\* This is an earthy mineral known as "wad," containing manganese and cobalt mixed with clay. In its unrefined state it only contains from 5% to 10% of cobalt oxide.

turns out quite white. Doubtless the particles of this black have not enough substance, so that they are dispersed by the action of fire, or they have not the power of penetrating the layer of glaze so as to produce a difference.\* I finish these remarks by recommending to your prayers the Church of Ching-tê-chên, which contains a great number of workers in porcelain.

\* It was only at a later period that the Chinese produced designs painted in a greyish black, so that they look as if they had been drawn in sepia or Chinese-ink.

## CHAPTER X.

### THE PORCELAINS OF THE PRESENT DYNASTY—(CONCLUDED).

THE REIGN OF YUNG-CH'ENG, 1723-1735.—The famous Emperor K'ang-hsi died in 1722, and was succeeded by his son Yung-ch'eng, who was a great connoisseur of porcelain, and even before he came to the throne had sent many ancient specimens to be imitated at the Imperial factory (see p. 105). At the commencement of his reign Nien Hsi-yao was appointed superintendent of the Imperial factory, and he remained in this office throughout the twelve years. Among Chinese collectors it is customary to speak of certain varieties of the porcelain of this reign as *Nien-yao*, following the custom already alluded to. Two opposite tendencies appear to have been struggling for supremacy, for while on the one hand the Emperor commissioned reproductions of the most ancient wares, on the other there was an increasing foreign trade in porcelains shaped and decorated in accordance with European ideas, which must have influenced the work of the ordinary potters; while there was, even at the Imperial factory, a desire to develop the decoration by means of the "foreign" enamel-colours,\* as the Chinese called them, which reached its height in the succeeding reign. This halting between two opinions, in which it must be confessed that the artistically inferior style finally triumphed, was accompanied by increasing manipulative care and skill, so that in fineness of paste, whiteness of glaze and perfection of potting, progress was maintained. As in every other instance known to us in the history of pottery, the triumph of manipulative skill seems to have paved the way for artistic decline.

Dr. Bushell has translated in the thirteenth chapter of his "Oriental Ceramic Art," the official list of the designs and

\* These are the elaborately painted pieces, best known among us by their French title of "*famille rose*" decoration.

colours produced at the Imperial manufactory during the reign of Yung-chêng.\* We find from this list that many Sung pieces were sent down from the Court at Peking to be copied; while even fragments discovered in the ruins of an ancient factory near Ching-tê-chên were reproduced, and the glaze effects of the Chün-chou stonewares of the Sung dynasty were also imitated in porcelain. How closely the reproductions matched the originals it is difficult to say, but judging by analogy we should imagine that the skilful workers of this period found it difficult, if not impossible, to reproduce the old work with all its primitive roughness. Probably they were content to reproduce the colour-effects of the originals as far as their more perfect methods would admit, and it may be that these copies are responsible for some of the confusion into which we are thrown by the startling differences found among the specimens that some collectors attribute to Sung times.

Copies were also made of the more famous Ming decorations, including the five-colour decoration of the time of Wan-li (see p. 73), as well as the earlier decorations in coloured-glazes made before the introduction of enamel-colours (see p. 66). The finest colours of the previous reign, such as powder-blue, coral-red, and the red colour blown on the ware as described by Père d'Entrecolles, were also continued and improved, and it is of the utmost interest to find the ancient underglaze-red once more making its appearance.

Side by side with these labours in the ancient field of Chinese art, we find also plentiful evidence of the new ferment that was at work. We learn from the letters of Père d'Entrecolles that the traders of Canton were in the habit of bringing foreign designs to Ching-tê-chên to be painted, and he also tells us that the Mandarin-in-charge asked him to procure new designs from Europe, so that he might make further novelties for presentation at Court. We cannot be surprised, therefore, when we find Dr. Bushell translating as No. 29 of the official list, "Copies of European figures

\* Stanislas Julien translated the same list in the Xth section of the Vth book of his work, "Histoire et Fabrication de la Porcelaine Chinoise," but his translation is obviously inferior to that of Dr. Bushell, which has been followed here.



PLATE XI.—RUBY-BACKED EGG-SHELL PLATE, WITH SEVEN DIAPERED BORDERS.





and models after life, executed with carving and embossed work," proving that such things must have been made at the Imperial manufactory and sent to the Court. There is ample evidence that the trade in "Armorial China," *i.e.* Chinese porcelain decorated with European arms or crests, had begun in the previous century, but this trade steadily grew, and reached its greatest height in this and the following reign.

Other wares mentioned in the list are described as "Porcelain painted in colours in the European style," or "Porcelain enamelled red, blue, yellow," &c., in each case "after the European style." Dr. Bushell is of opinion that the words "European style" refer to the use of the new enamel-colours, particularly the rose, pink, and crimson colours made from gold, and a lemon-yellow enamel-colour which now makes its appearance on Chinese porcelain. A note appended to the Chinese list states that "In the new copies of the Western style of painting in enamels, the landscapes and figure scenes, the flowering plants and birds, are, without exception, of supernatural beauty and finish."\* When, in addition to this acknowledgment of European influence, we find a mention of imitations of three kinds of Japanese porcelain, it will be seen how widely the Chinese potters were departing from their own traditions.

THE REIGN OF CH'ÏEN-LUNG, 1736-1795.—With this reign we reach a period when artists and collectors frequently part company in the extent of their appreciation of Chinese porcelains. The loss of freedom and breadth, as well as of the rich colouring of previous ages, which the artist deploras, is more than compensated for, in the eyes of collectors, by the fineness and perfection of the material and the increased delicacy and precision of the painting. During the first years of this long reign the Imperial factory was under the direction of T'ang-ying, who was probably the ablest of the four famous directors of the renaissance of porcelain. He had been appointed as assistant to his predecessor, Nien Hsi-yao, in 1728. Besides being an enthusiastic potter, he was a voluminous writer and poet, and in an interesting

\* Dr. S. W. Bushell, *op. cit.*, p. 388.

fragment of autobiography he tells us that, though when he first went to Ching-tê-chên he had no knowledge of the manufacture of porcelain, he worked for the first three years with the workmen—taking his meals and sleeping in the same room with them—so as to gain a familiar knowledge of all the smaller details of their handicraft. When he was appointed director, he writes: "Although I dare not profess a complete knowledge of all the minute details of the ceramic art, yet I have practised it diligently for a long time. . . . What I have written I know personally, and I submit it with deference to the officials that shall succeed me." Besides making the celebrated glass-like porcelain, of which we shall speak presently, he is said to have made those copies of the glazes on the "Chün-chou" stonewares of the Sung dynasty, mentioned in our account of the previous reign; while he was successful in making again, for the Court at Peking, the large dragon fish-bowls which the potters at Ching-tê-chên had been unable to manufacture since the Ming period. Under the influence of a director so technically skilled, we need not be surprised that the productions of the reign of Ch'ien-Lung are famed for their excellence in everything pertaining to the material and workmanship.

The blue-and-white of this reign, which is widely represented in the best European collections, though it is neatly and precisely painted, is too mechanical to be considered of the first quality; the blue is dull in comparison with the tints of previous reigns, and the white, though pure and fine, has not that subtle agreement with the blue that produces the exquisite charm of the finest examples in this style of decoration. Some writers, indeed, go so far as to call the white "chalky."

A glance at any great collection of the pieces of the reign of Ch'ien-Lung will show that the blue-and-white was comparatively neglected for the more easily controlled painting in enamel-colours; for by this means naturalistic flower-painting could be carried to a pitch of perfection unattainable by the older methods. That enamel painting is less adapted to the decoration of porcelain than the earlier methods went for nothing, when once

the rage for it became established. By no other method would it have been possible to produce single pieces on which are painted representations of the fir, bamboo, narcissus, pomegranate, prunus and chrysanthemum, together with roses, begonias, hibiscus, marguerites, jasmine and orchids, as well as other flowers for which we have no English names. The most celebrated examples of this class are those known as "The Hundred-flower" vases, being entirely covered with flowers and foliage painted in vivid touches of translucent enamel.

The most striking change of this reign is, however, the almost complete disappearance of the pieces painted with a predominance of green enamels, and the complete triumph of the gold-enamel colours in various shades of rose, pink and crimson. The delicate eggshell dishes, bowls, cups and saucers painted in this way are the acme of perfection to the majority of collectors, and not to collectors only, for the directorate of the Sèvres factory are very proud of the fact that they have made a copy of a plate of this kind known as "the plate of the seven borders," an example of which may be found in the British Museum.\* The diapered borders, often disposed one within another, were imitated from brocade patterns, and the backs of many of the saucer-like dishes are coated with the rose-coloured enamel so highly esteemed; hence the name "ruby-backed dishes."

In addition to the production of eggshell pieces, we may cite, as further examples of the perfect mastery displayed in the workmanship, the light and elegant "perforated" pieces. The Victoria and Albert Museum has a wonderful specimen of this kind, in the shape of a perforated hexagonal lantern decorated with painted miniatures and with many borders; and it is interesting to compare such a piece with the earlier Ming lantern represented in Plate 3. Pierced bowls, cups and jars are comparatively plentiful, generally in a pure white glaze, though sometimes with a pale but very pure celadon glaze, and very often having the perforated-pattern eked out by slight tracery in underglaze blue.

\* This collection is particularly rich in examples of the most delicate work of this reign.

Not content with refining on all the earlier forms of porcelain, the celebrated director T'ang is credited with having imitated in porcelain a kind of Chinese glass said to have been invented in 1735 by an artist who styled himself Ku Yueh Hsüan (Chamber of the Ancient Moon). These *T'ang-yao* porcelain pieces are extremely rare, and are held in high esteem by the Chinese for the extraordinary purity of their paste, the brilliance of the glaze, and the minute finish of the decoration. The pieces are usually small in size, like the glass vessels which they imitated. They are generally decorated with flowers, landscapes, paintings of birds, and, curiously enough, with unmistakable European figures, or European pictures.\*

Perhaps stimulated by their success in the imitation of this much-prized glass, the potters of the reign set themselves, with wonderful imitative skill, to reproduce other precious substances in porcelain, and they copied with exceeding closeness carnelian, agate, † shells, rhinoceros horn, bamboo, rusted iron, copper and bronze. A table-case near the entrance of the Asiatic saloon of the British Museum contains many remarkable specimens of such things.

The production of the single-coloured pieces, whether of the nature of a true coloured glaze or of a white glaze coated with enamel-colour, was extensively followed, and to this period we must refer many of the finest *Flambé* and *Sang-de-Bœuf* pieces in European collections. The coral-red ground, made by coating the fired white glaze with the brightest red oxide of iron, likewise reached its perfection; while the iron-rust and tea-dust are entirely new glaze effects. The last glaze is another example of the use of enamel-colour, for it was obtained by blowing a green enamel on to the golden yellow-brown glaze, mentioned by Père d'Entrecolles (see p. 113). This glaze was so esteemed that it was reserved for the Emperor's use.

While the workmen of the Imperial factory were thus

\* See A. E. Hippisley's "Sketch of the History of Ceramic Art in China."

† Père d'Entrecolles speaks of seeing a piece resembling agate, which in his time was a pure accident. (See p. 116.)

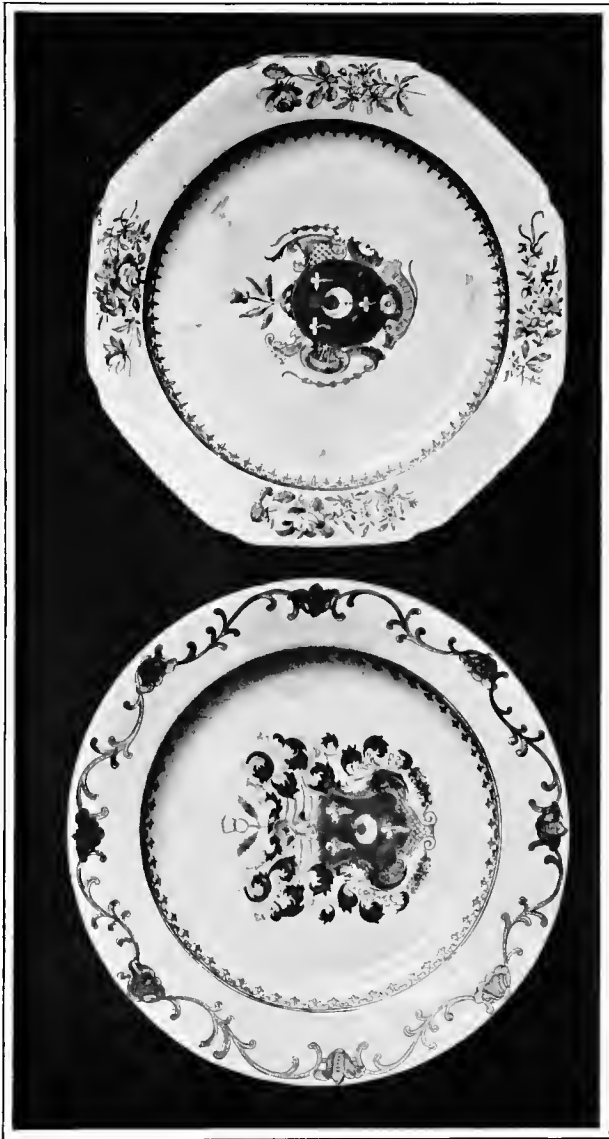


PLATE XII.—TWO PLATES OF "ARMORIAL CHINA" FROM GUERNSEY.



employed in the production of their marvels of technical skill enormous quantities of inferior porcelain were likewise being made, in Ching-tê-chên, for the European trade. It has been noted, in the previous chapters, how the Portuguese took large cargoes of the blue-and-white wares, of the later Ming reigns, to Europe. They were followed by the Dutch India Company, and afterwards by the French, who both did a large trade in Chinese porcelain during the reign of K'ang-hsi. After the downfall of the Jesuit missionaries which followed on the accession of Yung-chêng, the English East India Company entered more and more largely into the Chinese trade, and this predominance was made easier by the English conquest of India. Then came the rage for the porcelain services decorated with arms, crests or mottoes (hence known as Armorial china), which are still to be found in old country-houses all over England and Scotland, as well as in museums and private collections. For the porcelains of this class, which Chaffers ridiculously ascribed to Lowestoft, there is generally little to be said. The ware is seldom of fine quality either in body or glaze, and the ornament, apart from the arms or crests, which were furnished from Europe, has little in it to recall the best periods of Chinese decoration. For the most part they are mongrel adaptations of European ideas, and in some cases, indeed, are amusing renderings of European designs.

Canton was, of course, the port where the English trade was particularly centred, and by the middle of the eighteenth century a great deal of the Chinese porcelain sent to Europe, though made in the white at Ching-tê-chên, was decorated on-the-glaze in Canton or its neighbourhood. Much of the ware decorated at Canton was purely commercial stuff of little artistic merit, but there appear to be some exceptions to this general rule, for in the British Museum there is a beautiful rose-backed, eggshell dish, painted with quails by a famous artist of the period, who signed himself the "Hermit of the White Stone" (grotto), with an additional inscription signifying that the piece was "painted at Canton." A cup and saucer painted by the same artist have recently been presented to the Victoria and

Albert Museum.\* The importation of these wares from Ching-tê-chên and Canton continued well on into the nineteenth century, but the trade finally disappeared, from the growing degradation of Chinese work, and the cheapness of English porcelain.

The history of Chinese porcelains after the reign of Ch'ien-Lung appears to be a story of gradual decline, though the fine traditions lingered on for some twenty or thirty years, and no doubt many pieces made in the first half of the nineteenth century pass for eighteenth-century work. Tao-Kung (1821-1850) bestowed some attention on the production of porcelain, and the pieces made for his own use, and marked with the name of his palace (*Shên-tê-t'ang*), are valued by collectors. The best known examples of his reign are, however, certain rice bowls which have reserved medallions decorated with sprays of flowers and fruit on enamelled grounds of red, yellow, grey, pink, and blue. These bowls are commonly called Peking bowls (though they were made at Ching-tê-chên), or *Graviata*, because the ground is usually etched all over with fine scroll-diaper of the same enamel-colour as the ground itself. But the political difficulties of this reign were very great, for besides the first English war, there was the outbreak of the T'ai-ping rebellion. In the reign of the next Emperor, Hsien-fêng (1851-1861), there is nothing to be said about Chinese porcelain, for during this period the T'aipings overran the province of Kiang-si, and entirely destroyed Ching-tê-chên and its factories, so that, for a time at all events, its manufactures entirely ceased. Since then, however, Ching-tê-chên has once more risen from its ashes, and is producing large quantities of ware decorated in the Chinese fashion. The collector should also be aware that, with the temptation of the high prices that Europeans and Americans are prepared to pay for fine Chinese porcelain, attempts are being made, not altogether unsuccessfully, to reproduce the older Chinese wares; in fact, from the accounts of Europeans like M. Scherzer, who have visited Ching-tê-chên within the last twenty years, it is evident that the Chinese porcelain

\* See Dr. Bushell's "Chinese Art," Fig. 61.



makers of that celebrated town are still able to make the old *Sang-de-Bœuf*, *Flambé*, and other transmutation glazes, while the famous "hawthorn" ginger-jars, and the black-ground vases on which modern collectors set such great store, are receiving similar attention.\*

\* The latest European account of Ching-tê-chên will be found in a Parliamentary Paper (Cd. 2784-1905. China, No. 2), where Mr. Clennell, British Consul for the Province of Kiang-si, describes a journey he made into the interior in April, 1905.

## CHAPTER XI.

### SOME SPECIAL CHINESE GLAZES.

A HISTORICAL sketch, such as we have just attempted, of the development of Chinese porcelain, though undoubtedly the most logical and direct method of dealing with the subject, needs supplementing by a short description of certain special wares. We have stated, for instance, that from the early times of the Ming dynasty, the manufacture of Chinese porcelain became concentrated at Ching-tê-chên, but such a statement, true as it is in the main, is not quite the whole truth, for through all these centuries the town of Te-hau, in the province of Fuchien, has been famous for one kind of porcelain, in which, indeed, it has remained unrivalled. This ware of Fuchien is the white Chinese porcelain of collectors, commonly known under its French name of *Blanc de Chine*. The pieces are generally ornamental, and such as are used for religious or ceremonial observances only, though they occasionally include rice bowls and other vessels which may have served for domestic purposes. We find numerous libation cups, flower vases, and incense burners, while figures of Chinese deities or sages (see Plate 1) and sacred animals, such as the lion and kylin, are fairly common. It would appear, according to Dr. Bushell, that all the plain white statuettes came from Fuchien, as well as a great majority of the other pieces. These objects vary both in size and in quality; it would be difficult to conceive, indeed, how the especial qualities of porcelain could be displayed to greater perfection than in the best of these wares, where the body is of a cream or ivory-white tone, possessing a beautiful grain, though free from the slightest coarseness; and where the glaze seems to be a part of the body and presents a soft tender sheen like that of a glazed "Parian." In other specimens, the



PLATE XIII.—GROUP OF FUCHIEN AND CHING-TÉ-CHÉN WHITE.



tint of the body and the quality of the glaze are not quite so pleasing, for they are more like the ordinary porcelains made at Ching-tê-chên, such as are generally decorated in colours. Many of the pieces are beautifully modelled, and though they may have been blocked out in moulds, it is obvious that every individual piece has been finished with a modelling tool. The only ornament is such as can be stamped, tooled, or engraved in the paste, or added to the pieces in the shape of modelled flowers; a style of design greatly fancied by the early European porcelain-makers, and largely copied at St. Cloud, Meissen, and Bow. The Franks collection in the British Museum includes a thoroughly representative selection of these white wares, many of the examples being of the finest quality.

It is not uncommon to find marks engraved in the paste, but what *is* uncommon in Chinese porcelain is to find that these are often the signatures of the makers.

#### CRACKLED PORCELAINS.

Mention has been made several times, in the previous chapters, of porcelain pieces resembling those described by Père d'Entrecolles (see p. 96), where the glaze appears to have been "shattered into a thousand fragments without one of them falling from its place." This appearance is really due to the "crazing" of the glaze, caused principally by the difference in dilatibility of the body and glaze when exposed to changes of temperature. When the body and glaze are in close agreement, it may take years or even centuries for the glaze to become fissured in this way; where there is a wide divergence in the rate of dilatibility, the pieces are often crazed, or "crackled," when they are drawn from the kiln. It is certain that some of the early Sung wares developed this quality simply as a result of their imperfection, and the Chinese potters never showed their appreciation of artistic quality to greater effect than when they seized on such an accident, and, by patient study, learned, to a certain extent, to control it, so far, at all events, as to know that certain mixtures would develop

a network of crazes while others would not. It should be pointed out that the fine crackle, which the Chinese called "fish-roe," and the French "*truité*"—especially associated with the turquoise, purple, and yellow-millet glazes—is the inevitable result of firing an alkaline glaze on such a material as Chinese porcelain, and the only credit that can be given to the Chinese in this case is that, considering how beautiful the result was, they did not "cry for the moon" by demanding an uncrackled or uncrazed glaze, which would have been so much less beautiful.

Where we may award praise to the Chinese potter, too, is in this, that long after he could make a plain, white, uncrackled glaze he still recognised the decorative value of crackle, and strove to produce it at will, either in bands on the neck, shoulders, or feet of uncrackled pieces, or in such a way as to produce a beautiful, irregular, network-diaper in those pale grey, lavender, ochreous, or other glazes, which, without this variegation, would have been rather tame and insipid. Still keeping the same end in view, it has long been customary among them to heighten the effect by rubbing the pieces over with Chinese-ink or with vermilion, which penetrates into the crazes and makes the strongly marked lines a little more prominent. Sometimes, indeed, we find Chinese vases in which the general ground of the piece is crackled, while there are reserved patches of uncrackled glaze with flower painting in underglaze blue.

Both in the letters of Père d'Entrecolles and in the "History of Ching-tê-chên," accounts are given of how the crackle-glazes were made by the Chinese. Sometimes they were made by adding *Hua-shih* to the ordinary glaze; but the name *Hua-shih* was applied to substances as different as powdered soapstone and powdered white mica or amphibole; still, such substances would change the coefficient of expansion of the glaze, and so cause it to craze. It was probably in this way that those pieces were prepared where we find bands of crackled glaze used in conjunction with uncrackled glaze, for it was simple enough to paint the two mixtures on the same piece. Another method is described as follows:—"After covering the vessels with glaze, they are exposed to a very hot sun, and when

they have become hot, they are plunged in cold water for a moment. On being baked they appear covered with innumerable fire-cracks"; while we learn further that the Chinese knew that the effect could be obtained by using glaze that had been ground and washed until it was excessively fine. It has been stated that these latter methods would be useless; on the contrary, they are not only perfectly practicable, but that they should have been used and described by the Chinese is a splendid proof of the keenness with which they have observed all the minutæ of their art.

#### TRANSMUTATION GLAZES.

Mention has been made many times in the previous chapters of the brilliant glazes, either solidly red or variously streaked and veined with blue, purple, green, white, grey, or turquoise patches, roughly classified by collectors as *Sang-de-Bœuf*, *Flambé*, *Haricot*, *Peach-bloom*; or even designated by cant terms derived from the Chinese, such as mule's liver, horse's lung, &c.; according to the general appearance of the glaze and the simplicity or variety of its colouring. All these effects, and other curious glaze effects not generally recognised by collectors as belonging to the same class, are due to the presence of reducing gases playing on the surface of the ware while the glaze is being melted, especially when the glaze contains oxide of copper and oxide of iron.

When a glaze containing oxide of copper is fired with free access of air, we obtain various shades of green or blue, from yellow-green to turquoise- or kingfisher-blue; depending on the purity of the copper-oxide, the amount of it present in the glaze, and the chemical composition of the glazing substance. But in an atmosphere that will deprive such mixtures of oxygen, as when the smoky flames from imperfectly burning wood or the gases from slowly burning charcoal are allowed to surround the ware, all this is changed. In the first place the copper-oxide begins to volatilize in the smoky atmosphere; then, instead of remaining uniformly disseminated through the glaze, it is gathered

into flocculent masses, leaving patches of the glaze white. Further, it begins to lose oxygen, so that it passes to a lower state of oxidation, or in extreme cases loses all its oxygen, and is reduced to red-copper in an exceedingly fine state of subdivision. All these changes take place best before the glaze is melted, and when once the glaze has melted, and has dissolved the red colouring matter, it is generally safe from further interference. When such pieces are drawn from the kiln they may be solidly red, or the red colour may be in coagulated patches, or streaked, blotched or veined with finer or broader lines of white, green, grey, blue, or purple, producing an effect that defies description in words. In the choicest pieces, the red colour is deep and clear, like freshly-drawn blood; and yet so palpitating is it with light that veins of greater brightness seem to detach themselves all over the ground as one looks. In other pieces the red is dense and opaque, as though it had clotted together so as to shut out the light; or it may present a lighter opaque red colour, recalling some natural stone, glowing still as it cools down from a state of incandescence. As to the veining or variegation, this generally assumes the appearance of grey, blue, or purple lines or splashes. These may be due to the penetration of smoke in the glaze giving the grey tints, while the blue and purple colours are not caused by the addition of manganese or cobalt, but represent the natural opalescence so readily developed with glazes rich in lime. It should be added that oxide of iron is frequently added to the copper-glaze, and that it assists the complex action that goes on in the production of the red colour; while many of the Chinese red glazes contain oxide of tin, which has been added for the same purpose.

In the earlier examples, probably in all the pieces made before the reign of K'ang-hsi, the colour was always contained in the glaze, and was reduced at a high temperature. In the later pieces, and particularly for the peach-bloom, crushed-strawberry, and such-like delicate tints, the pieces were first coated with white glaze and fired, and then an enamel-colour containing copper was applied on this, and reduced at a much lower temperature. Commonly these pieces show a pure white glaze on the inside, while the red



colour finishes with a perfectly even line. But the variety of ways in which the Chinese used this method of firing when once they really understood it, that is in the eighteenth century, are endless. Pieces are to be found in which indifferently decorated blue-and-white vases have been coated over with an enamel containing copper and iron, and then reduced to an uneven, dirty red; while there are many variegated grey- and brownish-looking wares, with flecks of dull red here and there, which are just as clearly *flambé* pieces that have been unsuccessful through the carbon penetrating into the glaze. When M. Scherzer visited Ching-tê-chên in 1883, he found that one family of potters still possessed the secret of the old glazes, and modern wares of this kind are now finding their way into Europe in quantity, as well as pieces made in Kuang-tung province, on a dense stoneware body; but none of these possess the finish or refinement of the old wares, though they are often sold as old pieces at prices far beyond their value.

As to the marks on porcelain, they are generally so unreliable in themselves—or every collector might revel in the possession of pieces from the most famous periods—that it seems better to refer the reader who is interested in marks to the special volumes dealing with Chinese porcelain, or with the subject of “Marks” alone. It cannot, however, be too often stated that the last thing the collector should regard is the mark on a piece of porcelain, as, naturally, the first thing the forger imitates, and generally the easiest thing for him to imitate, is the mark.

## CHAPTER XII.

### JAPANESE PORCELAIN : INTRODUCTORY AND GENERAL.

To pass from the consideration of Chinese porcelain to that of the Japanese is like passing from a garden all ablaze with gorgeous flowers, into a cool and simple room where the choice of a few refined things creates an atmosphere of repose. Forty years ago Japanese porcelain, in common with other Japanese artistic productions, was rated far too highly, and Jacquemart, the most famous of French writers on porcelain, worked sad havoc with its history, boldly attributing to the Japanese several important classes of Chinese ware, while one of the most beautiful kinds of Japanese porcelain he attributed to Corea. Thanks to the labours of many Englishmen who have resided in Japan during the last thirty years, we are now in possession of a reasonable and connected account of Japanese porcelain, so that there is less danger of one falling into such false attributions. Chinese porcelain represents the successive labours of many generations of able potters—if we assume even that it was first manufactured in the ninth or tenth century, we have a period of a thousand years during which it has never failed—and we have seen the numberless changes wrought in its styles during that long period. The Japanese, on the other hand, only learnt of porcelain from their contact with the mainland, either by direct trade with China or in the course of their piratical descents on Corea. Even then they appear to have long remained content with their simpler native productions in common clay, for the earliest Japanese porcelains are claimed to be those of Gorodayu Go-Shonzui, who is said to have visited China in 1510.

The Japanese tell us that he worked for five years in the factories at Ching-tê-chên, and then returned to Japan, taking with him a supply of the Chinese materials. With this imported clay he made a number of pieces of blue-and-white ware, rather thick in substance, but reputed to be exceedingly beautiful in colour and glaze-quality. Captain Brinkley states that these pieces are so highly esteemed in Japan that it is doubtful if any examples have ever left that kingdom; they were so valued, indeed, that the Chinese potters of Ching-tê-chên made many imitations in the eighteenth century, while a Japanese factory was established, about 1825, for the very purpose of counterfeiting pieces for which such fabulous prices were paid. Apparently, when the imported materials came to an end, Shonzui had failed to discover any similar substances in Japan, though he is said to have been settled at Arita in the province of Hizen, where the porcelain minerals are found in abundance; so that the only knowledge he bequeathed to the potters of the district was the art of painting in underglaze blue, of which they had been quite ignorant.

More than fifty years passed after the death of Shonzui before we hear of any other Japanese porcelain, and then it is a ware made in the same district—that is, in the neighbourhood of Arita. In one of their raids in Corea the Japanese commanders were specially bidden by Chancellor Hideyoshi to bring back as many potters as they could find. Some of these Corean potters were settled in the province of Hizen, and here one of them, Risampeï, discovered about 1605, in the mountain Izumi-yama, the porcelain materials which have been used from that day to this. There are other accounts of this discovery, as is always the case in such affairs, and some ultra-patriotic Japanese would attribute it to the famous potter Kakiemon, aided by another traveller named Goroschichi; but recent excavations on the site of the Hyakken factory, where the Corean potters first worked, have proved conclusively that porcelain was made there, and this factory was closed before the date of Kakiemon and his famous wares.\* “When these

\* Captain F. Brinkley: “China and Japan,” Vol. VIII., pp. 54-57.

kilns were closed they were re-established in Arita, probably to bring the workmen nearer to the raw materials, but as soon as the nature of the materials and the merits of the ware began to be appreciated, advantage was taken of the secluded position of the factory to protect it by guard-houses, so that every person passing in and out could be strictly examined, while the sale of the ware was severely penalised." This second-earliest Japanese porcelain was in all probability decorated with an indifferent underglaze blue, though fragments of simple enamelled wares have been recovered by excavations on the site of the factory.

The origin of the Japanese decorations in brilliant enamel-colours is, however, imperishably associated with the famous Kakiemon already mentioned, whose name comes into prominence in connection with the Arita kilns, some twenty or thirty years after the establishment of the manufacture. It is related that in 1646 this Kakiemon, with a companion, Tokuemon, set out on a journey to China in order to find out the secret of the enamel-colours used there. At Nagasaki, so the legend runs, they fell in with the captain of a Chinese junk who was both able and willing to give them such information as saved them the journey. In all probability they had already some acquaintance with enamels, and with the additional information thus acquired they were able, by careful experiments, to work out for themselves the technical methods which enabled them to produce the few colours required for one of the simplest and most charming styles of decoration ever used on porcelain. This dainty porcelain seems, however, to have been short-lived, for little of it is to be found in Japan, and during the remainder of the seventeenth century the Japanese potters of the province of Hizen, where alone the porcelain was made, decorated their wares either by paintings in underglaze blue, or with true Japanese designs in a few enamel-colours, heightened by the use of gold.

At this period, however, the influence of the Dutch traders, who, under the most galling conditions, were allowed to continue a restricted trade with Japan after all other Europeans had been expelled, established the manufacture of the so-called "Old Japan" wares, which were so

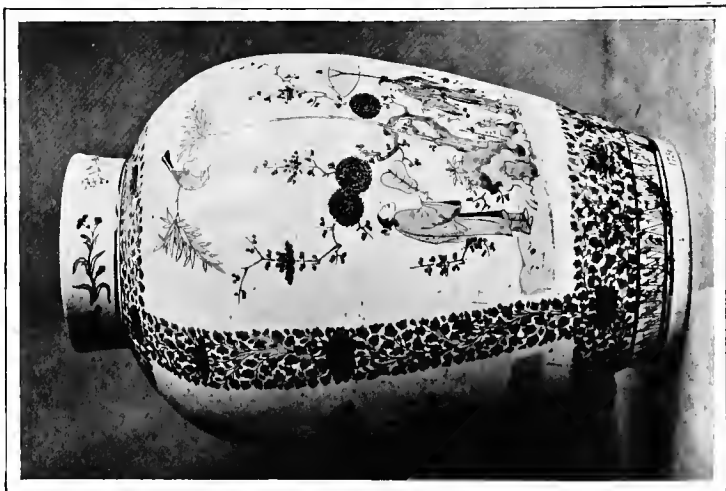


PLATE XIV.—KAKIEMON BOTTLE AND VASE.

2

extensively copied at various English factories during the eighteenth and nineteenth centuries. Evidently to meet the current trade, the simple patterns of the Kakiemon style were replaced by florid designs in red, blue, and gold, adapted from the native patterns used for lacquer work and brocades, and Europe was flooded with the pieces decorated in this hybrid style, which has so long masqueraded as *the* Japanese porcelain, though the Japanese would have none of it.

Other factories were started in the province of Hizen, and as these were under the protection of the feudal lords or princes, their wares were kept from this debasing foreign influence, so that it is in the productions of such factories as that of Nabeshima and Mikawachi that we find the fine Japanese porcelains of the eighteenth and nineteenth centuries decorated in true native taste.

From the factories in Hizen the manufacture of porcelain slowly spread, during the eighteenth and nineteenth centuries, to the provinces of Kioto, Kaga, Owari, and elsewhere, and porcelains continued to be made either with delicately painted designs in pale underglaze blue, or in a few simple enamel-colours ; or reproductions were made of the earlier Chinese porcelains, especially of the *céladon* glazes which have long been esteemed by the Japanese. The majority of the factories, where only a few potters, generally the members of one family, worked, were under the direct patronage of the feudal lords—often enough the kilns were situated in his garden—so that fine work was continued down to the abandonment of the feudal *régime*, 1868-72, since which time Japanese porcelain has become more and more a purely commercial production, designed to meet the demand for cheap gaudy wares in the European and American markets.

It will be gathered from this brief sketch how simple and self-contained the Japanese porcelain was in comparison with Chinese. Instead of all the wealth of Chinese colours and decorations we have mainly white pieces, pieces decorated with underglaze blue, or with a limited palette of bright enamel-colours, together with decorations in modelled and pierced-work, and the use of some few simple

coloured glazes. The immense range of Chinese productions in coloured glazes and coloured enamel-grounds, together with the *Flambé*, *Sang-de-Bœuf*, and other transmutation wares are almost unknown, and the later triumphs of Chinese skill, such as the *famille rose* decorations of the eighteenth century, were either unknown or neglected. To compensate for these we have the superior decorative skill of the Japanese artists, who used their limited resources with a delicate mastery that leaves nothing to be desired; at all events, in the pieces made according to their own taste. Before proceeding to describe the principal Japanese porcelains in detail, it would be well to give a brief account of the Japanese materials and methods, for these explain some of the differences that exist between the porcelains of the island-kingdom and those of China. It is commonly said that the Japanese porcelains are made from one mineral only, but this is probably a misapprehension; the real meaning being that the stones or minerals found in one quarry are sufficient for the purpose. Doubtless there are many quarries both in Cornwall and in the centre of France, where materials are found, associated together, that would produce porcelain, but it is always found better in practice to follow the Chinese plan, and mix a number of such substances together. The simpler plan followed by the Japanese has its drawbacks as well as its advantages, for the ware has not the quality of the wares of Ching-tê-chên, being more glassy in appearance, and consequently thinner-looking and deficient in the finest qualities of porcelain paste. So far as one can learn, too, the Japanese have not prepared their materials with the same care and patience as the Chinese.

The Japanese state that the use of moulds for shaping the pieces was unknown before the eighteenth century, but this must be a mistake, as many pieces of the well-known Kakiemon type must have been moulded. The clay mixtures are not very plastic, and the ware is "biscuited" before it is glazed, probably on account of this "shortness," which has also caused the Japanese wares to be generally thicker and more clumsy than contemporary Chinese porcelain. The glaze is prepared by pounding the purest parts of the porcelain stone, and mixing it with wood ashes—



especially with the ashes from the bark of the usu-tree (*Distylium racemosum*)—which are said to contain nearly 40 per cent. of lime. Just as the body looks more glassy and less solid than the Chinese, the glaze is minutely pitted as if from incomplete fusion, while the Chinese glaze is dense and perfectly fused. The furnaces used for baking the glazed ware are small bee-hive structures resembling the ancient Chinese furnaces, and not at all like those used at Ching-tê-chên (see p. 103). They are arranged in rows, built by preference on the side of a hill, so that they rise in steps, and can be fired in succession. These small furnaces are fairly easily controlled, and as they are fired with wood we learn that saggars were never used until the eighteenth century, while their use is by no means invariable even now. Japanese porcelain pieces generally exhibit "spur" marks under the base where they have been supported on sharp-pointed pieces of porcelain, or on bits of sharp stone, during the firing, while such marks are almost invariably absent on Chinese porcelains, which are placed on the bared bottom rim of the piece itself, in the manner described by Père d'Entrecolles (see p. 101). The enamelling and gilding are conducted in the usual way. As to the colours themselves, we find no colours used on Japanese porcelain that are not met with on Chinese, though, as we have seen, the converse by no means holds good. The best blue-and-white wares were painted with the manganiferous-cobalt ore imported from China,\* called by the Japanese *gosu*, and as this ore was carefully refined the blue colour is often of fine quality, though in the most careful painting it looks paler and lighter than the Chinese pigment. The underglaze red of the Chinese is never met with on early Japanese porcelains. The enamel red, made from oxide of iron, is, however, largely used, and in the more ordinary wares the Japanese have made the better colour; while they also produce it in a great variety of shades. The enamel rose-colours, pinks, and crimsons, prepared from gold, made their appearance in Japan a century later than in China, and were never used to anything like the same extent.

\* Shonzui is said to have brought back with him some of the precious Mohammedan blue (see p. 68) from China.

## CHAPTER XIII.

### JAPANESE PORCELAIN : THE IMPORTANT CENTRES.

THE foundations of the manufacture of porcelain in this province having been mentioned in the previous chapter, we may pass at once to consider, in fuller detail, the first distinctive ware known to Europeans. This was the ware said to have been produced by Kakiemon, who flourished in the middle of the seventeenth century. From its first appearance in Europe the ware was most highly prized, and was widely imitated, in the eighteenth century, at Meissen and Chantilly, as well as at Bow and Chelsea. It was known to the French collectors of the eighteenth century as "première sorte du Japon," and it was evidently to this ware that Hellot, the scientific director of the porcelain works at Vincennes, referred, when he spoke of the "Old Japan" porcelain that was "of a fine, solid white grain, like squeezed snow." The ware is rather a creamy white, and the simple patterns were designed so as to exhibit its qualities to perfection. Underglaze blue seems hardly to have been used at all, and the enamel painting is executed in a few colours, predominant among them being a fine red colour—sometimes diluted so as to verge on orange. We also find enamels of grass-green, yellow, pale lilac, and bright blue, the latter colour being noteworthy, as it had only just made its appearance in China. With these few tints, and a sparing use of dull, solid gold, evidently well fired to the ware, the Japanese artists executed many charming designs. The decorative motives were almost as simple as the colour schemes, consisting generally of some slight design, in which we find a combination of the fir, bamboo, or plum, with a slight grass-hedge enclosing a space, where a few small birds peck or flutter about a sheaf of corn. Sometimes we

get a more formal floral design, such as that on the bottle reproduced in Plate 14, while on other pieces we have dragons and birds like the phoenix, and on many pieces a grotesque-looking tiger appears. The painting is generally neatly executed, without rising to especial merit. It must always be a puzzle why this charming ware disappeared so completely after a comparatively few years. Fortunately for us, the Franks collection at the British Museum has a fine display of perfect examples.

The next group of wares, made at Arita, are commonly known as "Imari porcelains," because they were shipped from Imari, the port of the district, though no pieces were ever made there. The Japanese describe these pieces as *Nishiki-de*, or "brocaded style," thus clearly indicating whence the patterns were derived. This is the ware made for the Dutch trade, and, it can only be surmised, in response to Dutch ideas of decoration. It must not be imagined, however, that all the pieces of this kind brought to Europe were manufactured in Japan, for we read that as early as 1664, "something like 45,000 pieces of very rare Japanese porcelain" reached Holland, while in December of the same year, 16,580 pieces of porcelain of various kinds were shipped from Batavia.

It is almost inconceivable that all these pieces could have been imported from the few small factories at Arita; what is more probable is that the Dutch, recognising the trade that could be done in Europe in pieces of this kind, had the Japanese wares copied at Ching-tê-chên, for they maintained a large trade in such pieces for nearly a century. The pieces are generally thick and heavy, with a coarse paste, and a cold, bluish-looking or greyish glaze; in fact, a commercial ware, altogether inferior to that with the designs of the Kakiemon school. The colours are even fewer than in the Kakiemon wares, though they are used with an unsparing hand, and little of the piece is left uncovered. Unlike the earlier wares, too, the colour scheme is generally based on broad, vibrating masses of dark underglaze blue, which are often run and uneven. The blue masses are relieved or broken by painting in on-glaze red and rich gilding. In somewhat later pieces the underglaze blue is replaced

by a very glossy black enamel, and, in addition, we find that, on the more carefully finished pieces, a pale yellow and a dull green were also employed. The Japanese themselves tell us that the favourite design of the Arita potters, when they first made the ware (1655), was the *Hana-kago-de*, or "Flower-basket pattern." This is a basket or vase supporting a profusion of flowers, either peonies or chrysanthemums, but Captain Brinkley states that it is a Chinese rather than a Japanese conception. Such a design is capable of endless modifications, and could be arranged to fill a panel or a medallion of any shape, on the side of a vase or the bottom of a dish. The commonest decorations are, however, those "brocade" patterns, composed of medallions, diapers, and scrolls, which the potters simply adopted from their fellow-workmen in the older arts of weaving, embroidery, and metal-working. Rarely do we find figure-subjects, birds, or landscapes, and when we do, they are rather Chinese than Japanese in style.

It is natural that the Dresden collections, formed by the Elector Augustus between 1694 and 1705, largely from the stores of the Dutch merchants, should contain the best examples of this ware, but good examples are to be found in every European collection, and the various European copies made in the eighteenth century have served to make its characteristics familiar to everyone (see Plate 15). When the European demand fell off, the Arita potters continued to make a ware of the same class, but decorated with a sobriety, and painted with a skill, that fitted it for Japanese use. This later Arita ware was made from about 1700 down to 1830, and since Japan has again been opened, specimens of it have found their way to Europe. They are distinguished by a better quality of underglaze blue, and by the use of certain enamel-colours, such as lilac-blue, russet, pale yellow, purple, and black, which do not appear on the wares made for the European market. In addition to painted decoration, some use was also made at Arita of modelling and piercing, to give variety or lightness to the elaborate painted decoration. The only later Arita wares that we need notice are the eggshell pieces, often protected by fine basket-work, and painted in gold, with enamel red and blue figures of warriors



IMARI DISH.



PLATE XV.—KUTANI BOWL.



and elaborately-dressed females. This ware is quite modern, and has been shipped through the dealers at Nagasaki, as, indeed, have most of the Hizen export wares since the seventeenth century. When Nagasaki was opened to foreign trade in 1858, the potters of Arita promptly responded to the foreign demands, and besides making copies of the older wares, they produced hideous large vases with expanded trumpet necks, standing from three to six feet in height, rudely daubed with decorations in red, gold, and blue. After passing for a time among the ignorant as specimens of genuine Japanese art, they have found their level at last in the cheap bazaar or furniture store. After the Philadelphia Exhibition of 1876, when it was found that Japanese artistic porcelain was at a very low ebb, the potters of Arita founded an association, known as the *Koransha* ("the company of the fragrant orchid"), while a secession was started in 1880 under the name of *Seiji-sha* ("pure-ware company").

#### OKOCHI OR NABESHIMA PORCELAIN.

The factory which produced this famous ware was situated at Okawachi-yama, which is about eight miles from Arita. It was founded by the head of the great family Nabeshima, the feudal chiefs of the province, who removed the workmen from two small neighbouring factories. Much money was bestowed on the work; the best materials were brought from Arita; skilled workers were in demand; and the sale of the ware was absolutely forbidden. It is no wonder that under such conditions the ware was kept free from all foreign influences, so that it offers us a type of porcelain distinctively Japanese, and it reached such excellence as to be still ranked among the very *élite* of their porcelains. The ware is, perhaps, best distinguished by its refinement, for the material was carefully prepared, so that it is superior to the Arita productions, though belonging to the same class. The underglaze blue was of a peculiarly pale yet bright tint, almost as if the pigment had been diluted with some of the ingredients of the paste. The pieces painted in blue are by no means common, for the favourite style of decoration

appears to have been that where enamel-colours were used in conjunction with the underglaze blue, or without it, as in the Kakiemon designs. The Nabeshima enamels included many new colours, for in addition to the red, green, violet, yellow, and blue, we find a fine lilac or purple colour, a light red or orange colour, together with an opaque lustrous green, turquoise-blue, and black. Gold was used in addition. The designs are purely Japanese in character, and are better drawn and altogether more refined than those found on the earlier wares; sprays of chrysanthemum and peony, or branches of some flowering shrub, or rapid sketches of birds, with diapers, scrolls, and clouds are most common. Some of these pieces, especially the earlier ones, have been ascribed to the Kakiemon school, for the ware has no formal mark. It is best distinguished by its superior finish and the excellence of its painting, as well as the quality of the underglaze blue colour. Many of the best examples bear on the foot-rim a formal toothed- or comb-pattern, painted in blue; though a similar pattern is occasionally found on Kaga porcelain, and has been copied on modern wares made at the existing Arita factories.

#### HIRADO PORCELAIN.

The only other notable porcelain produced in the province of Hizen, and, in the opinion of connoisseurs, the finest of all, was made at Mikawachi-yama, in the island of Hirado. Some of the captured Corean potters (see p. 139) had been settled here, and their descendants are said to have made an imperfect porcelain in the beginning of the eighteenth century, but nothing of any merit was made until the factory was taken under the patronage of Matsura, lord of Hirado, in 1751, who guaranteed the potters ample rations and protection. The pieces were reserved most strictly, either for his own use, or that he might make presents of them to his noble friends or to the Court; no expense was spared in the preparation of the materials, which were not obtained from Arita, but from the island of Amakusa far to the south, and elsewhere. As the materials were costly, no pains were spared in their preparation, and the body and



glaze of this ware are finer, richer and more solid—more like the Chinese, in fact, than the other Japanese porcelains. Judging from the known examples, the pieces were generally of small size, for cups, wine-bottles, water-flasks, and plates, with skilfully-modelled little figures of boys, dragons, fish, and wrinkled old men are best known. Enamel-colours appear to have been unknown, and if the piece is coloured at all, it is with the daintiest of designs in underglaze blue, while the draperies of the modelled pieces are often picked out in coloured glazes of blue, russet, and black.

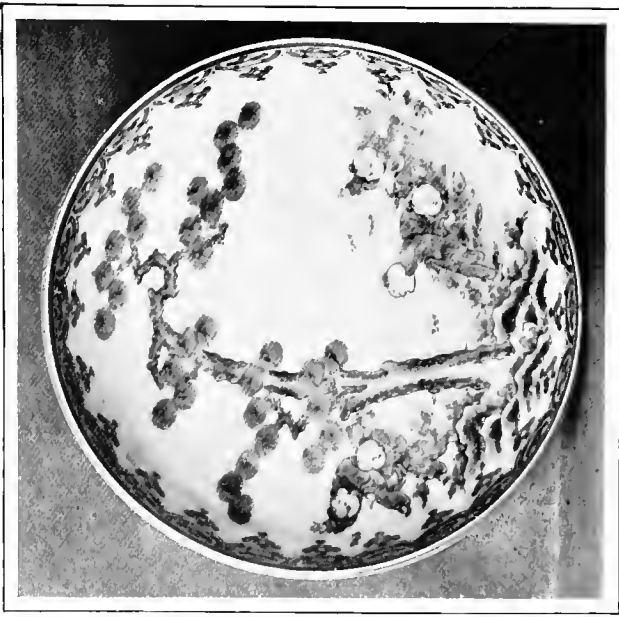
The painting in underglaze blue is, however, the most remarkable feature of this ware, both for the quality of the colour, and the miniature-like delicacy and perfection of the painting. The pigment was prepared by a careful refining of the Chinese colour imported from Ching-tê-chên, and though it has more body than the pale Nabeshima colour described above, it still lacks the depth of the finest Chinese blue. Doubtless, as Captain Brinkley says, the Japanese preferred a pure but delicate colour, rather than the full-bodied, palpitating tint prized by their neighbours. The painting was as delicately refined as the colour, and it is certain that such fine drawing would have been floated away had not the glaze been much "stillier" than the glazes of the Arita potters. The designs include all the usual Japanese schemes, though it is interesting to find on this ware a greater prevalence of figure-subjects, especially the figures of boys at play. In good pieces the figures are generally associated with a variety of cord-and-tassel pattern used as a border. It is said that the quality of the ware is indicated by the number of children depicted; seven for the first class, five for the second, and three for the third-class pieces. The Hirado porcelain retained its fine quality down to about 1830, and with the abolition of feudalism, it ceased to be manufactured for a time. Now it is being manufactured again, but this time largely for export. Mention must, however, be made of the eggshell ware made here, apparently in a small independent factory after 1825 or thereabouts. This ware was as thin as paper, and was decorated with paintings in underglaze blue of a fine and brilliant tint.

## KAGA PORCELAIN.

It is said that about 1660, Maeda Toshiaki, the feudal lord of Daishoji, regretting the inability of his potters to make porcelain, sent one of them, Goto Saijiro, into the province of Hizen to study the processes used there. When the potter got to Arita, he found, however, that everything concerning porcelain was a jealously guarded secret. He accepted service in the house of a potter, and after three years of menial labour, he married a woman of the place. Having given this evidence of his desire to settle in Arita, he was admitted as a workman in the porcelain factory, where he is said to have remained four years, and then, when he had sufficiently mastered the process, he fled back to his native Kaga, deserting his wife and children, and brought to his prince the knowledge so eagerly coveted.\* The factories were first established at Kutani, in Kaga province, which is on the west coast of the main island of Japan, and the ware is consequently known as *Kutani-yaki* † or *Kaga-yaki* indifferently. The earliest productions were decorated with consummate skill with full-bodied enamels painted in broad flat masses, so as to simulate the effect of coloured glazes. The prevailing colours are green, purple, and a yellow which varies from a lemon to an ochreous tint. The patterns were usually drawn in firm black outlines, which show through the transparent enamels. This type of ware is called *Ao-Kutani* (*Ao*: green), from the predominance of the bright green enamel in the decoration, and as the body of the ware is an imperfect grey porcelain made from inferior materials, we shall probably be justified in regarding this as the earliest porcelain of Kutani. The second variety of Kaga porcelain, which also seems to belong to the early period, is a milk-white porcelain, resembling the wares of Hizen, but softer in substance and with a duller glaze. In

\* It should be added that this story, with slight variations, is told of several other potters, working in different places. Doubtless they could be paralleled from the history of some of the European factories of the eighteenth century.

† *Yaki*, corresponding to the Chinese *Yao*, means simply "ware," and is applied to pottery of any kind.



HIRADO DISH.



PLATE XVI.—OLD HIIZEN PLATE.



this ware the famous enamel red of Kaga is predominant, a colour of a soft ruddy-brown tone, quite distinct from the more "bricky" red of the Imari wares (see Plate 17). Sometimes this colour is associated with paintings in yellow, green, and purple enamels, but in the finest wares it simply serves as a ground on which diaper-patterns or scrollerly are painted in gold and silver. This is the "gold brocade" decoration of collectors, evidently inspired by the beautiful silken stuffs interwoven with gold and silver threads.

In these three characteristic styles we find only incense-burners, incense-boxes, bottles, cups, bowls, and dishes, for large pieces appear not to have been manufactured in the first period, which is said to have come to an end by 1750 or even earlier, probably by the withdrawal of the princely patronage. The second period belongs practically to the nineteenth century, though it actually commenced a few years earlier. It is said that a porcelain of another kind was made in the Nomi district of Kaga from 1779, by a fugitive potter from Hizen, with the assistance of artists from other provinces. This ware has nothing in common with the old Kutani porcelain, but, as was natural, resembled the porcelains of Arita, whence the fugitive potter came. In 1809 a factory was once more started at Kutani, at which place and at Yamastre-mura, where the factory was afterwards removed, the original green-enamel decoration of the first period was followed with success, though, of course, the pieces were much inferior to the subsidised productions of the earlier times. The majority of the specimens of Kaga porcelains found in European collections, must, however, date from these revivals in the nineteenth century. In addition to copies of the earliest wares, the well-known Kaga decoration of red and gold, often on eggshell pieces, was largely developed. The best pieces are attributed to Zengoro Wazen, a son of Eiraku of Kioto, the most famous Japanese potter of the nineteenth century.

The troubles of the revolution led to another suspension of the manufacture, but since the opening up of Japan, the industry has been prosecuted with great success, and several thousand persons are now employed in porcelain-making in the province of Kaga. At first the modern ware was

almost exclusively decorated in red and gold, but successful efforts have been recently made to revive the earlier green-enamel style, and this is now largely made at Kutani again, after the lapse of more than a century.

#### KIOTO PORCELAIN.

At Awata and elsewhere in the district of Kioto, some of the most famous earthenwares of Japan have been made, but the manufacture of porcelain belongs only to the latter half of the eighteenth century. The first porcelain-maker was a potter named Eisen, and the earliest date given for his manufacture of the new material is 1760. He had a number of pupils, who in their turn made distinctive wares, and the most famous of these was Mokubei, who lived down to 1833. In the hands of these two men and their successors, the material was simply used as a medium for reproducing certain kinds of Chinese porcelain then very much in fashion in Japan. We have already seen that from an early period the Japanese had especially affected Chinese celadon, and this, together with blue-and-white, was, perhaps, first manufactured. Then came imitations of the Ming pieces, decorated overglaze in green, red, and gold, but Mokubei was especially noted for his imitations of the so-called *Kochi-yaki*, or ware of Cochin-China. This is an imperfect porcelain made in China, for use in Cochin-China, but the Japanese only knew it through their political and trading relations with the latter country, hence the name by which they distinguished it. This porcelain is brilliantly decorated in enamel-colours of very distinctive shades of green, purple, yellow, and red. The pieces made by Mokubei were generally of small size, and are said to be indistinguishable from the true *Kochi-yaki* pieces, so highly prized for use in connection with the quaint tea-ceremonials. We also read that Mokubei excelled in the imitation of Chinese wares, and that he mainly employed himself in reproducing such early pieces as came in his way, "copying every blemish and imperfection as accurately as each admirable feature." He is also said by the Japanese to have been the first of their potters to use moulds in shaping

porcelain pieces ; he may have introduced some new style of applied decoration by the use of moulds, but he cannot have been the first to use moulds generally, for a number of the so-called Kakiemon pieces, made a century before this time, have obviously been shaped in moulds.

In the town of Kioto itself, and in the district of *Gojo-zaka*, a famous potter named Ogata Kichisaburo, who took the artist name of Shuhei, also flourished in the latter half of the eighteenth century. He appears, like Mokubei, to have commenced by imitating Chinese wares of the later Ming times, especially those decorated with a ground of enamel red (the oxide-of-iron red) with painted ornament in gold, or more rarely in other enamel-colours, upon it.\* Ultimately he developed a more personal style, still confining himself to the use of enamel-colours. These pieces are generally decorated with figure subjects, such as the sixteen Arhats, the seven gods of Fortune, or Chinese children at play, all executed with the utmost precision and delicacy like a miniature. Sometimes he carried out his designs on earthenware pieces as well as on porcelain, and his work is highly valued by Japanese connoisseurs, who rank it among the most brilliant artistic productions of their country.

The most famous of all the potters of Kioto flourished during the first half of the nineteenth century. This was Nishimura Zengoro, commonly called Hozen, but better distinguished by his potter's name, Eiraku. He was a descendant of an old family of potters, and commenced to make porcelain after working at Arita in 1801-3. Like the potters already mentioned, his first wares were copies of Chinese céladons, blue-and-white pieces and the *Kochi-yaki*. His success, in the lines traced out by his predecessors, was so great that he attracted the attention of Harunori, the Prince of Kishu, who, in 1827, invited him to his Court, assigned him lodgings and set up kilns for him in the castle park. Here Eiraku or Hozen, as we may call him, produced his most perfect examples of *Kochi-yaki*, surpassing the original ware in purity and brilliance of colour ; as he very well

\* Most writers speak of this as an imitation of the wares of the Yung-lo era (1403-1424), but this must be a mistake, as the enamel-red was not used in China at that period, nor for about a century afterwards.

might, for the ware is not among the finer kinds of Chinese porcelain. The ware made in these kilns is known to the Japanese as *Oniwa-yaki*, or "honourable park ware," and it is highly esteemed among them. His greatest triumphs were, however, won with the pieces covered with a coral-red ground (enamel) brightened by profuse decorations in gold, or containing reserved panels with paintings in under-glaze blue of brilliant tint. This style of decoration had long been a favourite with the Kioto potters (see above), but Eiraku excelled them all in the soft brightness of his red enamel and the perfection of his decoration. His favourite styles of decoration are called by the Japanese, *Kinran-de* (scarlet and gold brocade), and *Akaji-kinga* (golden designs on red ground), and they won for him so much fame that his patron, the Prince of Kishu, bestowed on him two seals for marking his ware, one of silver bearing the mark "Eiraku," and the other of gold only to be used on his finest pieces, bearing a mark "Kahin Shiriu."\* While at a later date he was given a third seal, *Tokin-ken* (the weighty potter), the mark of which is very rarely met with. In 1840 he was invited to Setsu by the Prince of Koriyama to instruct his potters, but he returned to Kioto in the same year, and with the assistance of his two sons, he established several small factories in the outskirts, where both earthenware and porcelain were made and decorated in the favourite styles. He died about 1855, and his sons were invited to Kaga to improve the red-and-gold decoration already made there. One of the sons, commonly known as Zengoro Wazen, remained at Kaga for some years, and had a great influence on the decoration of the late Kaga wares, decorated with gold designs on a red ground; and it is

\* Both these seals are evidence of the high regard in which ancient Chinese porcelains were held by the potter and his patron. Dr. Bushell says that the mark on the gold seal was a copy of a Chinese inscription meaning "Offshoot of Hopin"; Hopin being the name of a mythical Chinese factory at which the Emperor Shun (B.C. 2255-2106) is said to have worked before he came to the throne. The word *Eiraku* is the Japanese form of the Chinese ideograph "Yung-lo," and there is no doubt that the Japanese thought the precious porcelain they were imitating belonged to the reign of Yung-lo (1403-25), though in all probability it was a ware of much later date.





PLATE XVII.—KAGA RED.

EIRAKU SAUCER.



probably to this fact that we owe the mistaken notion that the famous Eiraku or Zengoro Hozen worked at Kaga.

Much blue-and-white ware was made at Kioto in the nineteenth century, while there are other potters of repute who worked in red-and-gold decorations, but for particulars of these subsidiary wares the reader is referred to the special works on Japanese pottery. The porcelain industry still flourishes in Kioto, but its modern wares are of the most ordinary commercial kind.

#### OWARI PORCELAIN.

Although the necessary materials abound in the mountainous province of Owari, the potters of that province only learned to make porcelain in the beginning of the nineteenth century. When the existence of the requisite materials was first discovered, the potters were unable to produce porcelain, and they despatched one of their number, named Tamikichi, in 1804 to the province of Hizen to learn the secret of the manufacture. Captain Brinkley gives a full account of the whole proceeding, and tells us that when Tamikichi returned in 1807, he was treated as a hero, and handsomely rewarded by the Prince of Owari.\* From this time porcelain has been made continuously at Seto and other places in the province, and of late years Seto has become one of the busiest centres of the industry. The wares made in this province are generally of somewhat inferior quality, for the local minerals are of such a nature that they need especial care in their selection and preparation, and as this is not given, not only is an immense amount of ware spoiled, but much that is sold has lost its shape in the kiln. Perhaps the best Seto porcelain was that made between 1830 and 1860, when the Chinese pigment was used for the painting in underglaze blue, and much fine modelling was done. Enamel decoration was but little used during this period, though to-day it is most extensively employed. It should be mentioned that the custom of decorating porcelain with incrustated cloisonné enamels made its appearance at Seto some time after 1868.

\* Brinkley's "Japan and China," Vol. VIII., pp. 283-6.

The district of Mino, in the same province, has been famous, since about 1830, for its eggshell wares. The finest of these pieces are decorated with skilful and characteristic Japanese sketches in underglaze blue; a glimpse of Fujiyama, a branch of flowering shrub, or the slightest of landscapes serving as the sole decoration. Since the revolution, a ware known as Tajimi porcelain has been made at Tajimi, in the district of Mino, which is best described by Captain Brinkley. "Plum blossoms, in which neither leaf, petal, nor pistil differs by a hair's breadth from nature, or racemes of wisteria with every tendril unerringly copied, may not be very fitting subjects for reproduction in the most fragile form of an eminently fragile material, but as examples of patience and dexterity, they cannot fail to command admiration." The ware is so delicate in fact, that it is seldom exported. Enamel decorations have only been used by the Mino potters since 1878, and nowadays, at Tajimi, designs in gold on a red ground, like the older Kaga wares, are largely made for export.

#### MINOR JAPANESE FACTORIES.

During the nineteenth century, and especially since the re-opening of Japan to foreign trade, the manufacture of porcelain, much of it of a very inferior order, has been established in many other places besides the historical centres. The industry was established at Sanda, in the province of Setsu, early in the nineteenth century. Blue-and-white was first made, but the most famous ware is a celadon of good quality, which, however, cannot be ranked with that of China. Blue-and-white of mediocre quality has been made at Himeji, in the province of Harima, and also at Nagato, Aizu, and Igo, within the last fifty years. The most rapid development has, however, taken place at Tokio, where not only is much porcelain manufactured, but enormous quantities of white-ware are brought from Seto to be decorated, exactly as the white porcelain of Ching-tê-chên was sent to Canton. These outside decorators at Tokio—the most famous decorating factory is known as Hyochi-en, and was founded in 1876—have established an elaborate

style of painting, in which crowds of figures are painted in rather dry enamel-colours, and heightened with gold. In the most expensive productions, the background is entirely stippled with gold. This ware is mainly made for export. Another speciality of the Tokio workshops consists in decorating the fine eggshell saucers and bowls of Mino with delicate paintings of the same kind, and then encasing the pieces in dainty basket-work.

Although a large proportion of the Japanese porcelain of our own day is made for export according to the trade taste, it must be noted that there are many individual potters and decorators who are producing fine work. For the most part, this takes the form of reproductions of the famous Japanese porcelains of other days, or of attempts to master some of the triumphs of the Chinese potters of the seventeenth and eighteenth centuries; such as the *flambé* and transmutation glazes, the blue-monochrome glazes, fine eggshell pieces with engraved designs, or the delicate grain-of-rice perforated pieces, in which the pattern is cut out of the paste and filled with glaze. Some excellent examples of the famous underglaze red are also to be found on modern Japanese porcelains.

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#### NOTE ON THE MINOR ASIATIC PORCELAINS.

Much confusion has been caused from the fact that Chinese porcelain has been made, at various times, especially to meet the requirements of the peoples of the adjacent countries, such as India, Persia, Siam, and Tonquin. It was perhaps only natural, when varieties of porcelain were found in these countries markedly different in style, decoration, or colour from the typical Chinese wares, that the first idea should be that they must have been made in the countries where they were found. Another source of misconception followed from the curious trade-channels through which Chinese porcelain was first brought to Europe in any quantity. The trading-companies, whether of Holland, France, Scandinavia, or England, were formed to trade with "the Indies"; and for nearly a century Chinese porcelain was generally described as "Indian" porcelain. In

the seventeenth century the principal factory of the English East India Company was at Gombron on the Persian Gulf, and large quantities of porcelain were brought from that port. Gradually, as our knowledge of the East has progressed, many of these difficulties have been cleared up, and though certain points remain unsettled—waiting further investigation or exploration in different countries—it becomes more and more certain that comparatively little porcelain of note has been made on the Asiatic mainland outside China. No one nowadays believes that any porcelain has been made in India. In Siam and the adjacent countries a good deal of porcelain is found, decorated with bright enamels on a white ground in a style markedly different from that of Chinese porcelain; and at one time this was described as Siamese porcelain. In reality this is a Chinese ware made expressly for export, and painted to suit the taste of its users. As the pieces are generally decorated with coloured enamels—red, yellow, blue, and green, as well as with the rose and deep crimson colours prepared from gold—they can hardly be earlier than the middle of the eighteenth century. There is such a general resemblance, too, between the colours and those used by the Canton enamellers, that in all probability they were decorated in that town or its neighbourhood.

Within the last ten years, exploration in the interior of Siam has brought to light the interesting fact that at some earlier period a genuine porcelain—of inferior quality—was made in large quantities. At the ancient capital Sawankalok, situated two hundred miles north of Bangkok, Mr. Lyle has discovered remains of extensive pottery works, while French explorers have reported similar finds in Tonquin. Many interesting fragments have reached the British Museum, from which it is evident that a manufacture of heavy, *céladon* wares was carried on here some centuries ago. Tradition says that this manufacture was founded by an Emperor Phra-Roang, who brought five hundred workmen from China some time during the fourteenth century. The great importance of this find lies in the light that it may throw on the vexed question of Chinese *céladons* and the Martabani wares (see p. 64).

Away on the other side of China is the hermit-kingdom of Corea, and whatever legends have been spun in the past as to the porcelains made in that country, however much the Japanese may attribute to its potters, it seems, in the present state of our knowledge, that little porcelain can ever have been made there, and even its authentic pottery is of no great merit. Potteries are said to have flourished, down to the fifteenth century, at Sung-do, the ancient capital, but they were gradually decaying even then, and by the end of the sixteenth century had entirely ceased. The greater part of the ware attributed to this centre is a hard-fired, coloured stoneware, and on this, opaque, greyish-white or céladon glazes were largely used. The ware recalls the Chinese pieces of Sung times, both in the imperfection of the glaze and the prevalence of the greyish-green céladon tints.

There has been a well-established trade between China and Persia from the earliest times, and more than once the thrones of both countries have been occupied by rulers of the Mongol race. That Persian artificers have been brought to China, and Chinese workmen to Persia, is established beyond doubt ; while it is easy to trace, at certain periods, the influence of the decorative art of one country upon the other. It is probably in this way that the well-known types of porcelain originated, in which the designs are of a markedly Persian character, but no one now seriously contends that such pieces can be regarded otherwise than as "export" wares, made in China, in forms and with decorations required by their purchasers. The materials needed for the manufacture of true porcelain have never yet, so far as I can learn, been discovered in Persia, so that it would be idle to expect a Persian manufacture of felspathic porcelain. About the sixteenth century, and later, a singularly beautiful variety of soft-porcelain, compounded apparently from pipe-clay and glass, was made in Persia. This ware was brought to England, along with Chinese porcelains, from the English trading station at Gombron mentioned above, and it was often labelled Gombron or Gombroon ware. It would be impossible to praise too highly the æsthetic quality of this ware, which can be best studied in

the wonderful collection in the Persian section of the Victoria and Albert Museum. It has a delicate warm tint, being creamy rather than white, and the glaze has a tender waxen quality that is very characteristic. It is principally found in the shape of large saucers, cups, or bowls, often perfectly plain and very thin ; while many of the pieces are perforated with a variety of simple patterns. When the perforations are filled with glaze they form the finest examples of the grain-of-rice patterns, already mentioned in speaking of Chinese porcelain. Other examples are known with delicate flutings and incised ornament in the paste, and occasionally pieces are decorated with colour—either a delicate underglaze-green, producing an effect like pale bright céladon, or a ground of blue, sometimes bearing decorations in lustre.



## CHAPTER XIV.

### A REVIEW OF THE HISTORY OF PORCELAIN IN EUROPE.

It has already been remarked that at no very distant date after the Chinese had first invented porcelain, examples of it must have found their way to Europe. Discarding, as we have, the legendary ideas as to the extreme antiquity of Chinese porcelain, it is of the utmost interest to observe that as early as the year 1171, a present of forty pieces of this precious material was sent from Egypt, by the famous Saladin, to the Sultan of Damascus. Cairo had already become one of the greatest marts in the world for the exchange of the productions of East and West, and the fact that forty pieces of porcelain could be procured from its bazaars bears the strongest testimony, not only to the importance of Cairo as a trading centre, but also to the enterprise of the traders of the East, who would venture such a fragile material on a long and perilous over-land journey. It has been surmised that the first knowledge of this rare substance was brought into Europe by Crusaders returning from Palestine, and in support of this there is the oft-mentioned specimen in the Dresden collection, which is reputed to have been given to the German Emperor by a returning Crusader.\*

Of course, the famous traveller Marco Polo, who visited China in the thirteenth century and gave an account of his travels, mentions as one of the wonders and rarities of that country this transparent species of pottery. For several centuries, however, the trade in Chinese porcelain must have been a precarious one, as the cost of importing such

\* This is a small ivory-white plate—with uncut rubies and emeralds and gold filigree let into the paste, with the character *Fu* (happiness) written under the foot in underglaze blue—which is said to have been brought by a Crusader from Palestine in the twelfth century.

fragile objects from China, either by the over-land routes, or by Arab vessels to the ports of the Red Sea or the Persian Gulf, rendered an extensive trade impossible.

Remembering the geographical position of Italy, and the trading pre-eminence of its great cities, it is but natural that the first European attempts at the making of porcelain should have been made in the Italian towns. There is documentary evidence to prove that Venetian alchemists, who were, of course, familiar with all the secrets of mediæval glass-making, succeeded in producing something in the nature of translucent pottery as early as the beginning of the sixteenth century. We are also told that, at Ferrara, a Venetian alchemist made some examples, but of the actual nature of such productions we have no information ; and if any of these pieces exist on the shelves of any Continental museum or collection, they have, so far, escaped even the most hazardous identification. The earliest specimens of any European imitation of porcelain which are known, are a few pieces that have survived from the productions of a kiln established at Florence, under the patronage of the great Medici family : the kiln appears to have been in operation, with greater or less regularity, from 1575 to 1585. This famous Florentine porcelain was, however, entirely different in its nature and composition from that of the Chinese. It was made by mixing together an impure China-clay (*Terra di Vicenza*), fine, white sand, and a large proportion of glass—and it was thus the predecessor of that famous group of imitative porcelains so extensively made in France and England in the eighteenth century, by adding glass to clay to obtain the desired translucence. There are a few specimens of this Florentine porcelain in existence, and the majority of them have found their way into public collections, so that they are easily accessible for reference. The precious little collection in the Victoria and Albert Museum will allow the English connoisseur to fix the qualities of this ware perfectly in his mind. The pieces, as one might expect, are rather thick and clumsy in substance ; the glaze is not very brilliant ; and the body is only moderately translucent ; so that, compared with the finest white porcelain, the pieces appear somewhat dull and yellow, and yet there

is something in their appearance which instantly stamps them as porcelain. The decorations are always in underglaze blue, sometimes bright, sometimes rather grey and heavy, but always softened, and a little run, by the glaze. The designs almost invariably take the form of floral arabesques, and are strongly reminiscent of the blue decorations on Persian faïence. It seems probable that this production was an experimental one, abandoned as soon as the whim of its patron changed, and it cannot be said to have had the slightest influence on the subsequent course of European pottery.

With the discovery of the Cape route to India, and the establishment of Portuguese trading stations in the Far East, Chinese porcelain, particularly the céladon wares and the blue-and-white made in later Ming times, were brought into Europe in increasing quantities. The Portuguese were followed by the Dutch as we have seen, and they in turn by the French and English. During the seventeenth century the Dutch were most active in this trade, and some of the pieces they brought to Europe are still to be found in the collections at The Hague, Leiden, and Amsterdam, as well as in the famous collection formed, at Dresden, by Augustus the Strong, between the years 1694 and 1705. The bulk of this collection is now displayed in the Johanneum in that city, though a certain number of pieces have, from time to time, found their way into other European collections. Naturally it contains both Japanese and Chinese porcelains, for the Dutch merchants seem to have labelled the wares either to suit their own fancy, or so as actually to disguise the real place of origin of the different kinds. The French India Company likewise imported Chinese porcelain in the seventeenth century ; but during the eighteenth century the trade fell more and more into the hands of the English, who continued it until it was reduced to insignificant dimensions by the growth of the European porcelain-factories in the late eighteenth century.

We cannot suppose that Europeans made no efforts to imitate Oriental porcelain during the seventeenth century, while this trade was developing, yet it is not until 1673 that we hear of another porcelain in Europe, when Louis

Poterat, a faïence-maker of St. Sever, near Rouen, was granted an exclusive monopoly for the fabrication of porcelains, like those of China, for a period of thirty years. Here for a few years the first definite French porcelain was manufactured, and shortly afterwards we find a similar ware making its appearance at the faïence works of St. Cloud, near Paris. The manufacture of the imitative French porcelain must have been well established by 1698, for Dr. Martin Lister, in an account of his visit to Paris in that year, says:—

“ I saw the potterie of St. Clou, with which I was marvellously well pleased, for I confess I could not distinguish betwixt the pots made there and the finest China ware I ever saw. It will, I know, be easily granted me that the painting may be better designed and finisht (as indeed it was), because our men are far better masters of that art than the Chineses; but the glazing came not in the least behind theirs, not for whiteness, nor the smoothness of running without bubbles. Again, the inward substance and matter of the pots was, to me, the very same, hard and firm as marble, and the self-same grain on this side vitrification. Farther, the transparency of the pots the very same . . . . I did not expect to have found it in this perfection, but imagined this might have arrived at the Gomron ware; which is, indeed, little else but a total vitrification, but I found it far otherwise and very surprising, and which I account part of the felicity of the age to equal, if not surpass, the Chineses in their finest art.

“ They sold these pots at St. Clou at excessive rates, and for their ordinary chocolate cups askt crowns a-piece. They had arrived at the burning on gold in neat chequere works. He had sold some tea equipages at 100 livres a sett. There was no moulding or model of China ware which they had not imitated, and had added many fancies of their own, which had their good effects and appeared very beautiful.”

The porcelain described with such enthusiasm was, like that made at Rouen, an artificial or glassy ware compounded from clay and glass, and for the next sixty or seventy years, not only was the manufacture of this interesting

material continued, in the famous factories of Chantilly, Mennecy, Vincennes, and Sèvres, but the secret of its composition was carried into neighbouring countries; and artificial porcelains were made in Italy, Spain, and Belgium, as well as in England, though the English potters soon developed an independent ware of their own.

In the opening years of the eighteenth century, Böttger, at Dresden, first succeeded in making a European porcelain—using only clays and rocks similar to those employed in China and Japan—and the famous Meissen factory was started on its long career. Although every effort was made to prevent the secrets of this “true” porcelain manufacture becoming known elsewhere, such great temptations were offered by the various German Princes that factories for the manufacture of hard-paste porcelains were established at Vienna, Ansbach, Bayreuth, Höchst, Berlin, Neudeck, and St. Petersburg, all within forty years; and throughout the whole of the eighteenth century there was the greatest rivalry between the factories in various countries which followed the French or German lead. Speaking roughly, the German methods were followed north of the Alps and east of the Rhine, extending even into Denmark and Scandinavia, while glassy-porcelains, of the French type, were made in the western and southern countries of Europe.

The search for French minerals suitable for the manufacture of true porcelain, though widely prosecuted, was unsuccessful until about 1765, and it was not until 1770 that the Royal factory at Sèvres succeeded in making a porcelain of the same nature as the German and Oriental. From that time the manufacture of true porcelain gradually ousted the artificial porcelain all over the continent of Europe, and it was only in England that it obtained no foothold. The special English bone-porcelain has already been mentioned, as well as the reasons that have enabled it to maintain its ground down to the present time.

It is the European porcelains made during the eighteenth century that have hitherto been almost exclusively sought after by collectors, but as these are becoming so scarce as to command the most exorbitant prices, a little more attention is now being paid to the productions of the nineteenth

century, though these latter can never possess the same interest as the pieces that mark the halcyon days of porcelain, when the work was subsidised by kings and princes, and commercial production was almost a negligible factor.

Just in the same way that the secrets of the manufacture of "true" and of "artificial" porcelain spread from Meissen on the one hand, and from the factories near Paris, patronised by the French Court, on the other, the artistic styles of form and ornament successively introduced at Meissen and at St. Cloud, Vincennes and Sèvres, formed the fountain from which the other factories drew much of their inspiration.

Amongst the earliest productions of St. Cloud and Meissen were white pieces decorated only with moulded ornaments or with applied flowers. This style was clearly borrowed from the white wares of Fuchien, and we find pieces of the same type making their appearance during the early days of most of the European factories, whether it be at Bow and Chelsea, or at Doccia and Capo di Monte. A little later moulded flowers were used, not only for the decoration of vases, but in the composition of bouquets and sprays. These flower-pieces, often tinted with brilliant enamel-colours, were extensively made at Vincennes and at Meissen after 1840, and were, in their turn, reproduced at every European factory. In the same way, when imitations of the Chinese blue-and-white wares had become a staple manufacture at St. Cloud and at Meissen, we find them repeated all over Europe, and in such a way that it is often difficult to decide whether it is the Chinese ware that is being copied, or one of these European imitations. It is only in a few isolated factories, such as that of Worcester, that one feels strongly the influence of an independent study of Chinese pieces. A similar course was followed when the Japanese Kakiemon patterns had been so successfully reproduced at Meissen and Chantilly, for Kakiemon decorations became the rage all over Europe; in our own country, forming one of the best-known styles of Bow, Chelsea, and Worcester. The method of decoration, with painted detached sprays of flowers and

leaves, which was originated at Meissen—it is said for the purpose of hiding defects in the ware—was too good a process not to be followed everywhere ; and in the same way some of the Sèvres decorations, such as the rose-and-ribbon patterns, and the borders of blue cornflower said to have been invented for Marie-Antoinette, have been the starting point of more modern designs than one could count.

When Meissen, Chantilly, and Sèvres sent out their stream of deftly-modelled and gaily-painted porcelain figures, they started a fashion that lasted for more than a century. To speak of Dresden porcelain-figures is, indeed, to characterise the period from 1840 to 1880. Between those years, from almost every factory in Europe, there issued a crowd, "thick as leaves in Vallombrosa," of figures, illustrating not only the social life of the times, but the characters of the stage, and the conventional "pastoral comedy" as it was played at Versailles and the other European Courts. Many a factory, in the various countries, added some individual figure or group, of local or national interest, though they did not disdain to copy the actual models, as well as the ideas, of the pioneer factories.

Contemporaneously with the appearance of the coloured figures, the current Rococo style made itself felt in the shapes and decorations at these predominant factories ; the French factories, quite naturally, taking the lead. There is always something to be said for the French work of the time of Louis XV. and XVI., for however impure or meretricious the style may be, it had been evolved by native artists working in harmony with their environment, and the execution betrays a certain lightness and delicacy of handling that charms the severest critic. But when this essentially French style was adopted by the other nations, the results were generally disastrous, and the duller and more serious German, Dutch, or English decorator, working in the same manner, fell into the pit over which the Frenchman had lightly skimmed. The most admired European porcelains were made during the time when the "rococo" influence was paramount, and when the earlier styles, derived from the imitation of Chinese and Japanese porcelains, were less in

evidence ; for it governs the period of the best productions of Meissen, Sèvres, Berlin, Capo di Monte, and Chelsea, to mention only the most important factories.

After about 1780 a most unfortunate influence, so far as porcelain was concerned, came into being through the revived attention paid to "Classic Art," that followed on the excavations at Pompeii. "Classic shapes," as they were called, became the rage among the porcelain-makers of every European country, in spite of the fact that they were not well adapted for reproduction in porcelain. The Greek potter, of classic times, could always relieve his shape by swiftly-drawn figures in silhouette or ornamental bands of simple "brushwork"; but to the porcelain-painter of the eighteenth or nineteenth century, the badly-adapted antique shapes offered only a field to be covered with grounds of enamel-colour laid as evenly as possible, and diversified by panels with elaborate naturalistic paintings of figures, flowers or fruit, and with a profusion of solid gilding. This incongruous style was gradually supplanting all the earlier styles of porcelain decoration when the French Revolution and the Napoleonic wars suspended, for a time, the work at every Continental factory of importance. A similar movement went on in England, unchecked by such misfortunes, though England has always lagged behind the rest of Europe in its changes of style, and has proved much more faithful in its attachment to Oriental influences.

In the first half of the nineteenth century, the re-established factory at Sèvres, which was largely subsidised by the great Napoleon and subsequent French monarchs, was undoubtedly the leading porcelain factory in Europe. Its director was the famous Alexander Brongniart, a man of a severely scientific turn of mind ; and, marvellous as was the technical skill displayed under his directorship, it must be confessed that this was, perhaps, the most inartistic period that porcelain has ever seen. At first the so-called "Empire" style of decoration carried on the ill-fated tradition of the previous century, and huge vases and other pieces were made for the Royal palaces or for presentation, heavily painted with groups of figures in monochrome in imitation of a Grecian frieze. This was succeeded by the



production of large plaques of porcelain painted with copies of some of the most famous pictures in the gallery of the Louvre, so that the period was one when workmanship in the narrow sense was exalted to the utmost, and artistic quality was unappreciated. When the other leading European factories emerged from the cloud cast over them by the Napoleonic wars, they were content to follow the lead of Sèvres, or to make inferior reproductions of their own early pieces. In England the experimental period, which had been marked by the growth of the factories at Bow, Chelsea, Worcester, and Bristol, was succeeded by a period of complete commercialism, and any new venture, such as that at Rockingham, was distinguished only by exuberant bad taste.

After 1850, though the same influences largely preponderated, there was a certain revival when Mintons, Copelands, and Worcester, in England, produced wares more highly esteemed on the Continent than any previous English porcelain had been. After 1870 a pronounced wave of Japanese influence was felt all over Europe, which lasted for something like ten years. When this storm subsided the European porcelain-makers had at all events learnt that the hard-paste porcelain they were in the habit of making was not the most beautiful material that could be desired, and at Sèvres and Berlin a prolonged series of investigations were carried out that finally resulted in the appearance of less-refractory felspathic porcelains, capable of receiving decorations as brilliant as the Oriental.

The same movement gave birth to the modern porcelain of Copenhagen, which has undoubtedly exercised the greatest artistic influence of any European porcelain during the last fifteen years. This Copenhagen porcelain is distinguished by its cool, subdued palette of underglaze colours used on a ware of singularly fine quality. The broad and simple decorations reveal the influence of two forces; first, that of the Japanese naturalistic painters, and, second, that of the Northern "impressionist" painters. It was at this works, too, that the crystalline glazes, developed by the aid of oxide of zinc, first appeared outside the laboratory, though since that time they have also been largely used at

Sèvres, Berlin, and Rörstrand, while only in 1906 Doultons exhibited, in London, some wonderful pieces of the same kind.

At the present time the Royal Porcelain Works at Berlin stands pre-eminent in its range of technical accomplishment, while Copenhagen and Sévres are still superior in artistic quality. The great English porcelain-factories remain outside the current artistic movement, seemingly content with the undeniable, practical excellence of their productions. The only English porcelain-maker of to-day who has departed from the beaten track, is Mr. Bernard Moore, who has produced some notable triumphs in the way of *Flambé* glazes in endless variety of colour and decoration.

## CHAPTER XV.

### GERMAN PORCELAIN.

MEISSEN.—The first hard-paste porcelain made in Europe was produced at Meissen, and its discovery, which marks an entirely new departure in European pottery, has always been attributed to Johann Friedrich Böttger, a native of Schleiz, in Thuringia, who was born in 1685 and is first heard of as apprentice to an apothecary in Berlin. This was the period when the search for the Philosopher's Stone was in full activity, and Böttger at a very early age seems to have acquired a reputation for his knowledge as an alchemist. In 1701, when he was only sixteen years of age, he fled from Berlin—under fear, it is said, of prosecution for fraud—and settled in Saxony. Frederick Augustus, the then Elector of Saxony, has already been referred to in the previous chapter as having formed the first important collection of Oriental porcelain in Europe, and he was, besides, a great patron of the chemists and philosophers of his day. The chief chemist attached to the Dresden Court was Walther von Tschirnhaus, in whose laboratory Böttger was put to work. Tschirnhaus had already been making researches on glass and other substances, and we read of Dutch potters being brought to Dresden in 1708 to carry out some experiments in imitation of the famous wares of Delft. The first achievement attributed to Böttger is the discovery of a dense red-stoneware, so hard that it was capable of receiving a high polish in the hands of a lapidary ; and we are further told that this was the result of experiments to produce crucibles capable of standing the high temperature needed for the constant experiments on the transmutation of metals. The production of this red-stoneware was hailed as a great achievement, though it had been anticipated by other potters like Dwight and Elers in

England ; but at this time everything Chinese was highly esteemed, and the Chinese "boccaros," as the red tea-pots of the Yi-hsing potteries were called, were much sought after in Europe. Why this red-stoneware of Böttger's should ever have been dignified with the name of porcelain seems difficult for us to understand, for it possessed none of the qualities which distinguish porcelain from the other kinds of pottery. Neither could it in any way have been the starting point of the Meissen porcelain.

The first information we have of true porcelain is that, in 1709, Böttger was able to show a few crude specimens to the Royal Commissioner at Dresden, and it seems that these were exhibited at the Leipzig Fair in 1710, when the red-stoneware was first offered for sale. Imperfect pieces of white porcelain were offered for sale at the Leipzig Easter-Fair in 1713, and by 1716 its manufacture was fairly established. We are absolutely without information as to the successive steps by which Böttger reached this triumph, and it is difficult to imagine that a secret which had so long baffled the researches of Europeans should have been solved by a mere youth. It is only natural to surmise that the Elector of Saxony obtained information—and perhaps samples of the raw materials used by the Chinese—from the agents he employed to make his famous collection of Oriental porcelain. If this be allowed, great credit must still be given to Böttger, and probably also to Tschirnhaus, for the readiness with which analogous European minerals were discovered and utilised, for we know that though Père d'Entrecolles sent specimens of the Chinese materials to France, forty years elapsed before the savants of that country succeeded in finding the requisite minerals and in making French hard-paste porcelain. The first Meissen porcelain was fabricated from the kao-lin found at Aue, near Schneeberg, and though no mention is made of any felspathic material being used to complete the ware, it is probable that this was obtained from the same quarries, and that, owing to the secrecy in which everything concerning the manufacture was involved, and the elementary state of scientific knowledge at the time, all the substances were confounded together under the name kao-lin.

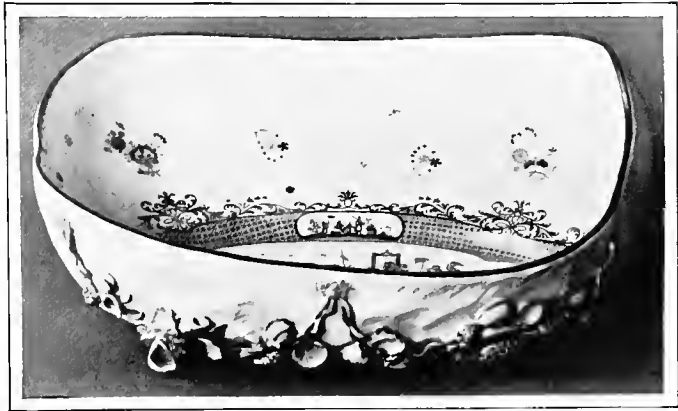


PLATE XVIII.—**MEISSEN.**

FOUNTAIN AND FIGURE.



When those in charge of Böttger's experimental work realised the immense importance of his discovery, the experimenter and his workmen were removed at once to the Albrechtsburg, a fortress situated at Meissen, a few miles west of Dresden, so that the manufacture could be conducted with the utmost secrecy. Probably, the extreme rigour with which the workmen were treated defeated the ends that the Court had in view, for we find that various workmen escaped from this fortress prison at Meissen and established other factories in different parts of Germany. Böttger himself died in 1719 at the early age of thirty-four, having founded an industry which is still a legitimate source of pride to the German-speaking nations.

It cannot be said that the wares produced during these few years are anything more than experimental, as a study of the specimens of this period preserved in the museum at Dresden will testify. In the first place the forms are thick and clumsy, many of them obviously made in the same moulds that were used for the red-stoneware, which continued to be manufactured during Böttger's lifetime. The pieces are often warped or fire-cracked, as we should expect in the early days of a process when all technical knowledge had to be sought by experiment. Naturally, Chinese pieces were largely copied, but, singularly enough, though Saxony is rich in ores of cobalt, the underglaze blue of this early period is always defective, being very much run and oftentimes blistered and bubbled, doubtless from imperfect purification of the ore. Apart from the modelling and raised flower-work, which at once made their appearance, attempts were likewise made at decoration in enamel-colours, but these had not passed beyond the experimental stage, for the glaze was so refractory that it was difficult to get the colours to adhere, and in most of the specimens that have been preserved to our day, they have scaled off.

After the death of Böttger the works was managed by a body of four commissioners, and the decoration in underglaze blue was persevered with, though still with no great measure of success. The brown ground referred to by Père d'Entrecolles (see p. 113) was more successfully

imitated, for here, no doubt, the practice of the brown-stone-ware makers of South Germany gave a clue to the materials suitable for such a purpose. The great success of the Meissen factory must, however, be attributed to two men, Herold, or Höroldt, who came to Meissen in 1720 as a painter and colour-maker, and Kandler, a modeller, who joined the staff in 1731; for in their hands the pieces began to assume a definitely European character. Herold was originally a painter, and after some years of experience at the works he was appointed director. Under his direction many of the early difficulties connected with the use of the colours were overcome. In the first place, the painting in underglaze blue was greatly improved, and he soon adopted the designs of the Japanese Kakiemon pieces, and was probably the first European decorator to win for this charming style the reputation it so long maintained. He also seems to have been the first to make the "Armorial" services then so much in vogue, as specimens of these are known which were made between 1730 and 1740; while we get the first evidences of a more distinctive European style in the pieces decorated with naturalistic flowers, either in formal painted patterns or in the shape of scattered sprays with the addition of a fly or some other winged creature, here and there, to hide imperfections in the glaze, which were so readily adopted at all the other European factories.

With the engagement of J. J. Kandler, the modeller, in 1731, the European influence became still more pronounced. In the first place the rococo scroll-work of the period was transferred to porcelain decoration, being often used as a frame to enclose miniature-like paintings of ruins, figure-subjects, and landscapes, executed in the limited palette of enamel-colours then available. These same colours, red, green, yellow, grey, and black, were also used as grounds with reserved white panels on which Chinese figures, landscapes, or groups of flowers were painted either in monochrome or in a variety of colours. Another direction in which the influence of Kandler was felt, was the substitution of distinctively European shapes with architectural mouldings, for the pronouncedly Oriental shapes that had ruled up to this time. His great innovation, however, was the



introduction of the little statuettes and groups of figures that must for ever be associated with Dresden perhaps more than any other European factory. We shall have to refer to these figures further on, for at first they were only sparingly made, and the abilities of Kandler were directed into the ambitious, but entirely futile, channel of attempting to produce life-size figures of the Twelve Apostles, an equestrian statue of Augustus the Strong, and many figures of animals designed for the decoration of the new rooms of the Japanese palace at Dresden.

We must not forget to mention that as early as 1732 Meissen porcelain had won such a reputation that it was already sent to Constantinople to be distributed among the Mohammedan countries of the nearer East, though this is probably only another proof of how the trade channels had changed, so that the countries which had once introduced Chinese porcelain to Europe could now more easily draw their supplies from Europe than from the farther East.

About 1740 we may take it that the production had passed through its early trials. The ware had already secured the greatest renown in Europe, so that in many places it was supposed to be far superior to the porcelain of China, and it is said that as many as seven hundred workmen—an enormous number for those days—were employed, and large profits were made by the establishment. This period lasted, with interruptions which we shall notice presently, down to about 1775, and it is during this thirty-five years that we get the finest examples of the Meissen ware, for Herold remained director down to 1765, and Kandler was associated with the works until 1775.

During this time the earlier Chinese traditions seem to have been definitely abandoned, and the ware more and more conformed, both in shape and decoration, to the current European taste of the day. The rococo style of decoration, as it was interpreted by the Germans, ousted the simpler motives derived from the Chinese, while the dainty decorations derived from the earlier Japanese ware also disappeared. Vases, candelabra, mirror frames, and clocks, were modelled in the most *outré* forms with applied scrolls,

shells, and flowers. On the larger vases, gold rococo-scrolls enclosed European landscapes with figures imitated from Watteau and other fashionable French painters of the time, while the simple enamelled-grounds of the second period were replaced by diapers of red, blue and green. It was during this time, too, that the famous exotic-birds made their appearance on the Meissen porcelain, as well as on that of France and England, while the little Dresden figures were produced in endless profusion, and sent the fashion all over Europe. Dr. Brinckmann, of the Hamburg Museum, has unearthed a number of the price-lists from which much valuable information has been derived, and the reader desirous of fuller information is referred to his catalogue of the German porcelains displayed in the Museum over which he so ably presides.

In 1759, and again in 1761, Frederick the Great, during the Seven Years' War, looted the Albrechtsburg, and temporarily put an end to the manufacture. He is said to have carried away to Berlin, not only the models and the working-moulds, but many of the principal workmen; and the archives in which were recorded the works of Böttger and his successors were either stolen or destroyed—an irreparable loss to the history of European porcelain.

In the estimation of collectors, the interruption caused by the wars between Prussia and Saxony marks the end of the finest and most distinctive period of Meissen porcelain: for when the works was re-established, fresh influences and new ideas were at work. In 1864 a painter named Dietrich was at the head of affairs, and he followed the current in introducing the so-called classic style, which played such sad havoc at all the European factories. At the same time a French modeller, named Acier, joined the staff, and to his influence we may trace a certain affectation of ingenuous simplicity, which is also met with all over Europe, for was it not the age of Angelica Kaufmann?

The fourth period commenced about 1774, when Count Marcolini became director, continuing in that post till 1814. This period of forty years, known as the Marcolini period, shows us the Meissen establishment, the oldest of the great European factories, following the lead of



PLATE XIX.—**MEISSEN.**  
VASE.



Sèvres in the atrocious neo-classic style which expired in the frigidities of the so-called "Empire" decorations. Heavy ground-colours were largely used, the commonest being a royal-blue ground imitated from that of Sèvres, and a peculiar rich green which is quite characteristic. The best work of the period is, perhaps, to be found in the "biscuit" groups and figures made in imitation of antique marbles; most of these were modelled by an artist named Jüchzer. Recalling the profound secrecy with which the operations were conducted, it is interesting to find that when Napoleon sent Brongniart to visit the Meissen works in 1812, he had to go unaccompanied, and the Elector of Saxony had first to release Steinauer, the acting director, from his oath of secrecy before he could explain the processes.

Count Marcolini died in 1814, and was succeeded by Kühn, who tried to improve the manufacture from the technical point of view. He simplified the bodies, introduced firing by coal instead of wood, and tried to follow the path traced by the scientific directorate at Sèvres. We have already stated that this was the worst period for artistic porcelains all over Europe, and Meissen was like the rest. The older wares of the factory had already become valuable and the fashion set in of reproducing them, marks included, a custom which has persisted to the present time. The factory was only removed from its old fortress-site in 1863, since which, though it has flourished commercially, it has added little or nothing to the progress of the art.

VIENNA.—The minds of all men seemed to turn to the making of porcelain in the first half of the eighteenth century, and the first name we find in this connection at Vienna is Claude du Paquier, described as a Dutchman, who took out a patent in 1718. His first success was not in making porcelain, but in securing two runaway workmen from Meissen, named Stölzel and C. K. Hunger. We shall hear of these men again, for, like other wandering workers of varying capacity, they were responsible for more than one of the eighteenth-century porcelain factories. Du Paquier made little progress even with the help these men could give him, and finally the Empress, Maria Theresa,

bought their factory and their secrets. It was thus that the Imperial Viennese factory was started on a career that lasted down to 1864 ; yet in all this long period little originality can be claimed for its productions. The first director was Karl Mayerhofer von Grünbüchel, who simply continued the traditions of form and decoration brought from Meissen. With the advent of the new director, Baron von Sorgenthal (1785-1801), a fresh style was established. This consisted in a decoration in which rich figure-painting and the finest gilding were associated, a style that one instinctively associates with Vienna. In fact Leithner, who was the chemist and colour-maker, produced a palette of enamel-colours more complete and perfect than that of any contemporary porcelain factory ; and in addition to the preparation of a rich gold he also introduced the use of platinum, at about the same time that Wedgwood was using it in England. In addition Leithner appears to have been the first to make an underglaze black from uranium, so that his technical successes deserve to be remembered. The "Classical" influence was as pronounced at Vienna as elsewhere, and the modeller Grassi made a distinguished series of "biscuit" figures, emulating those of Sèvres and Meissen. Niedermayer became director in 1801, and at this time the works were so successful that he established a branch works at Engelhardzell, where porcelain was made and sent to Vienna to be decorated. The method of painting copies of pictures on porcelain was still further developed, and with that, in spite of fine colours and the richest gilding, the artistic decadence was complete. A word should be added as to the relief gilding so extensively employed ; a first coat of gold was applied, fired and burnished, and on this flowers or other ornaments were thickly painted with gold in relief. After a second, or, if necessary, a third, firing, these were cut up with agate tools, and polished so as to give the utmost sparkle and brilliance. The process was a costly one—only possible at a Royal factory—both on account of the amount of precious metal employed, and of the time consumed in the process.

Collectors should be warned that a flood of cheap porcelains, decorated in Viennese workshops, which have

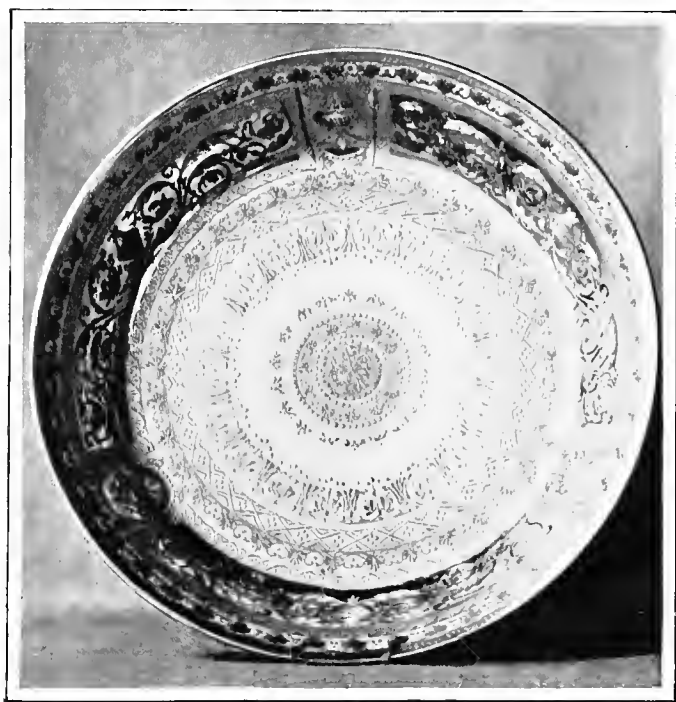


PLATE XX.—**VIENNA.**  
CUP AND SAUCER.





sprung up since the cessation of the Imperial factory, are now to be found on the English market.

HÖCHST.—The secret of porcelain, carried from Meissen to Vienna, was in turn carried to Höchst, a little town between Frankfort and Mainz. Here a potter named Göltz had attempted to make porcelain as early as 1720, but it was not until the advent of Löwenfinck, a painter from Meissen, about 1746, and, it is said, of Ringler, a potter from Vienna, that any real porcelain was made. Löwenfinck appears again in connection with the Hannong factory at Strassburg, while Ringler reminds us of our own Billingsley, reappearing here and there like the Wandering-Jew, always possessed of profound knowledge, always disappointed or in disgrace. The early years of the factory were marked by disappointment—the experts were, as usual, unsuccessful—and the venture was only put on a sound footing when the Archbishop-Elector of Mainz finally adopted it, and secured patient workmen as well as capable artists. Speaking generally, the Höchst porcelain was an echo of that of Meissen, though it may be distinguished, not only by its handling, but by the use of two enamel-colours made from gold; first, a light transparent rose-colour, used in the figure painting, and, second, a distinctive carmine colour, used as a monochrome. Höchst is, however, noted for its excellent figures and groups, which command high prices at the present day, particularly in Germany. The first modeller was one Russinger, and the last, Riess; but these were both eclipsed by Johann Peter Melchior, who worked here for about ten years (1770-1780). He is said to have carved his models in wood, hence the sharpness and the essentially German character of his work, which lead some people to prefer his figures to those made at Meissen, or, indeed, to any German porcelain figures. He is said to have modelled some three hundred figures at Höchst, as well as many portrait medallions. The works came to an end with the French invasion of the Rhine provinces in 1794, though it should be added that since 1840 many of the Höchst figures have been reproduced in earthenware at Damm, near Aschaffenberg.

BERLIN.—The enterprise which was to develop, in our

own times, into the most technically-skilled factory in Europe, had a very unpropitious youth. One Wilhelm Caspar Wegeli, aided by a workman from Höchst, commenced to make porcelain at Berlin as early as 1750. Many fine services and figures were made in the Wegeli factory, which are now highly prized, both on account of their rarity, and because of the subsequent success of the Royal manufactory; but the business was not successful and was abandoned in 1757. In 1761 another attempt was made by a banker and army contractor, J. E. Gotzkowski, and here Frederick the Great sent all the porcelain materials stored in the cellars at Meissen, as well as moulds and workmen, when he had taken Dresden; while in 1763 Frederick became sole proprietor of the works, and so founded the Royal manufactory. The early Berlin porcelain was prepared with impure materials from Passau, so that it had a yellowish-grey tinge; but finer materials from Silesia and Hall were afterwards introduced, and a porcelain as dense and white as that of Meissen was then obtained. Frederick the Great was not the monarch to run an unprofitable establishment, and the sale of porcelain was pushed in many ingenious ways. The Berlin lotteries had to distribute 10,000 thalers' worth every year, and no Jew could procure a wedding certificate unless he had first purchased a service of the Royal porcelain. It was doubtless Frederick's *penchant* for French art that established the rococo style at Berlin, even more pronouncedly than at the other German factories. In spite of the importation of Meissen workmen and painters its decorations were but little followed, though the pierced and ribbed basket-work patterns of Meissen porcelain were largely imitated. The colour schemes of the early Berlin painters were unusually simple, the entire decoration generally being in two or three colours, grey and green, rose-colour and grey, red, black, and green or gold. Berlin was famous for its rose-coloured enamel, which was an especial favourite with the great Frederick.

At the commencement of the nineteenth century, the financial troubles of the Prussian State were felt in the porcelain administration, and a cheaper class of production was introduced. Printed decoration was used as early as 1800,



PLATE XXI.—BERLIN.  
CUP AND SAUCER.



but to no great extent. Two styles of porcelain invented at Berlin before 1840 made a great sensation when they were first introduced, though neither of them is used nowadays, except for the cheapest work. The first of these was a species of lace-work, made by dipping lace in porcelain-slip, so that when the piece was fired the thread burnt away, leaving its replica in porcelain. The second was the production of plaques or slabs of porcelain modelled in relief in such a way that when the piece was viewed by transmitted light, the light and shade of a picture or a scene are given by the thick and thin parts of the porcelain. In the Museum at Sèvres is one of these plaques, 21 inches high by 19 inches wide, in which the interior of a church is represented. Neither of these can be described as artistic processes, and the principal glory of the Berlin factory has been in the attention paid to the technical and scientific problems of porcelain manufacture, so that the Berlin porcelain has been of the greatest aid in the development of the great chemical and electrical industries of Germany. Since the war of 1870, greater attention has been paid to artistic productions. Seger introduced here a soft porcelain, modelled on the glazes and bodies of the Japanese, and all the new methods of decoration with coloured glazes, raised enamels, *pâte-sur-pâte*, or elaborate painting have been followed with avidity. It seems ungracious to add that, artistically, this fine Berlin porcelain is of little account, but the pieces are too exuberantly loaded with painted, modelled, or sculptured work to be truly exemplary.

NYPHENBURG.—The wandering unsuccessful expert, Ringler, is said to have been engaged at Neudeck, in Bavaria, about 1756, but the processes were really worked out by J. P. Hartel, and the factory was transferred to Nymphenburg in 1758, where, under the patronage of Max Joseph III., of Bavaria, it flourished as a Royal factory. The early ware is of fine quality, but is not especially distinguished either in style or execution. After 1777, the factory languished for a time until it was strengthened, under Maximilian IV., by workmen brought from Frankenthal when the French invaded the Palatinate. In the early years of the nineteenth century, elaborate figure-painting

became the rule as at the other Royal factories, and copies were made on vases, dishes, and plaques, of some of the famous paintings in the Munich galleries; while, after 1815, much of the ware was decorated at Munich. Melchior, the sculptor, came here from Fürstenberg, and remained until his death in 1825; his Nymphenburg figures are as highly esteemed as those he made at Höchst and Frankenthal. The best collection of the ware is in the National Museum at Munich, but the works is now in the hands of a private company, and reproductions of eighteenth-century pieces are made, as well as decorations in the modern style.

LUDWIGSBURG. — This factory was founded by Duke Charles of Würtemberg about 1758. Ringler was once more the guiding spirit, and he is said to have remained here until his death in 1802. Ludwigsburg, some nine miles north of Stuttgart, was the site of the château of the Dukes of Würtemberg, and it was only the liberal subsidies they provided that maintained the enterprise. The ware was made with materials from Passau, and, as is inevitably the case under such circumstances, has a yellowish-grey tint in marked contrast to the pure, almost strident whiteness of the Meissen porcelain. The enamel-painting is noted for its high finish, the usual decorations of landscapes, with figures, paintings of birds and flowers being generally followed. A decoration with wreaths of flowers embossed in the paste was also largely used, and such pieces are finished with minutely painted beetles and butterflies. Some carefully-made and highly-finished figures and groups also belong to Ludwigsburg, the best being those modelled by Pustelli about 1760. As we have already said, the existence of the factory was dependent on the Court subsidies, and after the death of its first patron in 1793, the political events of the period left little time or money for porcelain, so that the works, after lingering on for a while, was finally closed in 1824. It may be added that because the ware bore a crown as one of its marks, it has been named "Kronenburg" porcelain, in ignorance of its real origin.

FÜRSTENBERG.—The Duke of Brunswick, like so many other German princes, was anxious to have the honour of possessing a porcelain factory. It is said that experiments



PLATE XXII.—**MEISSEN.**  
COFFEE-POT.



**LUDWIGSBURG.**  
COFFEE-POT.





were made as early as 1746 by one Glaser, from Bayreuth, but these experiments were unsuccessful. Another expert, Bengraf, was tempted from Höchst in 1753. Other workmen also came from Höchst, but it was not until 1770 that a fine porcelain was made. Though much good work in the current German style was made, the most distinctive pieces are the "biscuit" statuettes, groups, and medallions, modelled by Luplau, Desoches, and Schübert, doubtless stimulated by the fine "biscuit" pieces then being made at Sèvres. In fact, Fürstenberg seems to have set itself to copy all the best known porcelains of the time, and the various styles already mentioned were steadily followed, for the factory remained in operation down to 1888, when the disinclination of the legitimate Dukes of Brunswick to fall in with the political schemes of Prussia caused it to be given up. Since then, as the moulds were sold by auction, imitations of the old Fürstenberg wares have become common.

FULDA.—The porcelain made at the short-lived factory at Fulda, in Hesse, between 1765 and 1780, is highly esteemed by collectors, for its daintily-modelled figures and carefully-finished services were produced at great cost. In fact, the whole enterprise was due to the liberal subsidies of the Prince-Bishop Arnandus of Fulda, who set up the works close by his palace, and it came to an end with his death.

FRANKENTHAL.—Though we hear of earlier experiments at Frankenthal, near Mannheim, it is not until Paul Hannong, of the famous family of Strassburg potters, was driven out of that town—owing to the jealousy of the Royal factory at Sèvres—and settled at Frankenthal in 1755 or 1756 that any true porcelain was made. Paul Hannong was welcomed by Karl Theodore, the Elector Palatine, and in 1762 the works, then under the direction of Joseph-Adam, son of Paul Hannong, was definitely acquired by the Elector. Its good period only lasted down to about 1780, and it was finally closed in 1795, when many of the painters and workmen migrated to Nymphenburg and the other German factories. During the six or eight years before 1780, every effort was made to perfect both the porcelain and the

painting. A deep royal-blue ground was much used in imitation of the *bleu-de-roi* of Sèvres, while rich, raised-gilding in imitation of that of Vienna was extensively used. Enamel painting was also largely employed, and in the Franks collection, at Bethnal Green, there is a plate, dated 1775, decorated with all the colours used at the works, and with rich gilding. The famous sculptor, Melchior, came here from Höchst in 1780, and his characteristic German figures are highly esteemed.

The minor German factories of the eighteenth century, such as Cassel, Ansbach, Bayreuth, Kloster-Veilsdorf, Walendorf, Limbach, and many others, though of great interest to German collectors, added nothing of importance to the current styles, and the reader anxious for information concerning them is referred to Dr. Brinckmann's catalogue. We must, however, mention the work of certain unattached decorators, who obtained white ware from any factory that would sell it, and decorated it in enamel-colours. When European white wares were unprocurable they fell back on Oriental pieces; or they obtained slightly-decorated wares, removed the original enamel-colours and substituted elaborate painting and gilding of their own. These tricks of the trade seem to have been followed from the first appearance of German porcelain down to the present time. In a few instances, where these unattached decorators had a distinctive style, their works are in demand. Breslau seems to have been famous for these *chambrelans*, as the French call such workers, for Bottengruber, one of the first of the Viennese painters, set up an establishment there as early as 1726, while Preussler is mentioned in this connection in a work published in 1737. Both these men seem to have affected decorations which generally include combats, camp scenes, or similar subjects, set with trophies and heavy, gilt, foliated scroll-work. Bottengruber's subjects were usually painted in lilac, and Preussler's in black, monochrome. Later in the century A. O. E. Busch, Canon of Hildesheim, introduced a style of decoration in which copies of well-known prints were engraved in the glaze with a diamond point, and a black pigment was then rubbed into the lines to make them more distinct.



PLATE XXIII.—FRANKENTHAL.  
GROUP.



## CHAPTER XVI.

### THE PORCELAINS OF HOLLAND, DENMARK, SWEDEN, RUSSIA, HUNGARY, AND SWITZERLAND.

IN the various countries lying round about Germany the eighteenth century witnessed many attempts at porcelain-making, either by associations of wealthy and influential persons, or, as in Germany and France, by the direct financial aid of kings and princes. We shall briefly describe in this chapter the efforts of the various countries where the German influence was paramount, and where the German methods were generally, though by no means exclusively, adopted.

#### HOLLAND.

The first Dutch factory was that started in 1764 by Count Gronsfeldt-Diepenbroek, who brought certain workmen from Germany and settled them at Weesp, near Amsterdam. This factory is said to have lasted only for seven years, and from it the second Dutch factory, that at Oude Loosdrecht, between Utrecht and Amsterdam, is said to have sprung. This factory had for director a Calvinistic pastor named Moll, and the mark which occurs as M : O L., or M. o. L., may refer to his name, and the place of manufacture. On the death of Moll in 1782, the works was transferred to Oude Amstel, where it continued till the end of the eighteenth century, being afterwards removed to Nieuwe Amstel, only to be extinguished in the troubles of the French occupation. The ware of the two last establishments is generally called "Amstel" porcelain. All these wares are of true-porcelain, resembling the German productions both in their quality and the style of decoration.

Another factory was founded at The Hague in 1775 by

a German named Leithner, and produced the best porcelain made in Holland, following the fashionable decorations of Sèvres and Tournay. It is stated that soft-porcelain from Tournay was brought to this factory to be decorated, but the only ware actually made there was felspathic porcelain. The venture lasted only a few years, and is said to have failed because of the severe competition of foreign porcelains and English earthenware. The Gemeente Museum at The Hague has recently obtained a choice little collection of table-ware from this factory.

From 1810, when the Amstel factory ceased, no porcelain was made in Holland until after 1890, when the Rozenburg factory at The Hague began to manufacture porcelain as well as earthenware. This porcelain is noted for its lightness in the hand, for practically all the pieces are cast; but the extravagant and often ugly forms and the bizarre decoration, based on a most up-to-date rendering of Japanese extravagance, do not commend it to our admiration. Other porcelains, resembling the more fusible type of porcelain invented by Seger at Berlin, are also being made at Delft and at Gouda, but these are at present hardly advanced beyond the experimental stage.

#### DENMARK.

It is said that a workman or workmen from Meissen found their way as far north as Denmark by 1731, but we have no record that anything but failure attended these early doings. The famous deposits of kao-lin in the island of Bornholm, in the Baltic, were discovered in 1756, and apparently a factory was started at Copenhagen "by the Blue Tower," with a Meissen modeller, J. G. Mehlhorn, as director. We are also without information of the productions of this factory, which was handed over to a Frenchman, Louis Fournier, who made a glassy-porcelain of the French type for some five years, and then he too disappears. Once more the manufacture of true-porcelain with the materials from Bornholm was introduced in 1772 by a chemist named Müller, aided by Luplau, the Fürstenberg modeller, Bayer, the flower-painter, and three Meissen workmen, including



FÜRSTENBERG PLATE.



PLATE XXIV.—HAGUE PLATE.





Schlegel, also a painter. Ill-luck still dogged the steps of the enterprise, for the difficulties of firing were imperfectly mastered, and if King Christian VII. had not taken the factory over, in 1779, it must have been given up. Then followed a period of considerable activity, when fine porcelain of a pronouncedly German style was made. There is preserved in the castle of Rosenburg a famous service made at this time, and decorated with paintings of the Danish flora; and this flower-painting in natural colours went on side by side with the conventional patterns in underglaze blue imitated from Meissen—one of which, the so-called onion-pattern, is still produced at Copenhagen in large quantities. The Empire style of decoration was adopted from the French with the beginning of the nineteenth century, and the influence of Sèvres was felt in all the subsequent decorations. But all the time the manufactory appears to have been carried on at a considerable expense to the State, until, to get rid of an encumbrance, it was sold to Mr. Flack in 1867. He resold it in 1882 to a limited company, the "Alumina," who owned extensive earthenware works in Copenhagen, and from that time dates the new-birth which has raised the Royal Copenhagen porcelain to the proud position it at present occupies. The first director of the company was Mr. Philip Schou, a Councillor of State, with Mr. Arnold Krog as art-director. In their hands a new style of European porcelain was developed, obviously influenced by Japanese work. By the use of the pure Swedish felspar and quartz and fine kao-lins from Germany or Cornwall, a material of exquisite quality is prepared, and on this, naturalistic paintings of birds, fish, animals, and water, or Northern landscapes and figure subjects, are drawn in delicate blues, greys, and greens, always underglaze; in the most characteristic pieces, neither enamel-colours nor gold are used. A word must also be said as to the skilfully-modelled figures of animals, birds, and fishes made in endless profusion. These pieces are either pure white, or delicately tinted, after nature, with the same underglaze colours. It must have required considerable courage thus to break away from the European traditions, but the results have entirely justified the step, and to-day the modern Copen-

hagen style is being more or less openly followed at the great Continental factories. In the same way the glazes diversified by radiating crystals of zinc silicate, which Copenhagen first offered for sale, are being made all over Europe, more or less successfully. Mr. Philip Schou having retired owing to advancing age, the management is now in the hands of his son-in-law, Mr. Dalgas.

Another porcelain factory at Copenhagen was founded in 1853 by Bing and Gröndahl. For many years the establishment was carried on in a quiet way, but the success of the Royal Copenhagen factory seems to have exerted a stimulating influence, and this firm has also, during the last ten years, striven to develop an individual style, decidedly Norse in its rigour of treatment and of colour. This improvement is perhaps traceable to the accession of Mr. Willumsen as art-director, and Mr. Hallin as technical-manager.

#### SWEDEN.

The history of Swedish porcelain in the eighteenth century is by no means clear, but we know that tentative efforts were made at the faïence manufactory at Rörstrand, and that later and more successful experiments were conducted at the faïence factory at Marieberg, both places being in the environs of Stockholm. The faïence works at Rörstrand was started in 1726, and was worked successfully from 1740 to 1788 or 1789. One of the early managers was C. C. Hunger, of Meissen, and in 1735 a five years' privilege was granted for the manufacture of porcelain. This was in all probability a true hard-paste porcelain, made with Swedish materials, but we have little certainty as to the ware, and probably after money had been lost in experiments, the manufacture was abandoned in favour of that of the simpler tin-enamelled faïence for which the works was famous. In 1758 another faïence factory was started at Marieberg by J. E. L. Ehrenreich, under the patronage of C. F. Scheffer, one of the richest and most influential personages about the Swedish Court. Two kinds of porcelain are known to have been made here ; first,

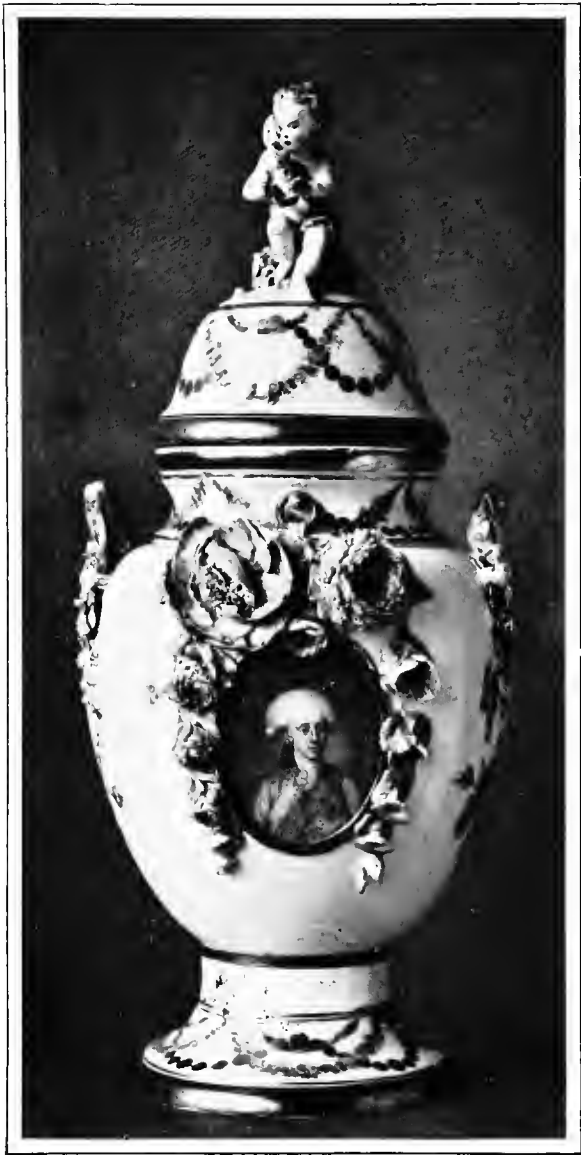


PLATE XXV.—**COPENHAGEN.**  
VASE.



a glassy porcelain rather dark in colour, and greatly resembling the contemporary Mennecy porcelain of France, both in the appearance of the ware, and in the decoration with flower painting, birds, &c., in enamel-colours; a purplish rose-colour predominating. Subsequently a true felspathic porcelain was made for a short time, but in every case the decoration is rather French than German in character. It is interesting to note that a process of decorating porcelain by the use of printed transfers was introduced by André Stenman, at Marieberg, in 1766, about ten years after it made its appearance in England. The works at Marieberg came to an end in 1782. Most writers speak of a hybrid-porcelain (whatever that may mean), also made at Marieberg, which is marked with the three crowns and the emblem of the Royal House of Vasa, but I am inclined to the opinion that this was the Rörstrand porcelain spoken of above.

The works at Rörstrand was re-opened some fifty years ago, and under the energetic direction of Mr. Robert Almström, one of the most capable potters of our time, has grown into a great establishment, where, in addition to earthenware and stoves, hard-paste porcelain and bone-porcelain of excellent quality are manufactured. The body and the glaze of the Rörstrand porcelain are as beautiful as those of Copenhagen. The decorative styles are also very similar, though Mr. A. Wallander, a Swedish artist, has produced many excellent designs of a distinctly Swedish character.

#### RUSSIA.

When the various princes and sovereigns of Germany were busily engaged in establishing porcelain factories, it is not to be supposed that the Russian Court, which was adopting so many Western ideas, should overlook this one. Peter the Great is said to have projected such a factory at the suggestion of his ally, Augustus III. of Saxony; but the scheme was not carried into execution until about 1745. The Empress Elizabeth interested herself in its early doings, but Catherine II. subsidised it in prodigal fashion, and she is said to have brought French artists, such as Falconet

the sculptor, to aid in the artistic direction of the factory. The ware was a fine hard-paste porcelain made with native materials. In style it followed the German rather than the French wares, and services and vases were made for the use of the Court or for presents. Like so many other European factories, the Imperial Russian factory followed in the wake of Sèvres in the production of large and extravagant vases in the early years of the nineteenth century, and, in 1824, three experienced men, Swebach, Moreau, and Davignon, went from Sèvres to aid the manufactory by their experience and advice.

An independent factory was started at Tver, near Moscow, by an Englishman named Gardner, about 1780, and this factory survived for many years. Another Moscow factory is that of A. Popoff, and besides making ordinary table-wares, which are hardly to be distinguished from commercial German porcelain, the Moscow factories have produced a considerable number of statuettes, the most interesting being those of Russian peasants illustrating typical avocations.

Various other factories have been started in different parts of Russia during the nineteenth century, and factories are now at work in St. Petersburg (the Kornilow factory), at Moscow, at Abö in Finland, and at Baranowka in Volhynia. To the collector these wares have no points of especial interest to offer, as they are just ordinary commercial wares decorated in the styles of modern German and Scandinavian porcelain.

#### HUNGARY.

Hungary has produced many characteristic varieties of earthenware made from native clays, but the only porcelain of note is that made at Herend some fifty to eighty years ago, for though the factory still continues, the modern productions are of less interest. The guiding spirit of this enterprise was Moritz Fischer, who commenced about 1830 by making copies of Oriental porcelain that have deceived many collectors. While Sèvres, Meissen, and Berlin were

content to make their refractory porcelains, Fischer had arrived at a ware that anticipated the modern porcelains of Berlin and Sèvres, and he could thus obtain brilliant and jewel-like enamel-colours in actual relief upon the glaze. Workmen were also brought from Sèvres and Meissen, and the earlier styles of these factories were copied with similar success. The ware was generally impressed with the word "Herend," so that his work should be looked upon less as imitation than as a desire to rival the triumphs of earlier potters. The present proprietor is Mr. Eugene Fischer, and the works produce wares of good quality, in the ordinary styles of our day.

#### SWITZERLAND.

Switzerland forms a natural meeting-ground for the influence of Germany and France, so that one cannot be surprised that true-porcelain, of pronouncedly German style, and artificial porcelain, just as markedly French in appearance, should have been made at Zurich and at Nyon respectively, during the eighteenth century. The Zurich factory was founded in 1763, by the aid of workmen from Höchst, at the head of whom was one Spengler. A talented sculptor named Sonnenschein, also a German, modelled a number of figures and groups. Services were also made delicately painted in enamel-colours with Swiss landscapes. The works does not seem to have been very successful, and was discontinued about the end of the eighteenth century.

The factory at Nyon, on the lake of Geneva, was established by a Frenchman named Maubrée, and was at one time managed by Robillard, who had worked at Sèvres. The most characteristic productions of the factory were small pieces—cups and saucers, inkstands, candlesticks, &c.—decorated with flower-paintings mostly of violets and roses, after the well-known style of Sèvres. Very little is really known of this factory, even the date at which it was closed being given as 1813, 1835, and 1836.

## CHAPTER XVII.

### THE SOFT-PASTE PORCELAINS OF FRANCE.

WE have already seen in a previous chapter how the first settled European manufacture of porcelain was established in France at the end of the eighteenth century by the experiments of the faïence makers of Rouen and St. Cloud. This artificial or French porcelain was largely manufactured throughout the eighteenth century in France, and we shall now sketch the history of this development, though we may preface our detailed remarks by saying that the French porcelains of St. Cloud, Chantilly, Vincennes, and Sèvres were the most charming of all the eighteenth-century European porcelains, for though they were inferior to the Meissen and other German porcelains in whiteness, hardness, and solidity of grain, they were just as much superior in the wax-like quality of their surface and the tender purity and brilliance of their colours.

ST. CLOUD.—This factory was originally started, before 1670, for the manufacture of tin-enamelled faïence, and only those who have visited the pharmacy of the hospital at Versailles, where a complete set of drug-pots of the faïence of St. Cloud is preserved, can perfectly appreciate the excellence of its manufacture and the beauty of its blue decoration outlined with black. It is plausibly suggested that a Rouen workman named Chicanneau, who had acquired a knowledge of the porcelain made by Louis Poterat (see pp. 164, 165), had transported himself and his secret to this advantageous works, which was already patronised by the French Court. In 1696 letters-patent were granted by Louis XIV. to the widow and children of this Chicanneau, and this privilege was renewed from time to time. We have already quoted the encomiums lavished on the St. Cloud porcelain by Dr. Martin Lister in 1698, and as the





PLATE XXVI.—**ST. CLOUD.**  
MILK-JUG.



**ST. CLOUD.**  
JUG MOUNTED WITH SILVER.



works continued the manufacture down to 1773, it had a long and chequered history.

The appearance of St. Cloud porcelain is very characteristic, for though the paste is of a yellowish tinge, it has a fine grain and the glaze is clear and brilliant. The first porcelain-makers naturally imitated as closely as they could the Oriental porcelains, which were then the fashionable rage. We find among the productions of St. Cloud many imitations of the Chinese white porcelain, decorated with branches of flowering plum in relief. Other white pieces, including cups, saucers, jugs, flower-pots, statuettes, and grotesque figures, are also fairly common, while, naturally, decorations in underglaze blue—already so successfully produced on the St. Cloud *faïence*—soon made their appearance. Here the imitation of Oriental styles was less pronounced, for the dainty scallop-patterns and fine ornamental borders of the Rouen *faïence* were adapted to the decoration of cups, sugar-basins, and coffee-pots, in the new material. A certain number of pieces are known in which green, red, yellow, purple, and a blackish-brown enamel are used in conjunction with the underglaze blue. Finally, we must mention a typical St. Cloud style in which the pieces were modelled with a kind of imbricated or scale pattern, which may also have been copied from the Chinese, though it may equally well have been suggested by the overlapping leaves of the artichoke.

LILLE.—The next French factory appears to have been founded at Lille in the north of France, about 1711, by a *faïence*-maker named Dorez, and his nephew Pélissier. It seems probable that these men had acquired their knowledge either from Rouen or St. Cloud, for the ware closely resembles that made at St. Cloud, though the painting is less skilful. The enterprise was subsidised by the municipality of Lille, but it appears to have been abandoned about 1730; it is said from the inability to find a sufficient market for its productions, owing to the refusal of the King to permit the opening of a Paris warehouse for the sale of its wares.

CHANTILLY.—This famous works was established by one Cirou, about the year 1725, under the patronage of the Prince de Condé, owner of the magnificent demesne

of Chantilly. This prince was already collecting the early Japanese porcelains, especially those decorated in the Kakie-mon style (see pp. 144, 145), and this characteristic decoration forms one of the most interesting features of the early Chantilly porcelain. Not content to reproduce the decoration only, an attempt was made to reproduce the lovely tender whiteness of the original ware, and this was rivalled by the use on a soft-porcelain body of a tin-enamel glaze, such as that used by the French faïence-makers of the day. So closely do these early Chantilly pieces with a white tin-enamel approach the quality of the Japanese pieces, that it would often be difficult to distinguish them but for the scratching or rubbing which the softer glaze suffers in use. The decoration was applied to elegant lobate-shaped dinner-services, and tea- and coffee-sets, as well as to a great variety of excellent modelled figures with a distinct Oriental flavour. At a later time the styles of Meissen and Sèvres were also imitated, though in this case on a transparent glaze, and so closely did the best of these later Chantilly pieces approach, with their rich ground-colours and skilfully painted decorations of birds, to the productions of Sèvres, that it is not uncommon to find pieces which have had their marks removed by unscrupulous forgers, to be replaced by the Sèvres mark. After about 1780, the productions of Chantilly deteriorated, and we get nothing but very ordinary porcelain decorated with painted sprays and flower-pieces in underglaze blue. The factory, however, lingered on until the Revolution, and Potter, an Englishman who had a works in Paris, afterwards tried to resuscitate it, but without success.\*

MENNECY.—Under the distinguished patronage of another French noble, the Duc de Villeroy, a potter named Barbin commenced to make porcelain, about 1735, at the village of Mennecy in the Ile de France. The first wares appear to have been modelled on those of St. Cloud, though the Mennecy ware presents a dark ivory tone, which generally enables one to distinguish it from the other French porcelains. In this early period, too, the same adaptation of

\* Attention should be drawn to the fine collection of the Chantilly porcelains now preserved in the château there.



PLATE XXVII.—**CHANTILLY.** LOBATE SUGAR-BOX.  
**MENNECY-VILLEROY.** TEAPOT.



Chinese shapes, which had already done duty at St. Cloud, made their appearance, and many of these were decorated with designs in enamel-colours; blue, green, red, and yellow. Later we find a great number of purely European shapes, including cups, saucers, tea-pots, and pot-pourri jars adapted from the shapes produced at the more famous European factories such as Meissen and Vincennes. Still continuing in this rivalry, the pieces of the best period of Menecy are decorated with floral sprays, or paintings of exotic birds in brilliant enamel-colours, among which a purplish rose-colour is almost distinctive in the factory. Statuettes, rustic figures, wall-brackets, and flower-vases, were made in great profusion, and these prettily decorated pieces are highly esteemed by collectors. The collection in the château of Villeroy contains several hundred examples.

The elder Barbin was succeeded by his son Jean-Baptiste, who, however, did not long survive his father, and the works then passed into the hands of Jacques, a painter, and Jullien, a sculptor, in 1766, and it was finally closed in 1774.

**BOURG-LA-REINE.**—It is said that, after the expiration of their lease at Menecy-Villeroy, MM. Jacques and Jullien removed to Bourg-la-Reine, a little place near Sceaux, where they worked under the protection of Comte d'Eu, and they naturally continued to manufacture the same kind of porcelain pieces that they had made at Menecy, especially those decorated with painted sprays of flowers and birds. One constant feature of the pieces made at Bourg-la-Reine is that the edges of the pieces are generally lined with rose-colour, because at this time the use of gold was jealously reserved for the Royal manufactory at Sèvres. The works was continued down to the French Revolution, but of its later productions we have no knowledge.

**SCEAUX.**—Various attempts at porcelain-making were carried on at Sceaux from about 1749, but as the promoters failed to secure a privilege for its manufacture, we know little of its early wares, though as Jacques and Jullien leased the factory before they went to Menecy, it is possible that they had made a similar porcelain here. They were succeeded in 1772 by Richard Glot, and in 1775 he obtained the patronage of the Duc de Penthièvre, High

Admiral of France. This ware was of excellent quality, and was generally decorated with well-executed paintings of flowers or exotic birds, in which a rose-coloured enamel of fine quality usually preponderates.

Other soft-paste porcelain factories were started at Orléans, at several places in Paris, and at Arras and Saint-Amand-les-Eaux, but these were of minor importance.

VINCENNES AND SÈVRES.—Some time before 1740, two workmen from Chantilly, the brothers Dubois, along with a third named Gérin, set up a little manufactory of porcelain at Vincennes. They were able to interest M. Orry de Fulvy, brother of the superintendent of Royal buildings, in their doings, and he, through his brother's influence, obtained the King's permission to use some of the buildings connected with the château at Vincennes. For the first few years the manufacture was conducted in a most irregular fashion, for the management appears to have been thoroughly incompetent. Fresh sums of money were continually being required until, in 1742, the Dubois fled in disgrace. M. Orry de Fulvy succeeded in forming a company from among the financiers of the day, and one Gravant, who had already been employed at the works, undertook to prepare the bodies and glazes. As the company consisted of men of influence, they were able to obtain, in 1745, a privilege for the manufacture from Louis XV., and larger premises were granted to them at Vincennes, so that the French King became directly interested in the enterprise. With such powerful support, men of marked ability were soon associated with Vincennes, for we find the chemist and academician, Hellot, conducting the chemical operations; the modelling was superintended by Duplessis, a goldsmith; and the painting and decorating by Mathieu,\* enameller to the king; while Boileau, who afterwards proved himself such a clever administrator, was appointed managing-clerk. Under these circumstances, when by a lavish expenditure of money, men of first-rate ability were attached to the undertaking, the making of porcelain was conducted with a certain amount of success, but owing to the costly

\* Mathieu was succeeded in the post of art-director by Bachelier in 1748.





PLATE XXVIII.—**CHANTILLY.**

FLOWER-HOLDERS IN THE FORM OF STATUETTES.



nature of the processes—for much ware was inevitably spoilt—and also no doubt to the expenses attendant on such a staff, Vincennes was always in financial difficulties, and, besides receiving Royal grants, fresh sums of money were continually being raised by those who financed the enterprise. The brothers De Fulvy died, within a few months of each other, in 1750 and 1751, and the only way in which the company could be extricated from its difficulties was by securing the direct interest of the French King, and in August, 1753, Vincennes was constituted a Royal factory, being afterwards removed to a new works at Sèvres in 1756.

The wares of Vincennes are generally treated as of little importance in comparison with those of Sèvres, and though this is true enough in a way, it must not be forgotten that many of the methods, processes, decorations, and colours, which one instinctively associates with the beautiful productions of Sèvres, were first discovered and perfected at Vincennes. Naturally, the earliest pieces were of simple character, both in style and decoration, resembling in this respect the earlier wares of St. Cloud with raised white ornament, though at Vincennes this ornament was generally "picked in" with enamel-colours. The decoration of pieces with flowers, modelled in the round and applied, was soon greatly developed, and from this to the manufacture of sprays and elaborate bouquets of flowers, modelled as naturally as possible, and either left in the white or decorated with enamel-colours, was but a step. It is impossible, in the absence of sufficiently exact data, for us to say whether the making of modelled flowers was developed first at Meissen or at Vincennes, but in the *Johanneum* at Dresden there is a wonderful porcelain bouquet, which was made at Vincennes, and sent as a present to the Elector of Saxony; and this piece was apparently made early in 1748.\* The sale-books of the factory show that in 1749 the trade in modelled flowers and bouquets amounted to five-sixths of the total value of the sales. Another early method of decorating the white porcelain was by patterns in thickly-applied gold, and

\* See Auscher's "French Porcelain," pp. 42, 43. Cassell & Co., Ltd.

many of these are also in the Chinese style. This gold was not fired, but applied on a layer of japanner's size or mastic, being afterwards brightened, and etched with an iron tool.

Decoration with enamel-colours was used from the early days. At first the painting appears as little separate sprays, flowers, flies, &c., disposed on the piece with seeming artlessness, but really so as to hide the spots and blemishes in the ware; but in the hands of Hellot and his colleagues, many of the rich grounds so extensively used at Sèvres were invented, such as the royal-blue underglaze (1749), and the turquoise-blue enamel (1752), while a great variety of shades of soft rose, carmine, bright red, green, brown, grey, and blue, enamel-colours were invented for the painting. It is from this late period of Vincennes, too, that we must date the first appearance of those charming statuettes, issued both in the "biscuit" and in the glazed state, which afterwards became such a feature of the works at Sèvres, many of the models being the work of the best French sculptors of the day.

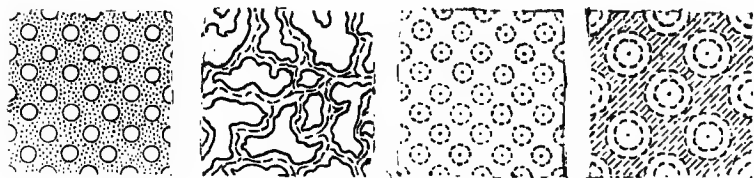
SÈVRES.—From 1756 to 1770 was the period when the artificial porcelain of Sèvres, the famous *vieux Sèvres* of the collector, was made, and it is this period which marks the very crowning point of the artificial French porcelains, for during these years, regardless of all cost, the most elaborate and difficult pieces, in the form of vases, candlesticks, ink-stands, table-centres, jardinières, as well as covered basins, dinner-, tea- and coffee-services, trays, and a thousand trifling things such as thimbles, buttons, heads of canes, needle-cases, *bonbonnières*, ointment- and perfume-pots, scent-bottles, patch-boxes, tobacco- and snuff-boxes, were made in this most treacherous of all materials. The English collector and student is particularly fortunate in having in the Victoria and Albert Museum (with its Jones Bequest), and especially in the priceless Wallace collection at Hertford House, not only a marvellous series of examples of this period, but such an assemblage of its finest specimens as cannot be matched in the public museums of any other country. It is impossible to convey within the compass of such a work as this any idea of the perfection, the interest, the variety, of the matchless *vieux Sèvres*, with its beautiful



PLATE XXIX.—VINCENNES OR SÈVRES.  
OVAL POT-POURRI VASE.



ground-colours of royal-blue, turquoise, rose-Pompadour, apple-green, or lilac, either plain or decorated with gilded tracery or cunning diapers of network, *vermicelle* or *œil de perdrix*. In many, perhaps in the majority of instances, these rich grounds serve only to frame white panels decorated with skilfully executed paintings of flowers, birds, landscapes, camp-scenes, battle-subjects, rustic figures, or views with shipping, while the paintings of *amorini*, and classical or mythological figures, in the most approved style of the time, testify to the spirit with which the work was conducted. All the earlier French porcelains had, to a certain extent, and perhaps naturally, based themselves on Oriental and German models, but from this time the porcelain of Sèvres became entirely and distinctly French, and the



DIAPERINGS USED ON THE SÈVRES PORCELAINS.

influence of its decorative styles is still to be seen in the productions of the other porcelain factories all over the world. In fact, the directorate of Sèvres, under Louis XV., strove to concentrate on its work all the resources of the French State, and the severest edicts were promulgated, reserving to the Royal factory alone the use of gilding or of certain enamel-colours, and the other porcelain-makers were also expressly forbidden to make statues, figures, or high-relief ornaments, either "biscuit" or glazed. This explains why, on the contemporary productions of Chantilly, Menecy, and the other French factories, gold is almost always absent, while it was most lavishly used at Sèvres, either for diapering the grounds, for framing the painted panels, or for enriching and completing the handles, feet, and mouldings. The Sèvres gilding of this period deserves

a special word, especially as it differs in method and character from the famous Viennese gilding already described. The purest leaf-gold was used, and this was ground up as finely as possible, together with a little white-lead, in honey. This was thickly applied to the ware and fired, generally after the painting was finished. The layer of gold was so thick that it could be easily chased or tooled, and it was in this way that the elaborate gilding of the finest pieces was completed, with the utmost dexterity.

Mention must also be made of two other applications of the soft-porcelain of Sèvres. First, the plaques or slabs of various shapes and sizes made for inserting in the beautiful furniture of the period. These plaques were decorated with flowers, either in colours or in gold, or with figure-subjects, the painting being generally framed with a ground of turquoise or apple-green. At a later period similar plaques were made for use in furniture, in which white "bis-cuit" figures in relief appeared on grounds of blue, grey, or sea-green porcelain, in imitation of the famous jasper-wares of Wedgwood. Second, the figures, groups, and statuettes, made from models prepared by the best French sculptors of the day, such as Falconet, Larue, Pajou, Pigalle, Clodion, Boizot, Caffieri, with many others of lesser note. These figures included every possible variety of subject, from portrait busts of Royal personages and the most celebrated people of the time, down to the actors and dancers of the Paris Opera, and figures illustrating the life of the common people. It must be said, too, that the best of them have a certain artistic value which removes them far above the gaily-enamelled, but affected and somewhat trifling, statuettes of Meissen, Frankenthal, or Chelsea, which have monopolised a much greater share of the general attention.

In spite of these triumphs the French soft-porcelain was so difficult a material to produce in perfection, that its manufacture was a constant drain upon the Royal exchequer. On this account, and also apparently because of the superior whiteness and durability of the German porcelain, the scientific staff at Sèvres had long been searching for the minerals necessary to produce "true" porcelain in France. They





PLATE XXX.—**SÈVRES.**

BISCUIT FIGURE. "THE SINGER," DUBARRY,  
ABOUT 1772.



succeeded in this object, and with their success the artificial porcelain, though it did not at once disappear, was relegated to a secondary place, and as the changed manufacture roughly coincided with a great change in style, we propose to treat the manufacture of French hard-paste porcelain in a separate chapter.

## CHAPTER XVIII.

### THE HARD-PASTE PORCELAINS OF FRANCE.

THE story of the discovery of the immense deposits of kao-lin and pegmatite in the centre of France, after a search prolonged for something like thirty years, reads like a romance. Hellot and Macquer, the chemists of Sèvres, had been searching throughout France for such materials, spurred on by the desire to make porcelain as white and durable as the German and Oriental. Here and there more or less successful experiments were made on French soil, as by the Hannongs at Strassburg, and by Guettard, and the Count Brancas-Lauraguais ; but without turning aside for these partial successes, Hellot and Macquer still pursued their researches for the true French materials, which were finally discovered at St. Yrieix, where the wife of a poor surgeon or apothecary, named Darnet, was found using balls of kao-lin as a detergent for washing clothes. There is, in the museum at Sèvres, a little statuette of Bacchus, made from the sample of this clay obtained from Madame Darnet, which is truly described as the first piece of "hard" porcelain manufactured at Sèvres ; but the reader interested in this history cannot do better than consult the account given in the ninth chapter of Mr. Auscher's\* book on French porcelain, where all the circumstances are detailed. When once the suitable materials had been discovered, the greatest enterprise was shown in their employment, and on the 21st of December, 1769, the first collection of pieces of the hard-paste porcelain of Sèvres was exhibited to Louis XV. at Versailles.

From this time forward there was constant rivalry between the old porcelain and the new : the beautiful but costly *pâte tendre* so entirely and thoroughly French, and the new

\* "The History and Description of French Porcelain," by Mr. E. S. Auscher. Cassell & Co., Ltd., 1905.

felspathic porcelain resembling the German and the Oriental. The body of the new ware was composed of kao-*lin* and felspathic sand, to which a little chalk was added, while the glaze consisted of sand, glass, chalk, and fragments of broken porcelain, ground to the finest powder. Compared with the glaze of the older porcelain, this new glaze was at once harsher, whiter, and more opaque, while the enamel colours, which had been developed with such brilliance and purity on the soft-porcelain glaze, had to be entirely modified to suit the new ware ; some of them, indeed, such as the turquoise and rose-Pompadour, could not be successfully produced on the hard glaze, and, as its manufacture increased, they disappeared. The soft-paste porcelain presented every advantage from the point of view of the decorator, for its glazes and colours are infinitely more brilliant and tender, but the felspathic porcelain had the advantage of being more easy to manipulate, and of permitting the manufacture of larger and more important pieces, such as the Royal factories have always striven to produce.

A few years after the introduction of this hard-paste porcelain at Sèvres, the taste for the imitation of classic shapes and designs, which we have already referred to many times, swept over Europe like a fever ; and because the new porcelain permitted the manufacture of vases of such shapes and sizes as would not have been possible in the glassy-porcelain, its vogue was greatly extended. From 1780, large vases seem to have been the constant preoccupation of the factory, presaging what was to happen in the next century under the grandiose *régime* of Napoleon. As the hard-paste porcelain was improved and perfected, and as the old ground-colours were no longer applicable, other grounds were obtained by coating the fired glaze with oxide of cobalt in various strengths, or with oxide of manganese and iron, which were afterwards re-fired at the glazing temperature. In this way various blue grounds, from pale to dark, were obtained, as well as the tortoise-shell brown and tortoise-shell green grounds, which were so greatly admired.

It must not be supposed that the old soft-paste porcelain was entirely overborne by these innovations, for many Royal and noble personages sent commissions to Sèvres for vases

or services made in the ware which had first rendered it so famous. In the Jones Bequest, in the Victoria and Albert Museum, there is, for instance, a large vase with a royal-blue ground, enclosing a cartouche on which a shipping scene is painted, and this very piece was commissioned at Sèvres by Gustavus III. of Sweden about 1780, as a present for the Empress Catherine II. of Russia; yet it is of the earlier porcelain of Sèvres, not the later. In the same way the famous service ordered by Catherine II. of Russia (pieces from which are to be found both in the Victoria and Albert Museum, and in the Wallace collection at Hertford House) was executed in the soft-paste porcelain, although it was manufactured between 1777 and 1778.

Neither must it be forgotten that the most elaborate and costly of all the soft-paste porcelains of Sèvres made their appearance after 1780. This is the style of decoration known as "Jewelled Sèvres," in which jewel-like spots of transparent or opaque enamel were applied, generally on gold foil, so that the pieces appear as if they were decorated with rubies, pearls, emeralds, and sapphires. These pieces are exceedingly rare, for they must have been most costly and troublesome to produce, but there is a wonderful collection of them, very badly shown, at Hertford House, where may be seen some of the very perfume-burners and elaborate pieces made for the service ordered by Catherine II., mentioned above.

Boileau, who was managing clerk at Vincennes, was the first director of Sèvres, and the finest productions of the old Sèvres were made in his time. He died in 1775, and the next director of any importance was one Hettlinger, a Swiss, a dull, simple, faithful man, devoid of taste, who remained director all through the reign of Louis XVI., retiring only in the middle of the Revolutionary period. We have already spoken of the "classic" style which marked this period, but we must also draw attention to another and simpler style, which we owe to the personal tastes of Marie-Antoinette. She seems at all times to have preferred porcelain of simple shape and decoration, where the ground is not covered with heavy colours, and the decorations consist of elegant floral designs, painted in enamel-colours with a



PLATE XXXI.—**PARIS.**  
CREAM-JAR.  
**SÈVRES.**  
EWER AND DISH.





predominance of light blue, or where a white porcelain is decorated with patterns in the Louis XVI. style, executed in gold alone. The pieces reproduced on Plate 31 illustrate this style, one being taken from a Sèvres example, and the other from a piece made at the factory in Paris which was patronised by the Queen. A characteristic design of this period was the decoration with sprays of blue cornflower (*décor barbeau*) reproduced at almost every European factory.

With the outbreak of the French Revolution the establishment at Sèvres was soon reduced to dire straits, and it is pitiable to read of the hardships and sufferings of the work-people, many of whom clung faithfully to the place where they had worked under so much happier conditions. In such a period of turmoil it was impossible that anything of merit should have been originated, and we find only dull and mechanical repetitions of the earlier pieces; while to meet the demands of the moment, such trivial decorations as monograms composed of tiny interwoven roses and forget-me-nots, and at a later period decorations of tricolour ribbons, to be succeeded in their turn by a mongrel decoration in which Phrygian caps and the fasces of Roman lictors alternate on the panels of cups and saucers, plates and vases.

Before reviewing the porcelain made at Sèvres during the nineteenth century, we must retrace our steps a little to consider what was being done elsewhere. It has been mentioned that the Royal factory was protected by a number of edicts, issued by the King's Council, prohibiting the other porcelain-works in France from using gold or special methods of decoration, but under various pretexts these were evaded at certain factories established under the direct patronage of the French princes, or of great nobles—who assumed almost a princely authority in their own districts. These factories maintained a continuous competition with Sèvres, which was especially developed during the years preceding the Revolution, when the rising tide of liberal ideas more and more limited the exercise of the Royal prerogative.

To make our story complete we must, however, go back to an earlier period still, when in the city of Strassburg a famous family of potters, the Hannongs, established the first manufacture of "true" porcelain in France, though the

ware was made with German materials. Carl Francis Hannong, a potter of Strassburg, had some commerce with one Wackenfeld, a deserter from Meissen, as early as 1721, but there is no evidence that anything but faïence was made at this time. His sons, working under the protection of the Princes de Rohan, undoubtedly manufactured porcelain, of an imperfect kind, as early as 1745.

About this time they are said to have secured the services of the wandering Ringler, so often mentioned in our account of the German factories, and of one Löwenfinck, who had worked both at Vienna and Höchst. With or without their aid, it is certain that an imperfect hard-paste porcelain was manufactured at Strassburg long before anything of the kind was achieved at Sèvres; and the authorities of the Royal factories of Vincennes and Sèvres, while doing their best to learn the secrets of this Strassburg manufacture, used the Royal edicts in their favour to such effect, that, despairing of any compromise, Pierre-Antoine Hannong left Strassburg and founded the works at Frankenthal, which has already been mentioned (see p. 183). In spite of all these discouragements, Joseph Hannong, a grandson of the original experimenter, continued to make hard-paste porcelain at another Strassburg factory, down to about 1780. His wares are never very perfect, being thick and heavy in substance as well as somewhat tawny in colour, while the decorations are either copies of Chinese designs or floral patterns reproduced from the Strassburg faïence of the period. Some few statuettes and groups are also known, recalling the famous Dresden figures, while a few "biscuit" pieces are credibly attributed to this enterprise.

NIDERVILLER.—At this little town, close to Strassburg, a faïence factory had been started as early as 1754,\* and after 1765 a manufacture of hard-paste porcelain was established here, which endured almost to the middle of the nineteenth century. At first German materials were used, but afterwards the materials were brought from the neighbourhood of St. Yrieix in the Périgord. In addition to producing services, decorated first in the Meissen and afterwards in the

\* See Mr. Solon's "French Faïence." Cassell & Co., Ltd., London, 1903.

Sèvres style, Niderviller is famous for its porcelain figures modelled by an artist named Lemire. These figures, which were sent out in "biscuit," in white glaze, or decorated with enamel-colours, are highly esteemed by collectors, and deservedly so, for they are of excellent quality.

Other hard-paste porcelain factories were established at Lille (1783-1800), Valenciennes (1785-1797), Caen (1798-1808), Limoges (1783), Tours (1782), and Orléans (1770-1810), but none of these factories made any new departure worthy of special notice. At Marseilles, the well-known potters, Savy and J. G. Robert, made a small amount of hard-paste porcelain, usually decorated in the same style as their better-known faïence; but it was in Paris that the manufacture of hard-paste porcelain was conducted with the greatest enterprise during the reign of Louis XVI., until most of the Parisian factories reached an unnatural termination during the years of the Revolution or the First Empire. It cannot be said that these Parisian factories added much to the development of porcelain, as for the most part their productions followed, as closely as possible, the prevailing styles of the Royal factory at Sévres; and though some of them produced ware of great technical excellence, they are mentioned here rather on account of the interest their pieces have for collectors than from any intrinsic merits of their own.

#### PARIS.

FAUBOURG ST. LAZARE.—This factory, the first to make hard-paste porcelain in Paris on a commercial scale, was established under the patronage of the Comte d'Artois, that brother of Louis XVI. who afterwards became Charles X. Its early efforts were not very successful, owing, it is said, to the drunken habits of Pierre-Antoine Hannong, its first manager; and it was not until Barrachin was appointed director in 1775 that the works began to prosper. It is said that hard-paste porcelain was first fired with coal at this works in 1782, an experiment which caused a great sensation at the time. A vase was presented to the King on which appeared the inscription, "*Cuit au charbon de terre épuré dans la manufacture de Monseigneur, Comte d'Artois, le*

8 *Fevrier*, 1783," and when the directorate of Sèvres endeavoured to enforce their edicts prohibiting the use of gold, this novel application of coal-firing was made the ground of a petition for a dispensation in favour of this factory, which seems to have been granted. The works survived the troubles of the Revolution, and is said to have been closed only in 1810. During the best period its productions were of fine quality, while many of the shapes and decorations were directly copied from those of Sèvres. The pieces are generally decorated with landscapes or figures in grey, though coloured bouquets were also used, and the gilding of the pieces was perfectly executed. Statuettes and groups, as well as busts of important personages, are fairly numerous, both glazed and in "biscuit."

DE LA COURVILLE.—Founded in 1773 by Locré for the manufacture of German porcelains, seems to have endured down to about 1794. It may be added that the process of casting was first used at this factory in the manufacture of pieces of hard-paste porcelain. The ware is beautifully white and of excellent quality, the services being generally decorated with little flowers in the style of the period, though large vases are known with coloured grounds and painted ornaments. "Biscuit" pieces were also made, and about 1786 porcelain was made here, painted in imitation of agate, it is said, to compete with English pottery.

RUE DE REUILLY.—A porcelain-maker named Lassia founded a works here in 1774, which also came to an end during the Revolutionary troubles. The porcelain was white and of good quality, the pieces being frequently decorated with rich ground-colours, especially with a fine yellow ground, while the gilding is also solid and skilfully applied.

CLIGNANCOURT.—This works was first founded in 1771, by Pierre Deruelle, and in 1775 he obtained the patronage of "Monsieur"—afterwards Louis XVIII.—the King's eldest brother, so that the porcelain is frequently known as that of "Monsieur," and we find it referred to under that name when, in 1784, Duesbury held a sale of the productions of the English factories at Chelsea and Derby.\* This Clignan-

\* See Burton's "English Porcelain," p. 25. Cassell & Co., Ltd., 1902.

court porcelain, together with that made at the factory patronised by the Queen, which we will mention presently, was the best of the porcelains made in Paris. The material is as white and fine as that of Sèvres, while the painting and gilding are most skilfully executed. It is said that at one time the ware was even marked with the two crossed L's of Sèvres, but the authorities of the latter factory soon stopped this infringement of their privileges.

RUE THIROUX.—This factory is the well-known one, patronised by the Queen Marie-Antoinette, and it is rather amusing to note that at this factory the rivalry with Sèvres was carried to the highest point. The works was founded by André-Marie Lebœuf in 1778, and by 1779 he had already brought down upon himself a police visit, for infringing the privileges of Sèvres. It was this circumstance, apparently, which induced Lebœuf to place himself under the patronage of the Queen, who authorised him to mark his porcelain with her monogram, so that the ware is generally known as "Porcelaines à la Reine."

After the Revolution, the works passed into the hands of Guy and Housel, and seems to have been in operation down to about 1820. The best wares are so like those of Sèvres that they may easily be confounded with them. (See p. 205 and Plate 31.)

RUE DE BONDY.—This was another works patronised by one of the great French princes, the Duc d'Angoulême. The proprietors were Guerhard and Dihl. Dihl was an able, scientific man, and it was he who first established a complete palette of colours for the decoration of hard-paste porcelain, while he also reproduced all the rich grounds and colours of Sèvres. The ware was highly appreciated both in France and in England, and the works was continued during the years of the Revolution and the First Empire. When Sèvres was reorganised by Napoleon, Dihl sought the appointment of director, but this much-coveted post was secured by his young rival, Brongniart, who afterwards became so famous. A half-length, life-sized portrait of Dihl, painted by Martin Drolling, on a porcelain plaque made at this factory, is now in the museum at Sèvres, and Dihl may be said to have founded the method of painting portraits and

figure-subjects on slabs of hard-paste porcelain, which became such a feature of the work at Sèvres, in the nineteenth century.

RUE POPINCOURT.—This works, though founded in 1770 by Lemaire, was bought in 1783 by Nast, and the work produced here by Nast and his sons has received a certain amount of recognition, though the factory does not seem to have been of much importance.

A number of other small factories were established in Paris, or its vicinity, during the same period as the works just mentioned, but their wares present no especial features which make it worth our while to do more than mention the fact of their existence; and the reader anxious for fuller information is referred to the work of Mr. Auscher, which has already been mentioned.

#### SÈVRES DURING THE NINETEENTH CENTURY.

The position of Sèvres during the nineteenth century has been unique. Resuscitated by Napoleon, who decided that the institution was worthy of support, because it might testify to his glories; subsidised by the monarchs of the Restoration, because it spoke of the glories of France before the Revolution; and directed by Alexander Brongniart, a man whose great natural parts were polished by his scientific studies, the Sèvres of 1800 to 1850 was, at once, a school of research and a centre of practical accomplishment, the influence of which was felt in every pottery works of Europe. Undoubtedly its doings were influenced by the demands of the successive French monarchs and their Courts; the artistic decadence of the period is faithfully mirrored in its productions, but through all and above all, it is the Sèvres of Brongniart, the enduring monument of an able, strenuous, one-sided man. He it was who gathered together the band of experimenters, practical potters, modellers, and painters, of this period, and co-ordinated their separate industries to one end, so that only one thing was lacking, and that the greatest of all for such an enterprise, the artistic spirit with its magic influence. When Brongniart was appointed to his



PLATE XXXII.—SÈVRES.

"JEWELLED" VASE.





responsible post in 1800, his first difficulty was to reorganise the staff, and check the abuses that had crept in during the unsettled years of the Revolution. To his severely logical mind the expensive and uncertain soft-paste porcelain was an annoyance to be abandoned in favour of the simpler, more certain and more easily controlled hard-paste porcelain. He may have been swayed in this decision by the dominant spirit of Napoleon, who demanded large and important pieces, and doubtless cared little for the subtle qualities of the *vieux Sèvres*; yet we cannot doubt that Brongniart also obeyed his own instincts when he decided to abandon the manufacture of soft-paste porcelain, and actually sold off all the enormous stock of undecorated white ware that had been gradually accumulated.\* The Royal palaces had been denuded of their contents, and for years there was an increasing demand for vases, columns, services, and table-garnitures, to replace those that had been sold, stolen or destroyed. But the ideas of the period seem most extraordinary. Under Napoleon, pieces were to be decorated so as to speak of his victories; and the influence of the painter David, which led to everything being smothered with rich colours and gilding, and crowds of painted figures designed after the "Grand" manner, was subversive of all feeling for porcelain. After every campaign a fresh service for the table, or a fresh suite of vases would be produced, and we read of the "Egyptian" service and the "Olympic" service, or of vases with paintings representing "Napoleon entering Berlin"; "The review of the armies under the walls of Vienna"; "The triumphal march of the Emperor"; or, most elaborate of all, the famous vase commemorating the marriage of Napoleon and Marie-Louise in 1810. This vase, designed by Isabey, contained no less than one hundred and fifteen figures in the principal group, executed in bas-relief; while a subsidiary group of acclaiming people had representations of two to three thousand figures. This single vase is said to have cost 30,000 francs to produce,

\* This sale of the soft-paste of Sèvres was responsible for many of those forgeries that are the despair of the collector. The pieces were bought by dealers in London and Paris to be decorated, more or less, in the old Sèvres style.

and it was three years in making. The demand for grandiose vases of this kind was continued under the various successive Governments, and we illustrate in Plate 33 an example of the period of 1840, which is a real monument of ugliness. At a later period, between 1830 and 1848, the painting or copying of portraits and famous pictures on large slabs of porcelain was largely developed. We can say at once that these large vases and painted plaques, in the most execrable taste, are an enduring monument to the technical skill fostered and developed by Brongniart; and we can hardly wonder that at the period of their creation, they were regarded almost as miracles of creative skill; nor that Sèvres was looked up to by the other porcelain-makers of Europe as a pattern and example. Brongniart died in 1847, but his influence has continued to animate his successors, and precision of manufacture and faultless painting and gilding continue the rule at Sèvres. From time to time, great efforts have been made to escape from the tyranny of the decorative styles we have mentioned, but with only partial success. The palette of on-glaze colours has been considerably extended by the introduction of the hard-kiln colours (*couleurs de demi-grand feu*), but the most notable invention of Sèvres during the period 1850-1880, was that of *pâte-sur-pâte* decoration, in which porcelain clays of various colours are used as the artist's medium. The process appears to have been first worked at by Robert, the head of the painting department, and some small cups, decorated by Gély in this style, were shown in 1862 at the London International Exhibition. It was in the hands of M. Solon-Miles, or, as he is best known, Mr. Solon, that the method was used with such skill and charm, that it became the rage all over Europe. As practised by Mr. Solon, undoubtedly its greatest exponent, the *pâte-sur-pâte* decoration has consisted essentially in the painting of figure-subjects and charming ornamental designs in white slip on a coloured porcelain ground of green, blue, dark grey, or black. On these coloured porcelain grounds a thin wash of the slip gives a translucent film, so that by washing on or building up successive layers of slip, sharpening the drawing with a modelling tool, or softening and rounding the figure with a

wet brush, the most delicate gradations of tint can be obtained from the brilliant white of the slip to the full depth of the ground. The only limitation to this process is that the colour effects are all fired at the highest temperature, but in return the process, in capable hands, has given us the most charming and distinct porcelain decoration of the nineteenth century.

After the war of 1870 the affairs of Sèvres fell into a rather disorganised condition, and in 1876 a commission of artists and others was appointed in the hope of improving its conduct, and from about 1879 to 1900 was again a period of great activity; the extremely refractory kao-linic body and hard glaze, imposed on the works by Brongniart, being to a certain extent replaced by the more fusible bodies already described (see p. 16). In the same way, highly successful glazed pieces resembling the céladons and flambés of the old Chinese were produced in considerable quantity, while the use of crystalline glazes, which had been taken up with such conspicuous success at Copenhagen and Berlin, have also been made at Sèvres in a great variety of colours. One of the sensations of the porcelain exhibited at the Paris Exhibition of 1900, was a table decoration in the new "biscuit" porcelain, modelled by Léonard.

It is impossible in a work such as this to do more than mention the great commercial porcelain businesses that have been built up at Limoges, Vierzon, and Mehun-sur-Yèvre. While the State establishment at Sèvres has devoted itself to the manufacture of exclusive wares, these factories of the nineteenth century have developed into huge commercial undertakings, where by the introduction of the best mechanical appliances, new ovens and new methods of firing, and the application of coloured lithographs, a distinct French commercial porcelain has arisen, which for a long time has largely controlled the American market, and to that extent has had the greatest influence on the fashions of decoration for the ordinary table-wares made at most of the European factories.

## CHAPTER XIX.

### THE PORCELAINS OF ITALY, SPAIN, PORTUGAL, AND BELGIUM.

IN a previous chapter we have grouped together the porcelains made in the various European countries where German methods were followed and German influence was strongest. In this chapter we must briefly record the progress made in the other European countries where French methods were followed, or French influence in style and decoration was paramount. Everyone will, however, readily perceive that such a grouping, though it best exhibits the broad features of the history of porcelain in Europe, cannot be absolutely perfect, for, just as we have found French influence making itself felt in Germany and the northern countries, the German influence is to be met with, here and there, in the southern countries.

#### ITALY.

We have already stated, in Chapter XIII., that the first European porcelains of which we have any knowledge were made in Italy, but even the most famous of these, the Florentine porcelain of the sixteenth century, passed away without leaving any traces of its existence ; and it was not until the eighteenth century that fresh efforts were made in Italy, provoked by the successes of Meissen, Vienna, and St. Cloud.

VENICE.—A wealthy family of Venetian goldsmiths, the Vezzi, with the aid of Meissen workmen and the famous Hunger (who had the reputation of being the ablest porcelain expert of his time, working successively at Meissen, Venice, Vienna, and Rörstrand), established a manufacture of hard-paste porcelain in 1719 or 1720. The ware was very similar to that of Meissen, though we are unable to credit the statement that it was made with Saxon materials, for



PLATE XXXIV.—LE NOVE.  
JARDINIÈRE.



their export would not have been allowed. More probably, it was made from the minerals obtained in the neighbourhood of Passau, for its substance was never very white. Decorations in underglaze blue, and in enamels and gold were introduced from the first. This ware was probably that bearing the mark "Vena," a contraction for Venetia. The venture came to an end in 1740, but from 1758-63 there appears to have been a very small establishment worked by a man and his wife named Hewelche, who had left Meissen when it was sacked by Frederick the Great. Of the further history of Hewelche we have no information, but in 1764 a third Venetian factory was started by Germiniano Cozzi, which endured down to 1812. Curiously enough, a good deal of the ware of this third factory was exported to Turkey, through Trieste and the ports of the Levant, and the factory no doubt secured a considerable share of the trade in Turkish coffee-cups that had been started by Meissen (see p. 175). Tea- and coffee-services were also largely made, decorated with coast scenes, flower painting, or Chinese subjects, in enamel-colours and with excellent gilding. Figures and groups, both in the "biscuit" and glazed and decorated, also made their appearance. It is probably from the fact that an anchor drawn in red was used as a mark at this factory that we get the absurd tradition that the Chelsea factory owed its origin to the Venetian glassmakers brought over to England by the Duke of Buckingham in the reign of Charles II.

LE NOVE.—We have only the slightest information of the porcelain made at Le Nove, near Bassano, though its manufacture is said to have persisted from 1762 to 1825. A family of potters named Antonibon had established a works for the production of majolica early in the eighteenth century, and between the dates named some glassy-porcelain was manufactured. Large vases are known, as well as figures and ordinary table-ware, and the pieces are always carefully modelled and well made. Apparently the works could not successfully meet the French and German competition of the nineteenth century, though it continues to make earthenware and common faïence, as well as some copies of the old majolica, even in our own times.

DOCCIA.—The most famous Italian porcelain factory is that founded at Doccia, near Florence, in 1735, by the Marchese Carlo Ginori; for besides having produced some of the most beautiful white porcelain of the eighteenth century, the works is still in existence, and, what is still more wonderful for a European factory, remains in the hands of the same family. Naturally, with such a long history and in an establishment where almost every kind of pottery has been made at one time or another, the work has not always been of equal excellence; but what must always excite the interest of the collector is the white porcelain made in the eighteenth century, evidently in imitation of the white Chinese pieces of Fuchien. The first marquis, who founded the factory, must have been keenly interested in the manufacture of porcelain, for we are told that he actually imported a shipload of kao-lin from China for his experiments. He also sought for European experts, and brought Carl Wandelein from Vienna to direct the manufacture. Naturally, attempts were made to use Italian materials, for the cost of carriage of clays and minerals from Germany would have been prohibitive. In this way they were led to use certain clays and rocks of Piedmont, rich in talc or other magnesian silicates, and so they produced a less refractory and more waxy-looking paste than the German or French. Brongniart, when he first attempted the classification of porcelains, designated Italian porcelain containing magnesia as "hybrid" porcelain, but there is really no need for such a distinction to-day, when porcelains are made with mineral mixtures of the most varied kinds, and when we also know that the Chinese, the makers of "true" porcelain *par excellence*, have used substances of the most diverse composition in their beautiful wares. With these Italian materials a porcelain was made which approaches in texture and quality more nearly to the best pieces of white Chinese porcelain than anything else made in Europe. The Chinese pieces with modelled flowers were extensively imitated, as well as figures and groups; and large figures were also attempted, following the Meissen examples, but these are generally flawed and fire-cracked. After the discovery of the deposits of kao-lin and pegmatite in the centre of France,



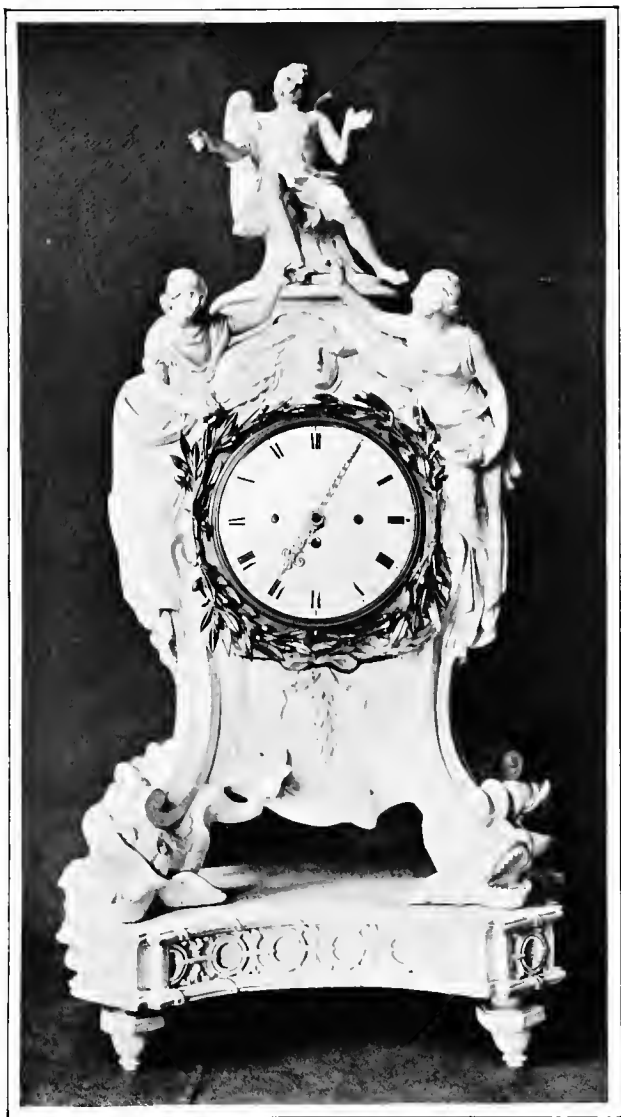


PLATE XXXV.—**DOCCIA.**  
CLOCK.



these minerals were imported in order to make a whiter porcelain than the native materials would give ; and then a regular manufacture of vases, services, and the usual productions of a porcelain factory set in, the designs of Sèvres being followed with some extravagances adopted from the styles of the late Italian majolica.

When the Capo di Monte factory was closed, in 1821, the moulds were bought by the Ginori family, and inferior copies of the Capo di Monte pieces have been produced at Doccia in quantities probably exceeding the output of the original works ; at the present time much of this ware is being sent to America.

VINOVO.—There is a tradition that experiments in porcelain were first made at Vinovo, one of the Royal castles near Turin, by Brodel, assisted by one of the Hannongs from Strassburg. These experiments were unsuccessful, but they were taken up about 1770 by Dr. Gioanetti, who was professor of chemistry in the Turin University, and had already made a study of the rocks and clays of Piedmont. He succeeded in making a porcelain of good quality, and the manufacture was continued up to his death in 1815.\* The ware has a beautiful waxen quality of surface, but it is not very translucent, and is naturally of a faint creamy colour. Evidently its quality was appreciated, for though the pieces were decorated with good enamel-colours and gilding, the white is less hidden than in the majority of contemporary wares. Another porcelain factory was founded on the outskirts of Turin after the Vinovo works was closed, but its wares were of a purely commercial character, and I believe it was afterwards absorbed by the Ginori factory.

CAPO DI MONTE.—The ware of the Royal factory of the eighteenth-century kingdom of Naples has received from collectors an amount of attention quite disproportionate to its technical or artistic merits. The enterprise owed its inception entirely to the enthusiasm of the Bourbon prince, Charles III., who reigned over the kingdom of Naples from

\* Brongniart published ("Traité des Arts Céramiques," Vol. II., pp. 421-3) an account of this porcelain, communicated to him by Dr. Gioanetti in 1807. Like many of the Italian porcelains, it was made with materials containing silicate of magnesia as well as silicate of alumina.

1734 to 1759. He was notoriously influenced by his French relations, and when in 1736 he turned his attention to porcelain, it was a species of French or glassy-porcelain that was manufactured at Capo di Monte within the shadow of the Royal Palace. The situation recalls that of some of the Japanese kilns which were erected in the gardens of the feudal princes of that country (see p. 141). The King was so greatly interested in his factory, that rumour has it that he worked there with his own hands; while, at the yearly fair held in the square before the palace, the ware had a special stall or booth, and those who purchased the porcelain were favourably regarded by the King, who had a daily list of the sales, with the names of the purchasers, furnished to him. The earliest and most charming of the Capo di Monte productions were those made in pure white, probably in imitation of the Chinese white pieces, though in a very different style. Highly modelled work was always a speciality of the Naples factory, and we may note perhaps its first appearance in the pieces modelled in the form of natural shells, supported by corals and sea-weed; probably the originals from which the elaborate shell table-centres and salt-cellar made at Bow, Plymouth, Bristol, and Worcester were copied. Then figure-modelling carried all before it, and besides the more usual forms of groups and statuettes, or figures in conjunction with vases, we have the pieces by which Capo di Monte is perhaps best known, where on small pieces—vases, cups and saucers, cream-jugs, and plates—groups of figures illustrating classical or mythological legends were modelled in high relief, on a minute scale. This trivial style of work excites the greatest admiration, because of the finish and minuteness with which it was executed. The effect is heightened by bright enamel-colours, in which various rose, pink, and purple shades predominate, and by lavish gilding; even the faces of the figures being delicately stippled with colour. As an instance of skilful workmanship unsuitably applied it would be difficult to surpass this culmination of the style of Capo di Monte; yet such pieces are treasured by certain collectors, and command so high a price that they have been widely imitated at Doccia and Herend (q.v.). In addition to the small individual pieces in this style, a

private cabinet of the King in the palace at Portici had its walls lined with plaques similarly ornamented.

Charles III. succeeded to the throne of Spain in 1759 and conveyed to Madrid the best models and moulds as well as the most skilful workers of Capo di Monte. After this purge the works was re-established at Portici, and ultimately was removed to Naples by his son Ferdinand, who is said to have been of rude and boorish tastes. As the affairs of the State were largely managed by his wife, Queen Caroline, a daughter of the Empress Maria Theresa, it is probable that she really re-established the manufacture of porcelain. From this time the revived classic style seems to have been exclusively followed, both in the principal shapes and decorations, while paintings of figures in local costume and paintings of local scenery are found on vases derived from Campanian shapes. The internal troubles of the State caused the works to be sold to a company in 1807, and it finally came to an end about 1820, when many of the moulds were bought by the Ginori family for their works at Doccia.

We can do no more than mention the other Italian porcelains, such as those of Treviso and the "biscuit" figures, made after the work of Canova and other sculptors, or copied from antique marbles, made in a factory at Rome founded by G. Volpato in 1790, and enduring for some thirty years.

#### SPAIN AND PORTUGAL.

SPAIN.—The only Spanish porcelain valued by collectors is that which was made at the Royal factory of Buen Retiro, after the time when Charles III. left Naples to ascend the throne of Spain in 1759. In speaking of the Neapolitan factory, it was stated that this prince manifested the greatest interest in the manufacture of porcelain. When he came to Madrid, he brought with him a considerable number of the best workmen from the Capo di Monte factory, as well as a considerable number of the moulds and models that had been used there. The new factory was known as "La China," and was erected in the gardens of the Buen Retiro—a palace on the outskirts of Madrid. As long as Charles III.

lived, immense sums were lavished on the undertaking, and the ware was not allowed to be sold, being strictly reserved for the Royal use, for the decoration of the Royal palaces, or for presentation to the other European Courts. After the death of Charles III. a certain amount of the ware was offered for sale, but at extravagantly high prices. Little work was carried on at Buen Retiro after about 1808, and in 1812 the works was completely destroyed, in the desperate fighting between the French and English which went on round about Madrid. The first ware made at Buen Retiro was a soft-paste porcelain; no doubt the same body and glaze that had been perfected at Capo di Monte, and the same style of decoration was continued, growing more elaborate and more highly finished. One of the Italian potters named Bonicelli, was the first director of the factory, and was succeeded in that office by his son. Under their direction, in addition to table-services of the richest kind, large vases were made, up to seven feet in height, which have either pyramidal covers smothered with modelled flowers, or are mounted in ormolu, and filled with bouquets of painted porcelain-flowers, after the style of Vincennes. The most famous productions were the plaques and slabs of porcelain used for lining the walls of certain rooms in the Royal palaces. Two of these porcelain cabinets, one at Aranjuez, and one in the Royal palace at Madrid, excite the interest of every visitor to Spain, for they provide us with wonderful examples of the Spanish "rococo" taste. The porcelain panels are covered with figures in high relief, modelled by an Italian named Grecci, while the frames of the mirrors, set in between them, are also made in porcelain, with modelled fruit and flowers in the most approved fashion of the time.

After the death of Charles III. such elaborate works as these were no longer in demand, and in the early years of the nineteenth century a hard porcelain was made, which, like the Italian porcelain of Vinovo, contained magnesia. During this period the influence of Sèvres was paramount, and the productions of Buen Retiro are hardly to be distinguished from the contemporary French porcelains. Although several other attempts were made to re-establish the manu-



PLATE XXXVI.—**BUEN RETIRO.**  
WATCH-STAND.





facture of porcelain in Spain after the destruction of the works at Buen Retiro, nothing has since been produced that calls for especial notice.

PORTUGAL.—Some hard-paste porcelain was made in Lisbon, late in the eighteenth century, but nothing is known of these wares in England, except certain medallions in biscuit porcelain, with figures in relief on a white or coloured ground, in imitation of Wedgwood's jasper. Several of these are inscribed and dated; the dates ranging from 1775 to 1785.

A factory was started at Vista Alegre near Oporto in 1790, and this works is still in existence, but the wares are of the most ordinary description.

#### BELGIUM.

The important factory which was founded at Tournay by Peterinck in 1750 is frequently classed among the French factories, not only because the ware approaches the best French soft-paste porcelains in style and quality, but also because, at this period, Tournay was in French Flanders. The works appears to have been immediately successful, for within a few years of its foundation as many as two hundred and fifty workpeople were employed there. The porcelain is beautifully white in substance, resembling the old Sèvres pieces, and the glaze is so brilliant and perfect that pieces made at Tournay have often been passed off as productions of the best period of Sèvres.

It has already been stated that the method of making porcelain pieces by the process known as "casting," was employed at Tournay before it found its way to the other European porcelain works (see p. 27), and by this process very light wares could be made. In the first period the decorative styles of the Meissen and Oriental porcelains were followed, but very soon the prevailing Sèvres style was adopted, and we find pieces with the well-known decorations of roses and ribbons, as well as the rich royal-blue ground with gold tracery. Another favourite method of decoration was that of medallions with a rich gold frame, containing paintings

of cupids, exotic birds and little landscapes, the ground of the pieces being either in royal-blue, in yellow, or left in the plain white porcelain. Subsequently a commoner kind of porcelain was made, which was neither so white nor so translucent as the first ; and it is interesting to remember that, through varying changes of fortune, the factory still continues to manufacture soft-paste porcelain ; nowadays, mostly in the shape of ordinary domestic ware. It should be mentioned that some beautiful little groups and figures were also sent out from Tournay in the eighteenth century, in "biscuit," in pure white glaze, and also decorated in the usual enamel-colours.

The minor French factories at Arras and Saint-Amand-les-Eaux, in the north of France, seem to have been started by workmen from Tournay.

## CHAPTER XX.

### ENGLISH PORCELAIN : INTRODUCTORY.

THE trend of porcelain has ever been westward, so that it was in the natural order of things that England should be a few years behind France and Germany in the development of this manufacture. Yet, though this is the truth as to the date when a definite manufacture of porcelain can be authenticated, it is not quite the truth with regard to the records we have of experimental work in France, Germany, and England. Dr. John Dwight, of Fulham, the first man of distinguished ability connected with the manufacture of pottery in England, was undoubtedly making experiments for the production of porcelain before the year 1761, when he obtained a patent on the ground that he had discovered "the mystery of transparent earthenware commonly knowne by the names of Porcelaine or China and Persian Ware, as alsoe the misterie of the stoneware vulgarly called Cologne Ware ; and that he designed to introduce a manufacture of the said wares into our kingdom of England, where they have not hitherto been wrought or made." This is sufficient to show that already the wonderful porcelain of the Chinese, imported into England largely by way of Gombroon, on the Persian Gulf, had excited attention among us, though all the information we possess with regard to the productions of Dwight, forces us to the conclusion that he never made anything which ought to be called porcelain, even if we give to the term the widest possible interpretation such as is proposed in the first chapter of this book.\* That Englishmen were still engaged in trying to solve the problem of porcelain is shown by the work of the Elers in Staffordshire,

\* For a fuller explanation of Dwight's triumphs the reader is referred to the fourth chapter of the author's "English Earthenware and Stone-ware," Cassell & Co., Limited, 1904.

(4) The fact that five factories were started in England—roughly speaking, in the years between 1745 and 1755—the contemporary productions of which are remarkably alike, both in their material and in their decoration.

Whether the surmise here advanced that the cessation of the works at Lille may have been the immediate cause of this sudden outburst of English enterprise, in so many different places, be substantiated in the future or not, it is obvious, as Mr. Solon has repeatedly pointed out, that we must regard the first English porcelains as due to the irruption of new ideas borrowed from the established French practice.

From this time of the introduction of French knowledge, the history of English porcelain resolves itself into well-marked periods:—

(1) The era of Bow, Chelsea, and Worcester. These factories were pre-eminent from 1752 to 1770, and their productions command the highest prices in modern days.

(2) The period of Derby, Worcester, and Bristol. Roughly, from 1770 to 1800, when the wares became more settled and the decorations more mechanical and precise.

(3) The period of Worcester, Derby, Coalport, Rockingham, and the early Staffordshire factories, when the English bone-porcelain was generally adopted, and the ware was at the lowest level in taste.

(4) The period after 1850, when Minton's, Copeland's, and Worcester were the distinctive English factories, and English porcelain obtained, for the first time, a world-wide recognition.

Whenever a porcelain factory was started on the Continent, in the early days of porcelain-making, the first wares to make their appearance were generally white pieces, more or less imitated from the white Chinese examples, and this was undoubtedly the case with our own English factories. Among the rudimentary productions, which we must attribute to the factories at Bow and Chelsea, the great majority of the examples are moulded pieces without colour or painted decoration. Still following the same course, we find at every factory the early appearance of pieces decorated in underglaze blue, and at the Worcester works



PLATE XXXVII.—**CHELSEA.**  
STATUETTE.



especially, probably owing to the special nature of the Worcester body and glaze, this decoration was extensively followed. So, too, with the Kakiemon patterns, already referred to in the account of Japanese porcelain, and of the early wares made at Meissen and Chantilly, for these "old Japan patterns," as they were once called, form a distinct feature of the Bow decorations, while they were also imitated at Chelsea and at Worcester. The later, and more heavily decorated, "Imari" porcelains (see p. 145) were skilfully reproduced at Chelsea and at Worcester before 1760, but this was nothing to their vogue in the first half of the nineteenth century, when, besides being made at the Chamberlain factory at Worcester, English adaptations of this style—some of considerable excellence, though others were abortions of the worst commercial type—formed one of the great staple styles of the Derby factory, and of those of Spode and Davenport in the Staffordshire potteries.

The porcelains of Germany and France had also a profound influence on the shapes and decorations of all the English wares, and until quite recent times there are few English wares the designs and styles of which cannot be traced to earlier Continental productions.

The one method of decoration of undoubted English origin is that of transferring printed patterns to porcelain. At its best the results are not greatly superior to the stencilled patterns of modern Chinese and Japanese pieces, while at its worst the results are tawdry and vulgar in the extreme. The general plea urged on its behalf is that it enables elaborate effects to be obtained at a small cost, and so brings decorated wares within the reach of the humblest. We might, however, before urging such a plea, ask ourselves if the simplest brushwork patterns, or even no pattern at all, would not be preferable to much of the so-called decoration that the printing-press has rendered possible.

Before proceeding to describe the productions of the various English factories in detail, a short explanation must be given of the changes that took place, between about 1750 and 1800, in the bodies and glazes of the English porcelains leading up to the discovery of the distinctive English bone-porcelain. The earliest bodies, such as those

of Bow and Chelsea, were of the French glassy type, the bodies being made from pipe-clay, sand from Alum Bay, and glass; while the glaze was simply a fusible English flint-glass, rich in lead. In our account of French porcelain we have pointed out that such mixtures were exceedingly difficult of fabrication, and as early as 1750 calcined bones were added to the other ingredients of the body, as it was found that this gave more manageable mixtures, besides making the ware whiter. The first suggestion we get of this use of bone-ash occurs in the patent granted to Thomas Frye, of the Bow works, in 1749; and from that time forward bone-ash appears to have been used both at Bow and at Chelsea, while its use subsequently spread to the later eighteenth-century factories. It is necessary, however, to insist upon the point that this ware was not the distinctively English bone-porcelain as we know it. This was only arrived at when the custom of using glass, or frit, was abandoned, and a porcelain was made from china-clay (*kao-lin*), Cornish stone (*pegmatite*), and bone-ash, the mixture being no longer fritted. Tradition has always attributed this important change to the younger Spode, of Stoke-on-Trent, about the year 1800, and, though it is absurd to say that he was the first to use bone-ash in an English china-body, it is very probable that when he abandoned the method of using a frit, the success of his innovation caused his practice to be readily adopted at the other factories.

The other important variety of porcelain, "Parian," also invented at Stoke-on-Trent, shortly after 1840, has already been referred to (see p. 20).

At Worcester and some other eighteenth-century factories a more refractory porcelain was made by adding soap-stone to the glassy mixture. This gave a very good sound ware of a distinctive type, but as this plan was abandoned for the use of bone-ash, it demands no more than a passing mention here.





PLATE XXXVIII.—**CHELSEA.**  
STATUETTES.



## CHAPTER XXI.

### THE ENGLISH PORCELAINS OF THE EIGHTEENTH CENTURY.

CHELSEA.—The most interesting and important of the early English factories was undoubtedly that which was carried on at Chelsea, with certain interruptions, from some time after 1740 to 1770. The works was continued from 1770 to 1784 by Duesbury, the principal proprietor of the works at Derby, and in the last-mentioned year the kilns and workshops at Chelsea were demolished. The moulds were broken up or removed to Derby, together with some of the Chelsea workmen who still remained in Duesbury's service. It was during the period from 1750 to 1770 that this factory was at the head of all the English works, and fine specimens of the wares of this period command the highest prices of all our English porcelain. It is astonishing how little we really know of the history of the Chelsea works, and how an enterprise of such importance could vanish, leaving its origin and its internal history so obscure. The first manager appears to have been one Charles Gouyn, who was succeeded by a Mr. Sprimont before 1750; for in an advertisement of January 17th, 1750, Mr. Charles Gouyn is mentioned as "late proprietor and chief manager of the Chelsea House," and Mr. Sprimont is described as "the manager of the Chelsea factory." Sprimont appears to have been originally a silversmith, living in Compton Street, Soho, and his name was entered as a plate-worker at Goldsmiths' Hall in 1742. Sprimont retained possession of the works until 1769, and he died in 1771. It was during this period that the finest and most characteristic productions of Chelsea were made, and though dated pieces are rare, we are able to trace—thanks to the researches of the late Mr. Nightingale, who made a most diligent study of all the advertisements and sale-lists of the early English factories—the dates when

certain colours or styles of decoration approximately made their appearance.

We are probably justified in attributing most of the white pieces, which are either modelled or decorated with embossed reliefs, to the early days of the factory; such as the Goat-and-Bee cream jugs (specimens of which are the earliest marked and dated pieces known), the crawfish salt-cellars, as well as the shell and rock-work salt-cellars, jugs, sauce-boats, small cups without handles, and saucers. Things of this kind are fairly plentiful, and are generally of beautiful paste and glaze, though the pieces often show defects of manufacture. Probably the pieces decorated after the Oriental manner made their appearance next, though much useful ware, in the shape of square and hexagonal cups and saucers, plates and dishes, was produced throughout the existence of the factory. These pieces are decorated in three distinct styles: (1) slight Chinese patterns painted in underglaze blue; (2) the dainty decorations, principally in red and gold, in the Kakiemon style; (3) excellent reproductions of the brocade patterns of Imari porcelain. Afterwards came the table-wares, including plates, dishes, tureens, sauce-boats, pickle-trays, &c., modelled in imitation of leaves, or, still more fantastically, as representations of animals, fruits, birds, and fishes. We may mention among these, pieces made in imitation of cabbages, cauliflowers, bundles-of-asparagus, melons, apples, ducks, a hen-and-chickens, and such-like unsuitable things. This idea was probably borrowed from Meissen, though it should be remembered that similar pieces had been largely produced at many of the old French faïence factories.

In quite another style were the porcelain trinkets, toys, scent-bottles, patch-boxes, and handles for knives and forks or walking-canes. These were produced in great variety, and while they undoubtedly made their appearance before 1756, it was after that date that they were produced in abundance, for most of those that have survived to our own times are gilded and enamelled in the elaborate style that commenced after this date.

Chelsea, even in its early days, was noted for its charming white statuettes, and as the use of rich enamel-colours



PLATE XXXIX.—**CHELSEA.**

VASE IN THE ROCOCO STYLE.



and gilding developed, these were applied to the figures with the utmost freedom, until we reach the later Chelsea figures, skilfully enamelled and gilded and fully carrying on the traditions of Meissen, but with a delicacy and refinement that the German figures lack. The influence of Meissen is shown, too, in many of the designs of the early figures, for we get sets of the Seasons, the Continents, the Senses, the Monkey-orchestra, and stiffly naturalistic birds on stumps all reminiscent of the productions of the German factory when Kändler was modeller. The best Chelsea figures were those produced by modellers commissioned or employed by Mr. Sprimont, and it is generally believed that both Roubiliac and Bacon modelled some of the more important of these. Many of the figures, especially those representing the leading actors and actresses of the day in some favourite character, were modelled after contemporary engravings, while other figures were adapted from well-known pictures by Watteau and Boucher, or their engravings. As the figures grew more important so did the vases, candlesticks, and table-services, and it is interesting to see the spirit with which a private English factory strove to emulate the gorgeous productions of the Royal factory of Vincennes and Sèvres. We have seen how the Oriental influence was most pronounced in the early productions; then followed a period when the style and ideas of Meissen were followed; but from 1758, when fresh life seems to have been infused into the factory, a distinctive French style became predominant and continued in vogue until the factory passed out of Sprimont's hands. This is the period of the large elaborate rococo vases, with their pierced necks and covers, light scroll-work bases, and wildly interlacing handles, such as are to be seen in the Jones Bequest in the Victoria and Albert Museum. These pieces have rich, coloured grounds of mazarine-blue, turquoise, pea-green and claret colour, which Chelsea produced to match the *bleu-de-roi*, turquoise, and rose-Pompador of Sèvres, while it seems almost certain that the pea-green ground of Chelsea was the origin of the *vert pré* of Sèvres, which the French decorators called *vert-anglais*. Still keeping to the Sèvres custom, white panels are reserved in the rich grounds, which were framed with gold

scrollery and painted in enamel-colours with flowers, birds, or figure-subjects copied from the paintings of Watteau, Boucher, and Vanloo.

The same elaborate decoration was used for table-services, and many plates and cups and saucers are to be met with, richly decorated with coloured grounds, enamel painting, and fine gilding. A service of tea-ware and some plates, recently bequeathed to the Victoria and Albert Museum by Miss Emily S. Thompson, may be mentioned as illustrating the latest productions of the Chelsea factory. The work at Chelsea seems to have come to an end not from commercial decay, but simply from the failing health of Mr. Sprimont, its proprietor, and it seems absurd that it should have been finally sold to Mr. Duesbury, of Derby, for less than £1,000. Certainly, in the hands of Sprimont, Chelsea was the most heroic of all our porcelain factories, and it must always occupy a warm corner in the heart of every collector of English porcelain, from the spirit as well as the beauty of its pieces.

We have stated that in the beginning the porcelain was a true glassy-ware of the French type, but the ware was by no means constant in quality, and bone-ash was soon added to the glass and clay to make a more manageable body; indeed, Professor Church, who has studied the nature of the pastes and glazes of our early English porcelains with especial care, states that 90 per cent. of the existing Chelsea pieces are made from compositions in which bone-ash was an important ingredient. But the early porcelains of Chelsea, Bow, Worcester, and Derby were not made by such firmly settled recipes as are in use nowadays, and we find great variations of quality in pieces bearing similar decorations.

**DERBY-CHELSEA.**—When Duesbury acquired the Chelsea works in 1770 he was already an important porcelain manufacturer, for he was at the head of the rapidly growing enterprise at Derby. He was always a shrewd man of business, and he seems to have at once abandoned the production of the elaborate "rococo" pieces associated with the later years of Sprimont's Chelsea porcelain. Doubtless this was the main reason for the marked change in shape and style



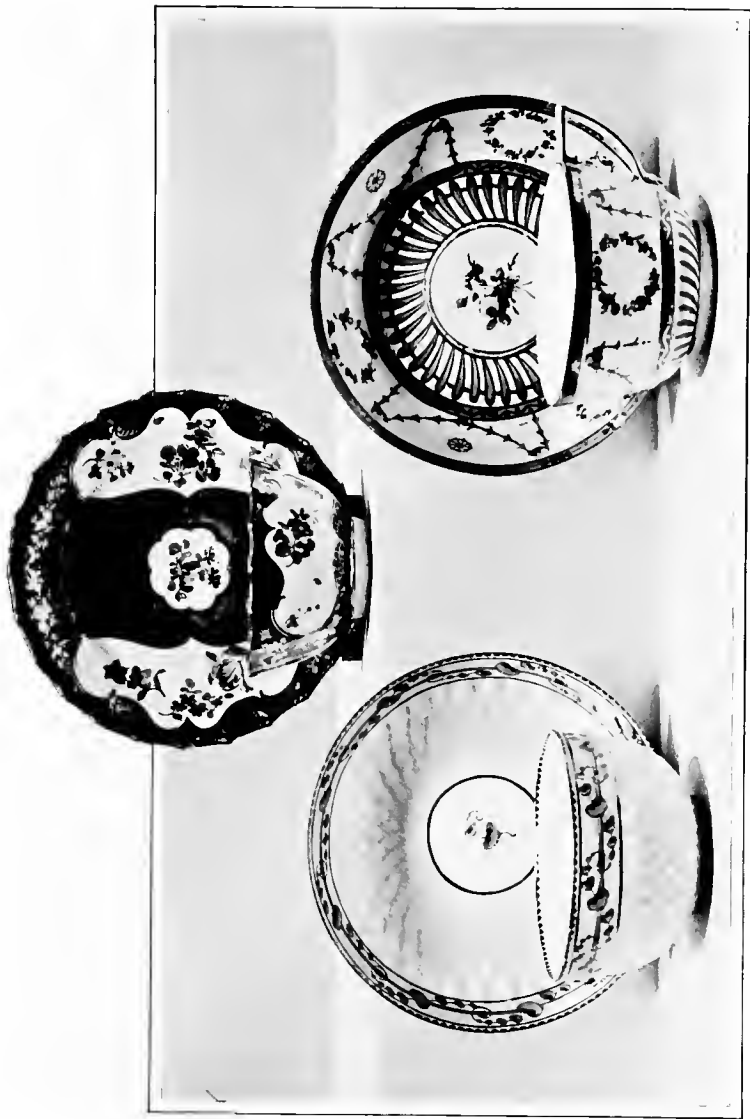


PLATE XL.—DERBY-CHELSEA.  
THREE CUPS AND SAUCERS.



which distinguished the years from 1770 to 1784, when the works were abandoned; but an additional reason is to be found in the general adoption of the "classic" style which was taking place all over Europe, and which in England was especially fostered by the success of Wedgwood's "Etruscan" and "Jasper" wares. Certainly the wares produced at Chelsea during the Duesbury *régime* are more closely related to those of the Derby factory than to Sprimont's Chelsea ware, and they foreshadow the technical perfection which, before the end of the eighteenth century, was to replace the charm of the earlier and more experimental wares of Chelsea, Bow, and Worcester. The student will find in the British Museum a series of choice examples of this ware which are absolutely typical, revealing, as so many of them do, the blending of the two diverse styles.

Bow.—By some writers the Bow factory has been given a date as early as 1731, but modern authorities are agreed that the first reliable information we have of the factory is the application for a patent on December 6th, 1744, for the production of porcelain from an earthy mixture produced by the Cherokee nation in America, called by the natives "unaker," and a frit formed by melting together sand and potash. I have already pointed out, in my history of English porcelain, that no ware could have been made of the materials and the method specified in the patent, and though other writers have remarked that the specification was purposely vague, even to the point of being misleading, I am still of opinion that when Helyn and Frye applied for the patent in 1744 they were really trying to protect a partially-learnt secret process; and the origin of the Bow porcelain, as of the other early English porcelains, is to be sought in the information communicated by wandering experts or experimentalists from one of the French factories. A certain amount of information has, however, been obtained from certain memorandum-books, diaries, and note-books written by John Bocock, who was at one time a commercial traveller and manager for the works. From this source we learn that the works was called "New Canton," and that in 1750 it was owned by Crowther and Weatherby; Thomas Frye acting as works-manager. Frye remained manager of

the works until 1759, when he retired from the business owing to ill-health. In 1753 a warehouse for the sale of Bow china was opened near the Royal Exchange in Cornhill, and in 1757 a second warehouse was opened "on the terrace in St. James's Street." From about this period, however, the works began to decay, for Weatherby died in 1762, and the remaining partner, Crowther, was declared a bankrupt in 1763, the stock-in-trade of the factory being sold by auction in May, 1764. Crowther appears to have conducted the business, on a reduced scale, to about 1775 or 1776, when it was sold to Duesbury of Derby for an insignificant sum, the moulds and implements being transferred to the Derby works. In addition to the books of Bocoock some additional information is derived from a memorandum attached to a bowl in the British Museum, which was painted by Thomas Craft, one of the painters of the factory; we have also the information obtained by Mr. Nightingale through his researches in the old newspaper files and records of sales-by-auction of the day; and, finally, there was an interesting find of fragments of porcelain and moulds on the site of the works during some drainage operations in 1868, at the match factory of Messrs. Bell and Black, in Bell Road, St. Leonard's, Bromley-by-Bow. From these various sources we have quite a little mine of information, not only about the productions of Bow, but as to the methods by which the business was carried on. While there is a certain resemblance between the wares of Chelsea and of Bow, both in style and material, there are certain well-marked differences which betray the difference of spirit with which the two places were conducted. We have seen at the Chelsea works a manufacture of simple and plainly-decorated wares developing into one of great richness and elaboration. The works at Bow seems, from the beginning almost, to have been conducted on much less ambitious lines, for though we have purely decorative pieces, such as vases and statuettes, it is certain that the main output of the works comprised useful rather than ornamental pieces. Table-services, tea- and coffee-wares, tea-pots, jugs, and basins in various styles bulk largely in all the modern collections of the wares of Bow. The same tendency is



PLATE XII.—**BOW.**  
SHEPHERDESS, FIFER, AND A COOK.



shown by many of the entries in Bocock's note-books, from which we may quote the following example. Under date May 28th, 1756, he mentions: "Patterns received from Lady Cavendish; a Japan octagon cup and saucer, lady pattern; a rib'd and scollop'd cup and saucer, image pattern; a Japan bread and butter plate"; and in the notice of the first sale-by-auction of the Bow porcelains, in 1757, mention is made of "a large assortment of the most useful China in Lots, for the use of gentlemen's kitchens, private families, taverns, &c."

We find among the authentic Bow pieces markedly different types of body and glaze. Certain little ink-stands, which bear the legend "Made at New Canton, 1750," enable us to fix with certainty the appearance of the earliest wares. These are nearly always thick in substance, and not very skilfully fashioned, the bottoms of plates and dishes being sometimes two or three times as thick as the sides. Where this early ware is thick it is quite opaque, but in thin parts it is translucent and has a beautiful, warm, creamy tone. The glaze on such pieces is sometimes gathered up in drops or patches, when it always has a distinct yellow tint, due to the high proportion of lead, and for the same reason it has often become quite iridescent from surface decomposition. This is the ware which in all probability was introduced from France; but after a few years we find an entirely different ware being used, which is much whiter in tone, and this ware undoubtedly contained bone-ash, probably added to make the earlier porcelain-mixture more stable in firing. The third type of Bow ware, which was mostly made during the decadence of the factory, is of poorer quality, rather harshly white and not very transparent. It would be unwise to attempt to fix any definite dates for these changes of composition in the body and glaze, but it may be remarked that in the British Museum there can be seen together an inkstand, dated 1750, which is of the first type; the Craft bowl, made in 1760, which is of the second type; and a plate inscribed "Mr. Robert Crowther, Stockport, Cheshire," made in 1770, which is of the third and poorest type. Let us now briefly review the various styles of decoration generally followed

at this factory. In the first place, there must have been a considerable production of pieces either moulded in imitation of contemporary silversmith's work, or decorated with applied, or "sprigged," patterns, as they are called, in imitation of white Chinese pieces.\*

Probably from the very first this modelled ornament was also used in conjunction with slight painting in underglaze blue. Many knife-handles and such-like pieces are known, but the loveliest examples are to be found in the little tea-pots, in which the modelled white ornament diapers the ground of the piece, reserving panels which contain slight but deft paintings in underglaze blue, generally of Chinese subjects. Some of these refined little objects bear the monogram "T and F" combined, which is commonly supposed to be the mark of Thomas Frye.†

The style of design which one perhaps associates most with Bow is that imitated from the Japanese Kakiemon pieces so often referred to, and it is difficult to imagine anything more charming in their way than the Bow plates, dishes, and other pieces, where this decoration, with rich red and solid gold as the dominant colour notes, occurs on the beautiful creamy ware made in the early days of the factory. In Bocock's note-book, and in the sale-lists, we find frequent reference to the "old brown-edged Japan patterns," and under this title we must recognise the octagonal dishes and plates, either plain or scalloped, and cups and saucers of the same kind painted with these designs, and with their rims lined in brown. In the later pieces the brown edge disappears, the red painted border is more elaborate, while about 1760 the simpler designs were departed from, and more elaborate decoration was adopted which is well exemplified by the "Craft" bowl in the British Museum, and a plate in the Schreiber collection with a festooned border and a centre of two fighting cocks.

\* A number of moulds for making these "sprigged" patterns were found during the excavations in 1868, and some of these may now be seen in the British Museum and the Victoria and Albert Museum.

† It should be noted, however, that a similar style of decoration was followed both at Worcester and at Lowestoft, and it is not always easy to distinguish between the pieces made at these different factories.



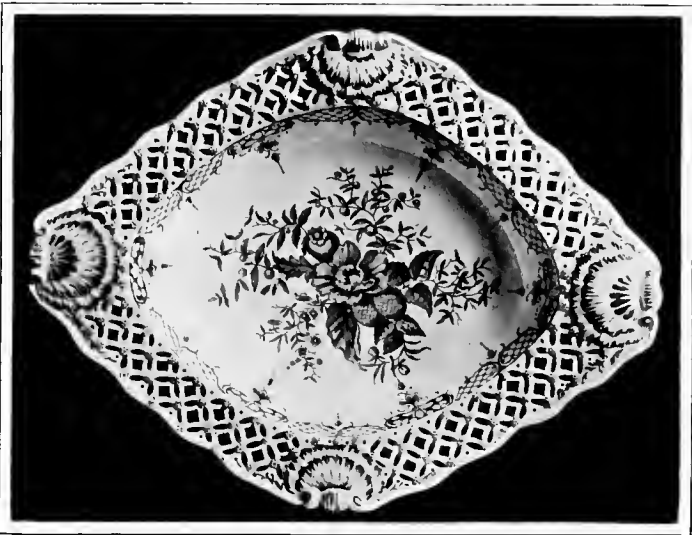
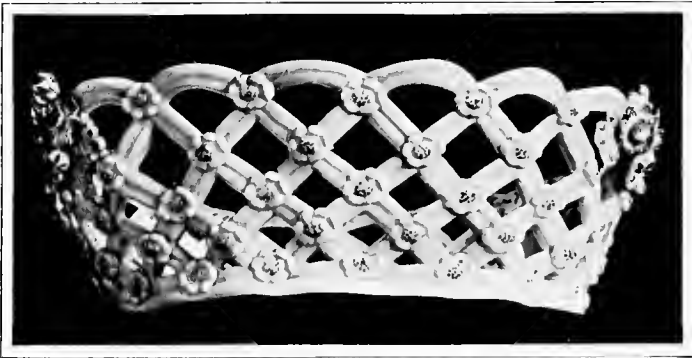


PLATE XLII.—**WORCESTER, FIRST PERIOD.**

BASKET-WORK DISH. OVAL DISH WITH PIERCED  
BORDER AND PATTERN IN UNDERGLAZE BLUE.



It is possible that printed patterns were applied to the Bow porcelain even before they were used at Worcester, for the idea seems first to have originated, in connection with porcelain, at the enamel-works at York House, Battersea, and printed patterns are mentioned in Bocock's notebooks as early as 1756. This point, though of interest, is not of very great importance, for printing never played much part at any of the first English porcelain factories except at Worcester.

We have already mentioned casually the early Bow figures, and these were produced in various styles throughout the history of the works. It must be said, however, that, generally speaking, Bow figures are neither so well made nor so tastefully decorated as those of Chelsea and Derby. In many cases the subjects appear to have been common to the three factories, and the best distinction between the Bow figures and those made at Chelsea will generally be found in the superiority of the enamel-colours and gold on the Chelsea wares.

WORCESTER.—As to how the manufacture of porcelain found its way to Worcester we have no certain knowledge. All that has been handed down to us is that a company was formed in Worcester in 1751 for carrying on the "Worcester Tonquin manufacture." In this company there were fifteen shareholders. A Dr. John Wall and William Davies, an apothecary of Worcester, are especially mentioned as possessing the secret of the manufacture. Although we have no information of any foreigner connected with these works, it would seem probable that Dr. Wall and William Davies had obtained some information, which they proceeded, with or without further aid, to develop and improve. From the start the Worcester works appear to have been conducted in a sound and practical way, with a considerable amount of success; and though nothing heroic was attempted for some time, the early Worcester wares have a quality of material and colour, joined with a certain English thoroughness and neatness of workmanship, which entitles them to a very high place among all our porcelains. Probably nowhere in Europe, and certainly nowhere in England, were the qualities of the old Chinese

blue-and-white more patiently studied, and a collection of blue-and-white Worcester, of the Dr. Wall period, is a perpetual feast to the eye. Not only was an approach made to the quality of the Oriental blue-and-white, but Oriental styles of decoration were largely adopted, and in many cases the ware was marked with what might pass, with the unwary, for the mark of a Chinese or Japanese painter. Undoubtedly the especial quality of the Worcester blue-and-white must be attributed to the materials used in its composition. We have seen that the potters of Chelsea and of Bow soon departed from the beautiful and difficult glassy-ware of the French type with which they started, and obtained more suitable (if less beautiful) bodies by using a considerable proportion of bone-ash along with the glass and clay. At Worcester bone-ash does not appear to have been used until many years later, but very soon a fresh material was introduced here in the form of a soapy-rock, an impure magnesian silicate, obtained from the neighbourhood of Mullion, in Cornwall. It is probable that Dr. Wall was led to introduce this material from the remarks made in Père d'Entrecolles' letters on the use of *Hua-Shih*, or soapy-rock, by the potters of Ching-tê-chên (see p. 112). The ordinary pieces were tea- and coffee-services, bowls, dishes, mugs, and plates; the elaborate vases, statuettes, and candlesticks which figured so prominently at the other English factories being rarely made at Worcester. The earliest cups were made without handles, but a little later larger-sized cups were introduced with handles, while two-handled covered cups for caudle, broth, and chocolate were largely made at a fairly early period. Other influences besides the Oriental were at work, for many of these larger cups bore an embossed imbricated pattern, which might have been based on the artichoke or pine-cone, and which we have already mentioned in connection with the French works at St. Cloud. Open-work baskets, dishes, plates, and other pieces with perforated rims were also made (see Plate 42), possibly in imitation of the well-known Meissen ware of this kind.

It was in the very early days of the Worcester factory that the process of applying printed transfers to the surface



PLATE XLIII.—**WORCESTER, FIRST PERIOD.**  
PRINTED SAUCER IN BLACK.



of glazed pottery, which has done so much to cheapen common porcelain, was introduced. It is believed that this method was brought to Worcester by Robert Hancock, an engraver who had been apprenticed at York House, in Battersea, where the process appears to have been first invented. Hancock came to Worcester when the enamel-works was closed in 1756, and the earliest examples of printed Worcester porcelain made their appearance in 1757, from which date mugs, jugs, and plates, bearing engraved portraits of celebrities of the time, or with fanciful designs taken from engravings after great artists such as Gainsborough and Watteau, or from well-known books of engravings such as those of Pillement and Engelbrecht, or the sporting prints of the day, were copied or adapted. The early engravings were executed with a fine, precise, and delicate line; and as they were commonly printed in a jet-black enamel, the general effect approached that of a line-drawing in Indian ink. The process was conducted as follows: A print was taken from an engraved copper-plate on to a thin sheet of paper, the colour being some enamel-colour, suitable for the purpose, mixed with printer's oil. This print was applied to a piece of glazed porcelain which had been warmed and sized, so as to cause the colour of the print to adhere to the glaze. The print was carefully but firmly rubbed on to the ware, and after standing a few minutes the paper could be removed, and the print was found transferred to the surface of the porcelain. In the early days the only colours that we find were a fine glossy black, a rather faint purple, and a bright red colour, such as was used in reproducing the red of the painted Japanese designs. For a long time the painting in underglaze blue and the printing just described appear to have satisfied those who were responsible for the conduct of the works, but about 1768 a number of Chelsea painters migrated to Worcester, and Mr. Binns, the special historian of the Worcester works, always attributed to their coming the advent of the more elaborate painted decorations in enamel-colours which soon made their appearance. Underglaze blue continued to be used, but generally in the form of a powder-blue or scale-blue ground, within which

white panels were reserved to receive paintings of plants, fruit or flowers, and fantastic birds in the brightest enamels. These scale-blue and powder-blue grounds of Worcester are not only characteristic, but are often of very great beauty. Probably also, following on the advent of these Chelsea painters, grounds of apple- or pea-green, French-green, pale turquoise, bright canary-yellow, and purplish-crimson made their appearance, too, as early as 1769. With these new decorative adjuncts the Worcester ware took on a brighter and gayer appearance, and many admirable decorations, in which enamel-painting is combined with underglaze blue or with enamel grounds of fine quality, help us to understand the appreciation which the ware of this period has always received in England. From 1768 to 1783 a certain number of large and elaborately-decorated vases were also made, and such pieces nowadays command high prices whenever an authentic specimen finds its way into the sale-room.

The first, and artistically the best, period may be said to have come to an end when, in 1783, the works was transferred to Thomas Flight, who had been its London agent, and he turned it over to his two sons, Joseph and John Flight, who were jewellers. From this we get at once a pronounced change in the styles of the Worcester porcelain, though no doubt they continued the practice which had been so successful at Worcester, and manufactured mainly tea-ware and table-services, for we hear little of vases, beakers, or important cabinet-pieces. The Flight influence is particularly observable, however, both in the new shapes, which are more and more based on those of Sèvres and Meissen, and in an increasing precision and "tightness" in the workmanship, while the colours became drier and less rich.

King George III. and Queen Charlotte visited the works in 1788, and besides purchasing some elaborate services, the King bestowed the privilege of allowing the firm to style themselves "China Manufacturers to their Majesties"; so that from this time the works has always been known as the "Royal" Porcelain Works. This Royal patronage was extended for many years, and brought in its train much





PLATE XLIV.—**WORCESTER,  
FIRST PERIOD.**  
SMALL CUP AND SAUCER,  
POWDER-BLUE GROUND.



**WORCESTER, SECOND PERIOD.**  
TWO-HANDLED CUP AND SAUCER.



**WORCESTER, SECOND PERIOD.**  
CUP AND SAUCER.





PLATE XLV.—WORCESTER.

PLATE WITH BORDER IN "SCALE" PATTERN.

WORCESTER.

PLATE WITH "TRELLIS" BORDER.



support from wealthy and influential people, but this, unfortunately, only led to the production of costly and even extravagant services with paintings of fruits, flowers, and birds in little panels, and the most lavish display of fine gilding. At this period, too, as well as in the early years of the nineteenth century, the works at Worcester did an extensive trade in its Imari or "old Japan" patterns though these are generally heavier in colour and much more lavishly gilt than the pieces of the same style made in earlier years.

In 1793 Martin Barr was taken into partnership, and we get the Flight and Barr period, which lasted until 1807. There were varying changes of proprietorship in the first half of the nineteenth century, but these are of little interest as they did nothing for the artistic quality of the Worcester productions, though the process of "Bat-printing," which originated about 1792, should be mentioned. In this process the engraving, instead of being in fine lines like the earlier work, was in "stipple," and the designs of Angelica Kaufmann, Cipriani, and Bartolozzi, which were so fashionable at this period, were reproduced on porcelain.

**CHAMBERLAIN'S WORCESTER WORKS.**—Soon after the transfer of the original Worcester works to Thomas Flight, Robert Chamberlain, who had been the first apprentice to the original company, and had risen to the position of foreman-decorator, started an independent works on his own account at Diglis, Worcester. At first this enterprise was only a decorating concern, the ware being obtained in the white from the newly-established works at Caughley, in Shropshire, some thirty miles higher up the Severn; but about the end of the eighteenth century, the enterprise being financially successful, Chamberlain commenced to make his own ware. The productions of this factory were naturally very similar to the contemporary productions of the earlier Worcester firm, though they were generally less elaborate in their gilding and more slightly painted. We read of a considerable number of elaborate "dress services," including a tea-service made for Nelson in 1802, a breakfast-service for the Duke of Cumberland in 1806, a service for the Prince of Wales, in which every

piece was of a different pattern, and in 1816 a dessert-service and a dinner-service for the Princess Charlotte. During the same years they also followed the prevailing taste for Imari patterns, which had such a vogue at Derby, Worcester, and the Spode and Davenport factories in Staffordshire.

DERBY.—The actual origin of the Derby factory is still wrapped in obscurity, though in connection with it we hear something of one Andrew Planché, a foreigner of French extraction, who may possibly have brought to Derby some knowledge of the manufacture of French porcelain. He is said to have been at work on his own account as early as 1750, but we have no record of his doings, and it was not until 1756 that the celebrated Derby porcelain manufactory was started by William Duesbury, who had formerly been an enameller of pottery and porcelain, working in London. Financial aid was given by the Heaths, who were bankers in Derby, but the active spirit of the concern was Duesbury, who ultimately got the business entirely into his own hands, while, as we have already seen, he purchased the Chelsea works in 1784 and the Bow works in 1786, having in all probability absorbed what was left of the enterprise at Longton Hall even earlier. By these various amalgamations Duesbury undoubtedly acquired a great stock of trade-secrets and moulds, as well as such skilled labour as he chose to employ, from the older works, and during the later part of the eighteenth century, and for some years during the nineteenth century, Derby was the most flourishing and important of all the English porcelain works. William Duesbury died in 1786, and was succeeded by a son of the same name, who died at the end of 1796, and a third William Duesbury was in possession until about 1810, though for a part of this time the works was practically managed by a painter named Michael Kean, who was a partner for a few years after 1795.

The early productions of Derby have little by which they can be identified, but undoubtedly its finest wares were made after the absorption of the Chelsea works, and down to about 1810, though the works was continued with great activity for many years afterwards. Useful, rather than



PLATE XLVI.—**DERBY.**  
TEA-WARE.





ornamental, ware formed the staple product at Derby, as at Worcester, during a great part of its history, and many of the shapes and decorations of the cups and saucers exhibit a considerable amount of delicacy and refinement. Duesbury from the first prided himself on his copies of the Meissen styles, and in the catalogue of the 1784 sales of his Derby and Chelsea porcelains he states that the objects are "of the most delicate approved patterns and shapes, finished in a style of superior richness and elegance, from the choicest specimens of the Seve (!), Dresden, Berlin, and Monsieur manufactures." When we mention that, in addition, the enamel-painting of flowers, and especially of roses, was generally practised at Derby, we shall get a good idea of the style of its pieces. Three Derby painters, Withers, Pegg, and Billingsley, are especially noted for their flower-painting, and we shall hear of Billingsley again, both as a flower-painter and as an experimentalist in porcelain-making. Pieces decorated with landscape paintings in enamel-colours seem also to have been developed at Derby, especially after 1786. Indeed, it was quite a common practice at this time for lords and ladies to have services painted from their drawings, or even to do the painting themselves. Lord Lonsdale had twenty-four plates painted with views in Cumberland from his own sketches; and Lady Margaret Fordyce, Lady Plymouth, and Lady Aubrey painted services of Derby porcelain for their own use. The style thus initiated fell on fertile soil in the inartistic era of the early nineteenth century, so that finally the most characteristic Derby pieces became those in which landscapes, flowers, or fruits were painted either on plain white porcelain with a gilded border, or on white panels reserved in the splendid mazarine-blue ground, for which Derby was so famous. Although there is a certain similarity between the productions of Derby and of Worcester, their differences are quite strongly marked, and in nothing is this better shown than by the fact that while figures and groups were but sparingly made at Worcester they were produced in great profusion at Derby. Here again the fact that the moulds of Chelsea and of Bow had been acquired may have had something to do with these developments, for there are many

pieces known which were made at Derby from the moulds of the older factories, but even before this time Derby had been imitating the Meissen figures, and had been especially successful in its reproduction of the figures with an abundance of lacework, like one well-known Meissen style of piece. There is not much to be said for the coloured Derby figures, for the enamelling was less skilfully executed than at Chelsea, and the colours were generally too heavily applied. But in another department Derby stands pre-eminent among all the English factories of the eighteenth century, and that is in the production of its "biscuit" figures. These well-known pieces appeared at Derby as early as 1770, though the finest of them were produced between 1790 and 1810, when two or three clever modellers were employed at the works. The first of these was a Swiss named Spengler, who came to Derby in 1790,\* and modelled many groups, the best of which are taken from the pictures of Angelica Kaufmann. Among the figures attributed to Spengler are many charming "Cupid" groups, as well as his famous group known as "The Russian Shepherds." Great spirit and artistic skill are shown in the portrait statuettes of British generals and admirals, modelled at the same time by Stephan. We reproduce in Plate 47 the figure of Lord Howe, which is quite worthy of comparison with the "biscuit" pieces of Sèvres. This figure was probably sent out in 1794 to commemorate the "Glorious 1st of June" when Howe gained his famous victory over the French fleet off Ushant. The third modeller, named W. Coffee, was by no means equal in ability to Stephan or Spengler. He modelled mainly rustic-figures and animals, and these pieces were produced in large quantities. The texture of these "biscuit" figures varies within rather wide limits. In the earlier pieces the material is not very highly vitrified, and some of the figures have a yellowish tint. In those of the best period the figures show a beautiful waxy surface, though there is little or no sheen, and every detail remains as crisp as when the piece left the hands of its maker. Other pieces are found with a decided glaze or "smear" upon the surface, due to

\* This was probably the Spengler who went from Höchst to Zurich in 1763



PLATE XLVII.—DERBY "BISCUIT."  
LORD HOWE.



their having been fired afterwards in the glazing oven, in the proximity of glazed pieces. In the nineteenth century the quality of the "biscuit" pieces deteriorated greatly, as they appear to have been made, not of the special composition which had been invented for this purpose, but of the ordinary porcelain body used for the table-ware, which was whiter and more porous.

It was probably during the management of Michael Kean, about 1795, that the famous Crown-Derby Japan patterns originated the vogue for this class of pattern, which has endured for more than a century; but we shall speak of those in connection with the Derby productions of the nineteenth century, when they were so largely made.

LONGTON HALL.—The abortive enterprise in porcelain-making carried on at Longton Hall by William Littler, a well-known Staffordshire potter, between 1752 and 1758, has received of late much more attention than its wares merit, for, interesting as it may be to follow the first Staffordshire experiments in the manufacture of porcelain, the ware possesses neither quality of material nor beauty of decoration enough to entitle it to regard. Most of the authentic pieces are rudely shaped and crudely finished, the surface is uneven, the bases are lumpy and ill-finished, and the pieces are frequently disfigured further because the ware is either cracked or sunk out of shape in firing, or the surface of the glaze is covered with black specks. The most characteristic feature of the porcelain is a very distinctive underglaze blue, which is lighter in tint than that of Chelsea and brighter than that of Worcester or Derby; it has a curious "run," streaky look, and yet it is one of the most beautiful blues on any English porcelain. This blue colour was sometimes daubed over the pieces, though in the best specimens it is used either as a coloured ground for the heavy, ill-shaped rococo vases, or on the rims of plates and dishes, especially those formed to imitate overlapping leaves. Associated with this distinct blue colour is the use of a raised white enamel, which was generally applied in the shape of finely-drawn rococo scrolls. As we should expect, "useful" wares predominated, for in the advertisement of a sale of the pieces held in London in 1757, mention is made

of "tureens, covers and dishes, large cups and covers, jars and beakers, basons and plates, melons, colli-flowers, elegant epargnes, and some ornamental and useful porcelain, both white and enamelled." A few vases and beakers as well as figures are also known, some of the best of which are those in the Franks collection in the British Museum.

CAUGHLEY.—The famous eighteenth-century factory at Caughley, the ware of which has often been confounded with that of Worcester, appears to have originated as an earthenware works as early as 1751, but porcelain was only made after about 1772, when Thomas Turner came from Worcester and acquired a share in this factory, of which he ultimately became sole proprietor. Turner had been an engraver at the Worcester works, so that it is easy to understand why, in the first place, the Caughley ware is very much like that of Worcester, and also why the use of printed decoration was so largely developed. There is no doubt that for the first ten years the Caughley ware was mostly painted or printed in underglaze blue with patterns of a sham Oriental character. The Caughley body was, however, whiter and more translucent than that of Worcester, and, speaking generally, the blue is also brighter. The ware is not so well potted, the tones of blue-and-white are not quite so pleasing, while the forms are more distinctively English than those of the early Worcester period. That this rivalry with Worcester was intentional there can be no doubt, and collectors may be reminded that the letter "C," which appears to have been used as one of the first marks of the ware, is frequently so drawn as to be almost indistinguishable from the "crescent-mark" used at Worcester.

In connection with the blue printed ware of Caughley it is interesting to remember that two patterns originated here which have had a greater vogue, perhaps, than any other patterns for table-ware ever invented. These were the famous "Willow" and "Broseley Blue Dragon," many removes away from the Chinese patterns from which their parts were adapted, and Thomas Minton, the founder of the world-famous house of Mintons at Stoke-on-Trent, is said to have worked as an apprentice-engraver on the first plates cut for these patterns.

At a later date some of the Derby painters migrated to Caughley, and a good deal of undoubted Caughley ware is known decorated with enamel-paintings of flowers, birds, and landscapes in the style that had been originated at Derby. Turner is also said to have visited France in 1780, and to have brought back with him some French painters, and certainly after this period we get some of the more characteristic Caughley productions in which a portion of a pattern is painted in bright underglaze blue and the finer details are applied in gold. Generally, in these pieces the blue takes the form of flowers or bands, and the gilding is used for borders and as delicate sprays of foliage, springing from or enclosing the blue.

Turner retired from business in 1799, and the works was sold to Mr. John Rose, who carried it on mainly for the production of white china, which was decorated at Coalport. Gradually the business was transferred to the newer works, and in 1814 or 1815 the Caughley works was entirely dismantled.

It has already been noted that for some years the Chamberlain factory at Worcester drew its supplies of glazed white ware from this works at Caughley.

LIVERPOOL.—A flourishing manufacture of tin-enamelled and other earthenware was in progress at Liverpool during the greater part of the eighteenth century, and, naturally, some of the best of these Liverpool potters attempted the manufacture of porcelain, between 1750 and 1780. Little, however, is known of the Liverpool porcelain, probably because most of it was domestic ware, which was largely exported to the American Colonies. Certain large pieces, in the shape of elaborately-painted vases, must be attributed to one of the Liverpool works, but as to which one we have at present no certain information. The Liverpool ware, as it is generally known, is neither very white nor very translucent, and the best authenticated specimens are certain bell-shaped or barrel-shaped mugs of various sizes, which usually bear designs, printed by Sadler and Green, in enamel-black. It should be remarked that Sadler and Green had, quite independently, discovered the process of transferring prints to glazed pottery, and they produced, between 1756 and

1790, an enormous number of printed patterns, which were used for the decoration not only of the pottery and porcelain made at Liverpool, but of the cream-colour and other wares made by Wedgwood and his fellow-potters in Staffordshire.

Bone-china, of the usual Staffordshire type, was made at the "Herculeum" factory in Liverpool between 1800 and 1841, but this is so similar to the contemporary Staffordshire wares as to require no further mention.

LOWESTOFT.—As much paper has been covered with discussions of the productions of the little factory at Lowestoft as would suffice for a description of the wares of the most important factory in Europe, since Mr. Chaffers boldly attributed to it the "Armorial" china imported by the East India Company. This fallacy received its death-blow at the hands of Sir A. W. Franks many years ago, though it was a long while in dying. But fresh interest has again been directed to Lowestoft by the discovery, during some excavations in December, 1902, on the site of the old factory, and the unearthing of a considerable number of moulds and waste fragments of porcelain. We are indeed threatened with a new "Lowestoft fever," for, as the recent discoveries have proved that certain well-known styles of Bow and Worcester ware were copied at Lowestoft, some collectors are eager to attribute such pieces to the latter factory in the most wholesale fashion. The history of the Lowestoft factory is, however, fairly simple. The works were founded in 1757 by one Robert Brown, who is said to have learned the secret of porcelain-making by engaging himself as a workman at the Bow works, and the first productions seem to have resembled the Bow porcelain. At a later date, however, as I have proved by analyses of fragments unearthed in the recent excavations, the body was a bone-porcelain of indifferent quality. The recently-discovered moulds show us that many of the pieces were in the same style as those made at Bow and Worcester, for we have dessert-dishes with basket-patterns, jugs with overlapping leaf designs, and various ribbed and panelléd pieces such as are well known at Worcester, while pieces decorated with embossed patterns in low relief, such as we have noted in connection with the works at Bow, also occur. These wares, and others



of a simpler kind, which might have emanated from any eighteenth-century factory, were decorated with simple painting in underglaze blue or with decorations in enamel-colour of roses and ribbons, and in these latter a characteristic rose-colour appears which is almost identical with that found on Chinese wares of the same period. The appearance of this colour may have had something to do with the attribution of undoubted Chinese wares of indifferent quality to Lowestoft, though the ingenious theory is now advanced by Mr. Solon that the tradition arose because the people who owned the Lowestoft factory acted as English agents for the Dutch East India Company, and so managed to evade for a time the monopoly of the English East India Company.

PLYMOUTH.—It is impossible to relate the story of the eighteenth-century porcelain factories of England in due chronological order, and the porcelains of Plymouth and Bristol have been reserved to the last because they were entirely different in character from those made elsewhere, forming, indeed, the only English examples of that manufacture of hard-paste porcelain which had been so successfully introduced in Germany and subsequently in France. The founder of this enterprise was William Cookworthy, a Quaker apothecary of Plymouth, who, between 1745 and 1755, discovered the enormous deposits of china-clay and china-stone in Cornwall, which have since been so extensively used by European and American potters. Cookworthy appears to have been led to these researches by reading the translation of the letters of Père d'Entrecolles, which had just appeared in Du Halde's "History of China," and also by the fact that the American who brought the white clay called "unaker" from the Cherokee country was also a Quaker, and so came in contact with him. Finally, it is said that the existence of the fusible stone needed to complete the manufacture was pointed out to Cookworthy by another American Quaker, whom he was conducting through Cornwall on a journey of religious service, and who showed him that the stone of the church at St. Columb was similar in appearance to that described by Père d'Entrecolles.\*

\* I have visited the Church of St. Columb Major, to assure myself that this tradition may be based on actual fact.

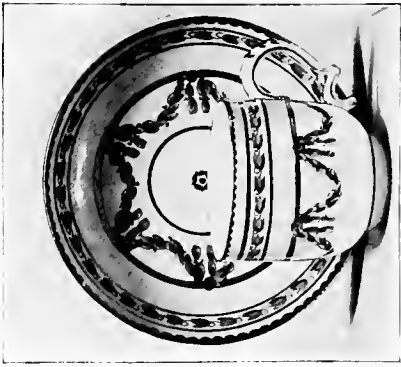
Cookworthy tells us that he spent no less than twenty years in searching for and experimenting with these various Cornish minerals, and it was not until 1768 that, with the financial assistance of one of the great local landowners, Thomas Pitt, of Boconnoc (created Lord Camelford in 1784), he commenced to manufacture his true hard-paste porcelain. With many vicissitudes and difficulties this Plymouth enterprise was continued only to about 1770, when it was removed to Bristol, and was afterwards transferred to Richard Champion. The existing pieces that can certainly be attributed to Plymouth are by no means numerous, and they can easily be grouped into three classes.

First, the white pieces, which comprise cups, salt-cellars, and a few figures. The cups are generally decorated with modelled reliefs in the style of some of the early Bow and Chelsea pieces, and the salt-cellars are generally in the form of shells, with rock-work, corals, &c., possibly in imitation of those made at Capo di Monte.

Second, pieces decorated with underglaze blue; mugs, cups, saucers, sauce-boats, and shells are most commonly met with and are usually of the same shape as the white pieces. The blue colour is generally quite dark, and is often run and streaky.

Third, enamelled pieces. The pieces already mentioned, together with plates, tea-pots, vases, and a few statuettes, occur with enamel decorations, recalling those of the earlier English factories. Most of the pieces are of the quality that one would expect in the early days of such an undertaking; the glaze is greyish and full of bubbles, and besides, frequently lies in uneven patches because it has not been sufficiently fired to run itself level. Many of the pieces, too, have a warm grey tinge, because they have been stained with smoke. On the hard, infusible glaze the colours stand up in pronounced relief, and are generally of a dryish texture. The superior quality of some few enamelled vases and figures, attributed to Plymouth, has led to the suggestion that these were really made at Bristol after the removal of the factory thither.

**BRISTOL.**—Experiments in the manufacture of porcelain were being carried on in Bristol as early as 1750, but with



**BRISTOL.**  
CUP AND SAUCER.



**BRISTOL.**  
TWO-HANDLED COVERED CUP AND  
SAUCER.

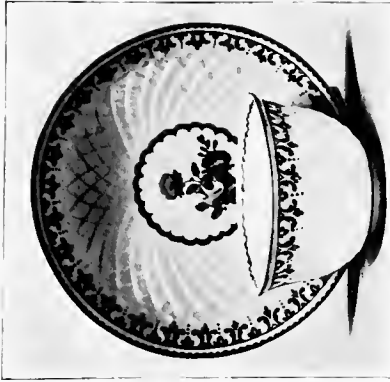


PLATE XLVIII.—**BRISTOL.**  
CUP AND SAUCER.



the exception of a few crude specimens and some scraps of contemporary information, we have no knowledge of any Bristol porcelain of importance until the removal of the Plymouth works took place, about 1770. In 1773 this works was transferred to Richard Champion, a Bristol merchant, who had already shown much interest in the porcelain question, and he purchased not only the factory, but the unexpired portion of Cookworthy's patent for the use of the Cornish materials, and the works became known as the Bristol China Manufactory. Under considerable manufacturing and financial difficulties Champion continued this business until 1781, when he sold his rights to a Staffordshire company; but the Bristol porcelain produced during these few years is nowadays as highly valued as the best productions of Chelsea and Worcester.

It should be noted that the Bristol porcelain, like that of Plymouth from which it was derived, and always a true, felspathic porcelain, made from the china-clay and china-stone of Cornwall. It is therefore harder and whiter than the other English porcelains, and it may be because the ware resembles in type that of Meissen and the other German factories, that we find a pronounced imitation of the Meissen styles, both in form and decoration. Like the Plymouth porcelain, the pieces are frequently marked with spiral ridges or unevennesses, due to the imperfect skill of the throwers; and the cold, harsh, glittering glaze frequently exhibits inequalities of surface and minute pittings, as such glazes are prone to do. The catalogue of the 1780 sale of the pieces made at the Bristol factory mentions, "Elegant patterns in dessert services, tea and coffee equipages, cabinet and cordial cups," and there can be no doubt that a great bulk of the ware was of this useful kind. It is surprising, however, to find how little use was made of the simple painted patterns in underglaze blue, which were so successful at Worcester. Champion appears to have had a preference for elaborate decorations in enamel-colours and gold, and his favourite patterns consisted of ribbon borders and festoons or laurel wreaths hanging from gilt-bands; while another favourite style of decoration was that of swags and leaves of laurel, painted in the green enamel for

which the factory was famous, in conjunction with fine ornamental gilding. Sometimes the green laurel festoons enclosed medallions with paintings of antique subjects in *grisaille* on a chocolate ground. The most elaborate Bristol tea-services are those made for Edmund Burke. The first of these was made in 1774 for Burke to present to Mrs. Smith, who had acted as his hostess during the election contest of that year; while the second was made during the same year as a present from Champion and his wife to Mrs. Burke. In addition to the manufacture of table-ware, a few large and important vases were also made. They are hexagonal in shape, standing about a foot high, or such as have covers about sixteen inches to the top of the cover. These pieces betray a mixture of Oriental and European motives. Some of them are painted with exotic birds, like certain well-known Chelsea and Worcester pieces; while others are decorated with modelled masks, festoons, flowers, bows of ribbon, or large leaves springing from the base or hanging down the angles and across the panels. A fine vase of this kind in the British Museum collection has a beautiful warm yellow ground, decorated with skilfully drawn sprays of foliage in purplish-brown.

The well-known Bristol figures are again strongly reminiscent of those of Dresden. Groups representing the Four Seasons and the Elements, in the guise of classic figures, about ten inches high, are well known, and pretty little figures are to be found among the sets known as the "Rustic Seasons" and the "Music Figures." With the characteristic coldness of the Bristol glaze and the dryness of many of the enamel-colours, there is no difficulty in distinguishing these Bristol figures from those of Chelsea, Bow, or Derby.

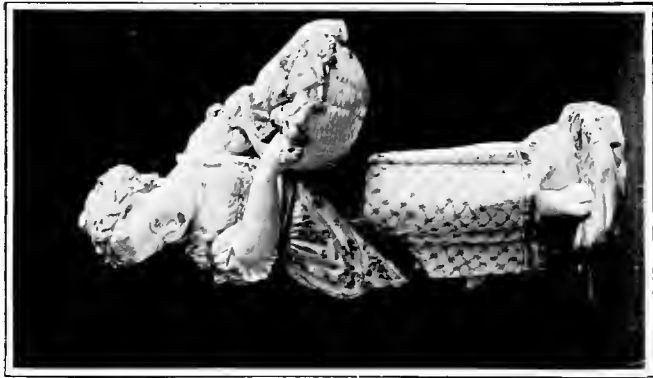
We must also mention the distinctive modelled flower-pieces, where sprays of flowers are applied to oval or circular medallions, from three to six inches in diameter, in white "biscuit" porcelain. A few medallions are known of larger size, in which the flowers and leaves form a wreath round an embossed coat-of-arms or modelled portrait. The largest known piece is one bearing a medallion portrait of Benjamin Franklin, which is now in the British Museum.



PLATE XLIX.—**BRISTOL.**  
"SPRING"—RUSTIC FIGURE.



**BRISTOL.**  
GIRL WITH TRIANGLE.



**BRISTOL.**  
"SUMMER"—RUSTIC FIGURE.





When Champion, pursued by financial difficulties, was compelled to relinquish his Bristol manufactory, he sold his patent-rights to a firm of Staffordshire potters, known as the New Hall Company, and it is said that he went to Staffordshire, for a time, to superintend the manufacture there. The ware made by the New Hall Company at its works at Shelton is, however, of no importance, and when that ceased, the manufacture of hard-paste porcelain in England ceased too.

## CHAPTER XXII.

### THE ENGLISH PORCELAINS OF THE NINETEENTH CENTURY.

THE English porcelains of the nineteenth century have not yet received the same attention from collectors as those described in the last chapter, and for two very good reasons. First, because they are for the most part less interesting than the earlier and more experimental wares ; and, second, because they have not yet had time to grow old or become rare. It will have been noticed that in our accounts of the eighteenth-century factories of Derby, Worcester, and Caughley, we have intimated that these factories were continued into the nineteenth century ; and, as a matter of history, it is worth noticing that in the first half of the nineteenth century the chief production of porcelain in England was centred in the Staffordshire potteries, while Derby and Worcester, the principal eighteenth-century factories that survived, gradually became of less and less importance. The works at Caughley had just been bought by Mr. John Rose, who had established a factory first at Jackfield and afterwards at Coalport, and during the first half of the nineteenth century this was the most important of the English porcelain works outside Staffordshire. Apart from these considerable commercial undertakings, a few sporadic efforts were made, here and there, to manufacture the glassy-porcelains again by experimenters like Billingsley, at Pinxton, Nantgarw, and Swansea, and by Randall at Madeley, in Shropshire ; but they had no effect on the main current of our history. One other factory of the first half of the nineteenth century must be mentioned, and that is the Rockingham factory, established at Swinton, near Rotherham, in Yorkshire, where a bone-porcelain of the finest quality was manufactured between 1820 and 1842. It is perhaps simplest to consider the least important factories

first, reserving those which developed into great commercial undertakings for fuller treatment. First, we must consider the doings of that celebrated unfortunate potter named Billingsley, who was responsible for so many abortive little porcelain works in the early part of the nineteenth century. Billingsley has already been mentioned as a flower-painter employed at Derby, and he left this works, about 1796, to commence his adventurous career as a china-maker. It is probable that Billingsley, who was apprenticed at Derby in 1785, learnt from Boreman or some other Chelsea painter who had migrated to Derby, something of the composition of the glassy-porcelain of Chelsea, for when Billingsley left Derby in 1796 he set up a little factory at Pinxton in partnership with Mr. John Coke. This must have been a small enterprise, and it was finally abandoned in 1812. The best Pinxton ware is attributed to the first few years before Billingsley left the factory, but, generally speaking, the Pinxton pieces are almost, if not quite, opaque, badly potted, imperfectly fired, and very slightly decorated. Perhaps the best-known pieces are two large ice-pails in the Victoria and Albert Museum. Billingsley left this factory in 1801, and began to decorate porcelain brought from the Staffordshire factories at a kiln he had set up at Mansfield, Nottinghamshire. This venture only lasted for a year or two, and he next appears at Torksey, about seven miles from Gainsborough, where he was also decorating white pieces brought from other manufactories, for a year or two on either side of 1805. Apparently none of these ventures were commercially successful, for Billingsley is next heard of at Worcester, where, in conjunction with Samuel Walker, who afterwards married his eldest daughter, he worked for Flight and Barr from 1808 to 1811. In 1811 Billingsley and Walker left Worcester and established themselves at a hamlet called Nantgarw, eight miles north of Cardiff, where they worked on their own account till about 1814. In 1814 they removed to Swansea and introduced the manufacture of porcelain at the Cambrian Pottery Works there; but they returned to Nantgarw in 1817, and were finally bought out by Mr. Rose, of the Coalport factory, in 1819, and Billingsley is said to have worked as a flower-painter

at Coalport till his death in 1828. The ware produced at Nantgarw and at Swansea has received much greater attention than it deserves, for although it is very white, soft, and translucent, it is frequently warped and blistered, so that perfect pieces are rare. The decoration, too, is usually in the worst possible taste, consisting for the most part of naturalistic paintings of flowers, fruit, and birds. After Billingsley left the Swansea works the manufacture of porcelain was still continued, though soap-stone from Cornwall, or some such refractory material, was added to make the ware more practicable. This ware is distinguished by a greenish tinge, which has earned it the name of "duck-egg porcelain." A third Swansea porcelain, distinguished by its peculiar dead whiteness of tone, was made between 1818 and 1824 by the new manager, Bevington, who had come from the Staffordshire potteries. At one time the Swansea factories employed a number of well-known china-painters, such as W. W. Young, Pollard, and Morris, who all painted flowers; while Thomas Baxter, originally of Worcester, painted landscapes and figure-subjects.

COALPORT.—The works at Coalport, which is still in existence, has already been mentioned several times. It was founded by Mr. John Rose in the early years of the nineteenth century, and may be regarded as a continuation of the works at Caughley, which Mr. Rose had acquired in 1799. Because Coalport was an almost unknown place, the ware has sometimes been called "Coalbrookdale porcelain," but the site of the factory is several miles lower down the Severn than the end of Coalbrookdale, so that this designation can only be regarded as a trade term. John Rose conducted the Coalport factory with the greatest enterprise, manufacturing wares in continuation of those made at Caughley and afterwards those of Nantgarw; but the great commercial success of his enterprise appears to have followed from the wholesale copying of the more popular styles invented at Meissen and at Sèvres. He made numerous experiments to improve the quality of his body and glaze, and he was particularly successful in his reproduction of the famous mazarine-blue of the Derby factory,

which was in itself an imitation of the *bleu-de-roi* of Vincennes and Sèvres ; while at a later date he produced enamel-grounds in imitation of the famous turquoise and rose-Pompadour colours of the *vieux Sèvres*. It is impossible, indeed, to speak of any definite Coalport style, for Coalport existed, in its most palmy days, on the imitation of the famous styles of the past, whether it were those of Meissen or Sèvres, or of Derby, Chelsea, and Worcester.

ROCKINGHAM PORCELAIN.—This porcelain, which in its technical qualities marks perhaps the highest point reached in the English bone-porcelains of the first half of the nineteenth century, was introduced about 1820 at an old-established earthenware factory at Swinton, near Rotherham, in Yorkshire, known as the Rockingham Works because the land on which it was situated belonged to the Marquis of Rockingham. The works were in the occupation of a family named Brameld, but it was only by the financial assistance of Earl Fitz-William that the enterprise of making porcelain was carried on at all. It has been stated that the production of this porcelain was conducted almost regardless of cost, but the pieces are often ugly in shape and over-elaborately decorated, as may be seen from the ungainly vase preserved in the Victoria and Albert Museum. Vases, figures, jars, busts, flower-baskets, as well as table-services of every kind were made here. They are generally decorated with costly and elaborate paintings of flowers, fruit, or birds, in the highly finished style of the early part of the nineteenth century, and it is not surprising to learn that when the factory came to an end in 1842 it had involved both the Bramelds and Earl Fitz-William in serious monetary loss.

WORCESTER AND DERBY.—We have already seen that the two Worcester factories which had originated during the eighteenth century, and the factory at Derby, were continued into the nineteenth century, and a short account must be given of their doings down to about 1850. At Worcester the two rival factories continued in operation with constantly diminishing success. No new departures in decoration were evolved, and in 1840 the separate businesses of Flight & Barr and Chamberlain were amalgamated, and

the manufacture of porcelain was concentrated at the Chamberlain factory. This, however, brought no improvement in the financial condition, and about 1847 the business almost came to a standstill. It was resuscitated in 1852, when Mr. R. W. Binns became a partner, and in 1862 it was converted into a joint-stock company, which still continues the manufacture in a re-modelled works on the site of the old Chamberlain factory at Diglis, Worcester.

The course of the once famous Derby works was an almost similar story of degeneration and financial disaster between 1810 and 1840. In 1810 or 1811 it passed out of the hands of the Duesbury family into those of Mr. Robert Bloor, who had formerly been the managing clerk of the works. At first a great popular success was achieved with the "Old Japan" decorations which had been revived a few years earlier, and in 1817 Mr. Bloor circulated handbills through the Staffordshire potteries undertaking to find employment for "twenty good enamel painters who could paint different Japan patterns, borders, &c.," but the very popularity of this bastard style of design seems to have been the prelude for the failure of the famous Derby porcelain works, as it led to the decoration of a vast amount of inferior white porcelain that had accumulated during the earlier years of the factory, and, when that was exhausted, to the gradual cheapening of the materials and methods. Unfortunately, too, Mr. Bloor became insane about 1828, and the works was very badly managed until 1848, when it was dismantled, the moulds and stock-in-trade being sold to a Mr. Boyle, a potter at Fenton, in the Staffordshire potteries.

On the break-up of the original Derby factory a few of the workmen started a small venture of their own, which, with many changes of proprietorship, has endured down to the present time, while the present "Royal Crown Derby Porcelain Company" is an entirely independent enterprise, which was founded in 1876 in an effort to restore to the town of Derby some of the glory that it had gained from the original works.

THE STAFFORDSHIRE FACTORIES.—During the eighteenth century Staffordshire, so famous for its development of

earthenware, had played singularly little part in the history of English porcelain, but during the first half of the nineteenth century, when those eighteenth-century factories which had survived were gradually sinking to decay, the manufacture of porcelain was taken up with great spirit and enterprise by some of the leading Staffordshire potters, and it is probable that their competition, backed up as it was by greater manufacturing skill and better business methods, completed the downfall of the works at Worcester and at Derby. Artistically there is little to be said for the Staffordshire porcelains of this period. The ware, which is invariably the true English bone-porcelain made from china-clay, Cornish stone, or felspar, and bone-ash, is of excellent quality, while the body is as perfect and precise as one could wish. Painters were attracted into Staffordshire from Worcester, Derby, and elsewhere, and continued the style of painted flowers, fruit, or landscapes, so largely used at Derby and Worcester, while the "Japan" patterns which formed such a feature of the Derby productions were reproduced in enormous quantity. The most famous Staffordshire porcelain-makers were Spode, Davenport, Ridgeway, and Minton, while a small amount of porcelain was also made at the famous Wedgwood factory, at Etruria, between 1805 and 1812 or 1815. As showing the extent of the trade carried on by some of these Staffordshire potters, it is interesting to note that Brongniart states that in 1836 the Davenport factories at Longport produced earthenware and china to the value of nearly one hundred thousand pounds, and employed something like fourteen hundred workpeople.\*

Apart from the light that these English porcelains of the first half of the nineteenth century throw on contemporary taste, they have singularly little to offer to the student of porcelain.

From about the time of the Great Exhibition of 1851 a decided improvement in taste has been manifested by the leading English factories, and the business of porcelain-making is now followed at about seventy factories. The majority of these works are, of course, employed in making

\* Brongniart: "Traité des Arts Céramiques," Volume II., p. 453.

purely commercial articles, but the important firms such as Minton's, Copeland's, The Royal Worcester Company, Brown-Westhead, Moore & Co., Josiah Wedgwood & Sons, Doulton's, of Burslem, the revived Crown Derby Company, and a few others, have won a deserved reputation in Europe and America for some of their artistic as well as their commercial productions.

Undoubtedly, one of the causes that contributed to this revival was the invention of the Parian body, which seems to have been discovered at Copeland's works at Stoke-on-Trent, by an ex-figure-maker from Derby named Mountford, in an attempt to discover the lost secret of the fine Derby "biscuit" ware of the eighteenth century. This "Parian" porcelain, besides being used for enormous numbers of statuettes, groups, and busts, was extensively used for tea-ware and vases, especially at Worcester; Copeland's, and Minton's, while the Belleek porcelain—the only porcelain made in Ireland—was a glazed Parian-ware.

Artistically, the work of Minton's was greatly influenced by a number of French artists who worked there between 1850 and 1880, some of whom were the best painters in Europe in their special kind of work; whilst sculptors of note like Jenest, Carrier-Belleuse, and Protat designed and modelled figures, groups, vases, centre-pieces, and other elaborate productions. The French taste is also seen in the whole-hearted reproductions of some of the most famous *vieux Sèvres* pieces, including those decorated with the fine grounds of turquoise, rose-Pompadour, royal-blue, and pea-green with rich gilding, and to-day there is no porcelain works in the world which can so nearly approach the beauties of the old French soft-paste decorations. The most artistic of the wares produced at Minton's, however, is the famous *pâte-sur-pâte* decoration, introduced from Sèvres by Mr. Solon, who still happily lives at Stoke-on-Trent, though he is no longer in harness. Mr. Solon's work has already been mentioned in our account of Sèvres, and it only remains to record our opinion that his work in *pâte-sur-pâte* is the most distinguished production of European nineteenth-century porcelain.

The trend of affairs at the Worcester factory was en-





PLATE L.—MINTON.

VASE BY L. SOLON.



tirely different. Here adaptations were made of Japanese and Persian motives, produced in a variety of ivory-like bodies with much use of gold and bronze. The Worcester productions have always been famous for their thoroughly sound English workmanship, and that quality they still retain.

We can do no more than mention the wonderful development of *flambé* and lusted porcelains by Mr. Bernard Moore, who has removed his business to Stoke-on-Trent. But it is likely that the influence of his work will be very strongly felt in the near future.

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