way from a great art to a business. There are not a great number of the things made by man which are started with materials so cheap, and are of such value by the time they are complete, as, let us say, Ming porcelain. Some examples are in fact without price, and the museums which are their owners would not let them go for any amount of money. This is not because complex machines were used, or because of advertisement, or the needs of trade, but because of the taste and expert art of the workmen.

In other arts, workers in stone, painters, and writers make materials of almost no value into highly-priced goods simply through their expert use of it. But the potter may put into his work a quality which some arts do not have—a value in use.

A LONG time before the days of recorded history pots were being made in Staffordshire, England. Groups of potters, living on the land, got the clay out of the earth, and the coal for firing it, and then went about the countryside trading their pots. Clay was free to all, even if it was taken from the middle of a public road. The pots were rough and of great weight, and almost all of them had a lead glaze on them.

No changes or discoveries of better processes took place till, in the late 1600's, there came over with William of Orange from Holland two brothers named Elers. They had been trained as potters in Holland, and they went to a quiet place in Staffordshire, far away from all society, and took up the making of pots. It was a time when tea-drinking was becoming common in England, and there was a great market for tea-pots. The Elers had a wide knowledge of their art, their work was of high quality, and they were the first potters to make use of a salt glaze in England. Up to then knowledge of it had been limited to a small number of makers of china in Europe, and the brothers took great care not to let anyone into their secret; they even made a point of having only feeble-minded workmen.
But two potters who were very good at their work had a great desire to get the secret, and by acting as if they were feeble-minded, were able to get work with the Elers brothers. It was a hard business to keep it up, because in those days the workman was with his work all the time, sleeping in the same building and taking all his meals with the young learners and other workers. But for two years these men went on acting their parts, and in the end they went away with a detailed knowledge of every process, and they made a start in business for themselves. One of them, Astbury, became as noted as his earlier teacher.

It is interesting to see how the taste for delicate china came into being with the development of tea-drinking, of coffee houses, and the use of chocolate as a drink. All these things came into Europe at about the same time. Chocolate was got from America, tea from China and Japan, and coffee, which came in the wide-winged sailing-ships, was first planted in the East. But all these drinks were still only for well-off persons, for women who did nothing all day, for men dressed in delicate silks and linens. Little tea-boxes of delicate china, painted and ornamented, were something which no woman of high birth going on a journey was able to do without.

From Staffordshire comes another sort of pot, the 'Toby jug.' Probably this was once made as a picture of someone, because the Toby jugs, though different in colour and position, are all of the same general design; a smiling little man seated on a square, his three-sided hat forming a lip by which the liquid comes out. Some of these pots were almost like porcelain in their beautiful, clear quality, but they were not true porcelain.

There is one very great name in English pottery. You have probably come across the name of Josiah Wedgwood, who was not only a great potter but a great man. His birth took place in 1730, and his family had been potters for over a hundred years. When he was quite young he was sent to his older brother for the purpose of learning the trade, and he became expert with the potter's wheel. But a serious disease did such damage to his right leg that he was unable to do any more work with the wheel. He then got interested in testing different glazes, and when he was twenty-one years old and was given control of a small income of about £20 a year which came to him from his father, he made a start in business for himself. In a short time he had five works where pots were being made. He made use of a new system of organization from which has come the system used in industry today.

In earlier times every potter did his work by himself, making his pot without help from others.
Wedgwood, producing hundreds of vessels at one time, made the discovery that it was wiser to put every man to the work he did best—one working at the wheel, another glazing, another getting the clay mixed, another doing the firing in the oven, so that every worker was able to become expert in his special line.

In 1762 Wedgwood gave Queen Charlotte teacups and plates of a clear china which was named Queen’s China after her. The Queen was much pleased with the china, and gave him the position of Potter to Her Majesty. Up to this time most of the Wedgwood pots were unornamented, without colour or any painted design. Then Wedgwood, seeing that his pots would be better if they had some design, sent some to Liverpool to be painted; but it was a long business getting them ready for the journey by horse and cart over the rough roads of the day, so he made the decision to take on two painters who would be full-time workers in his business. Before this the potter had naturally done the ornamenting himself, and the colour and form were part of the first design. It was another step in the direction of the division of work which is common today.

One of the men he took on was Flaxman. In the same way as Wedgwood had gone back to the designs of the early Greeks for his pots, so Flaxman had gone back to the ornaments on Greek pots to get ideas for his paintings. But he did not make use of the simple dark reds and solid blacks of the first Greek designs. Against a soft clouded blue, or light red, or green, he made beautiful forms in clay, picturing persons in the old stories of early Greece and Rome. Today you will see a great number of copies of these Wedgwood pots, and so good were Flaxman’s designs and the earlier designs from which Flaxman’s ideas came, that even the copies are good.

Josiah Wedgwood’s work and interests were not limited to the making of pottery. His new system of work was, as we have said, the first step in the direction of the system of today. He became interested in roads and waterways, and in a number of other public works. He was almost never free from pain, because the disease which took from him the use of his leg went to his face. When he was older it became necessary to have his leg cut off, but he never gave way to pain, and it is clear that he was a man with great powers of mind and a very kind heart.

We have records from 1774 of two potters in Bow, in the east of London, who were given special rights to make porcelain, the chief thing necessary being “an earth, the produce of the Cherokee nation in America, named by them ‘unaker.’” This was kaolin, and because of the great amount of money needed to get it from America, it was used with the greatest care. Later they made the discovery of the use of burned bone, which keeps the different substances united when they are mixed together, so that the clay is able to undergo a stronger heat without becoming broken or unnecessarily delicate. Bow porcelain is noted for its delicate off-white paste and soft glaze, and two designs were used on it, which are a sort of trade mark—one of leaves and the other of birds.
The Potter’s Wheel

Among other noted English porcelains are the names of Spode, Lowestoft, Bristol, Royal Worcester, Derby, and specially Chelsea, rated high for its beautiful ornament and the great care given to detail.

AND IN AMERICA

But a long time before this, over in America, the Indian was forming clay into vessels for his water and his grain. Among those living on the slopes of Arizona, among the Hopi Indians, even among those New England groups who first made friends of the earliest comers from England, pots were being formed and fired. The potter’s wheel they had no knowledge of, and glaze, if it was used at all, was never over the complete vessel. Sometimes the pots were made in a hollow vessel of the form desired, or by being worked with the hands, but generally they were made by building up the sides from a long thick cord of clay rolled in the fingers.

We have no knowledge of when or where the first pots were made by the early whites, but we are certain that in Virginia the first white men made simple vessels of a rough sort for common use, and that by 1650 there were a number of such potters in Virginia. In New England there were a number of potters doing good trade in quite early days, and among the list of townsmen of New Amsterdam we come across one Dirck Claeser, who gave his trade as a firer of pots. Twenty-seven years later there was a potter’s business
in Burlington, New Jersey, and another of which we have a record, in Philadelphia, and there were enough trained workmen to give quite a number of answers to this advertisement in a Pennsylvania newspaper:

"All workmen expert in different branches of the potter's trade may, if they send in their names to the owners, be certain of getting help in their special line; and let such fathers and mothers as are ready to put their sons and daughters to the learning of any of the branches of the trade be early in sending in their names, because only a small number of those offering themselves will be taken on without payment. No one under twelve years old or over fifteen will be taken."

The potters of those days had the idea, as Europe has today, that it is only by early training that young persons may become expert in an art or trade. The pottery works of about 200 years back were not unlike the workrooms of the great Italian and French painters at the time of the New Birth, where boys who undertook to do nine years' work, from twelve to twenty-one, under their teacher, were trained in their art while they were learning their ABC.

Early American earthenware made on the wheel, with a lead glaze, was used for such simple purposes as keeping food, cooking fruit-paste, meat boards, bottles for apple-wine and milk, jelly vessels and butter-making apparatus, and, very important, that cake-box into which one put one's hand after a cold day on the long, snow-covered slopes. The clay was powdered in a very simple way with the help of animals, much as grain was crushed in the early days; the clay was placed in a sort of machine out of which came a long stick which was fixed to the old horse. While the animal went walking slowly round and round, the clay became mixed together and powdered into a smooth substance.

Before 1775 America got much delicate china from England, but the war which took place in that year put an end to this trade and the colonies were forced to make all their goods for themselves. So even well-off persons had to put up with tea made from flowers, and rough wool clothing in place of silk, and the unpolished pots and plates of the American potters.

Then, after the peace, when men from all nations came to America, a number of expert workers went to the country, and once again there was a good market for goods from other places. Even though good store pots were being made in Vermont, Virginia, and New Jersey, the potter saw that it was wise not to put his trade-mark on the base of his pot, so that it might be taken for something from another country.

To those who are specially interested in early American pots, as others are in first printings of uncommon books, needlework, and great paintings, this trick of the early American potters gives much trouble. Even more trouble was caused by their way of using the mark of pots from any other country which the storekeeper might be desiring at the time. The making of vessels for firing
pottery in was another trade in itself; the maker kept his special store, offering his designs to any potter ready to give a good price for them. So we frequently come across a design of a vessel in an old Vermont farmhouse, and one like it in every detail in New Jersey, but with the mark and the clay of another potter.

As a side-line the early potters made 'tinies,' which are now looked on as of great value and may frequently be seen in museums. These were very small teapots, cups and plates, vessels and pots, made from the material which had not been used up that day. Such things were made in almost all trades between 1775 and 1850. In these the potter, having done his day's work, gave form to some idea of his, or made playthings for his little ones, or put the things he made on the market so that he might make some small addition to his income.

In the works where pots are made today there is little sign of the old ways of doing things. Outside in the open air you will see the ball clay, kept there in all weathers, because sun, rain, and ice all make it better for working. Under the building where the clay is mixed are other sorts of clay, china clay in great white bricks or powder in boxes, masses of round grey stones which will become white in the fire before they are powdered—and a white, readily-powdered stone named china stone which will be made into more powder. The grey substance with a touch of red in it is named 'feldspar.'

Inside the clay house are rails on the floor, and boxes down the sides from which the clay is taken to be measured and put on the scales. Sometimes this is done in the powder stage, sometimes it is mixed with water when it is measured. Which clays are mixed together and in what amounts is a secret. They are mixed in the 'blungers,' great steel baths covered inside with glass bricks. In the middle of every bath is a wheel with steel arms and teeth which gets the clay crushed to an even more delicate powder. If the clay is still in powder form, water is mixed with it here, and with it a special blue powder which makes it white in the same way as one makes clothing white by the addition of blue to the washing water.

The outcome of all this is named 'slip.' In a liquid form, somewhat like thick milk, it comes from the blungers into the separating machines where it is put through copper wire, or a silk net which sends the slip back and forward till it has all come, drop by drop, through the net.

From this net one will see the clay taken to a quickly-moving machine where every bit of iron is taken out by a special apparatus. If there was any iron in the clay, it would become liquid in the process of firing and make small marks on the china.

After resting for a time the part of the slip which is of the greatest weight goes to the lowest level, and is forced through canvas bags, and then stamped between iron plates into cakes of smoothly mixed clay as thick as soft bread-paste. The cakes are about an inch thick and about forty pounds in weight. Again it is worked, this time in the machines, where it is cut by a number of sharp knives, to get out all the air. Now it is
The Potter's Wheel

ready to be made into the cup which you will have on your tea-table.

The frit and glaze, which are made by secret processes, are got ready with the same care. The frit, as you may have kept in mind, is like glass, and is crushed between stone rollers. Then water is put with it, and for a complete day it goes through a powdering machine. The substance has to be smooth enough to go through delicate silk before it is pumped into the store baths in the room where the glazing is done.

Against the walls of the clay store you will see china—more china than you had any idea was possible, and of every design, size, and colour. Here are examples of one sort and another, designs with which the potters may do more work later; designs which have been tested and put on one side as of no use, new designs which are waiting to go out for distribution. At tables in this long, bright room the clay is formed in one way or another, by the wheel, by turning, in vessels, by putting it between plates. Men with clay-coated hands are seated working in front of little brass tables, on which the clay keeps turning. In some work-places these men are no longer to be seen, because by this process every pot has to be made separately, and this process is not quick enough for present-day industry.

In its place we have the 'jolly,' an iron arm on an automatic machine, under which the hollow forms for cups are put. A ball of clay is put into every hollow, and the jolly, pushing into the soft ball while the hollow forms keep turning, has the effect of forcing the clay against the sides of the hollow till it takes the form of a cup. Then the arm comes up and some more hollow forms are put in position.

From here the formed clay will go to the 'turner.' He is seated in front of a machine much like that used for forming wood, and he makes the cup smooth, putting on the foot of the teapot or basin and rounding the edge. When the hand-parts have been put on, the clay is ready for the drying room, and then for firing. Hollow goods and flat goods are hand-stamped; deep vessels for soup are formed, like other great basins, in two parts, then put together and the base fixed on by the turner.

The ovens in a long low building of great heat are made of brick with arched tops. The goods are placed with great care by a 'placer,' who has to be an expert, in great clay vessels, and pushed on rails into the unheated oven. When the oven is full, bricks are pushed tight against the door and pasted over, and the fire is lighted. English bisque ovens get up to a heat of 2500° Fahrenheit, but this is very high. The ovens in which the glaze is fired after the goods have been through the bisque oven, are at about 1900° Fahrenheit, and in the ovens in which the colours and gold are fired less heat is needed. The goods are kept in the oven from forty to sixty hours, the time being different for different sorts of pottery.

Then the fire is let out, and while the oven is still very warm the pots are taken from it. When cold they go back to the workrooms to be looked over, or to be put into boxes, or to be ornamented.

When ornamenting is done before firing it is
named ‘underglazing.’ Cheaper designs are printed on the pots, the colours are stamped onto a special sort of paper, and while still wet the paper is put onto the plate or cup. Sometimes you will see that one bit of the design on the plate has been printed over another bit, but generally an error of this sort is seen when the goods are looked over.

For a solid colour the clay may be coloured before it is formed, or the outside of the pot may be washed with a colour, or the pots put into the liquid colour, or the colour put on with an air brush. You see there are a number of different processes. But naturally the best china is still painted by hand. The colours are of a special sort and when put on before firing they are quite different from what they will be after they have been through the oven. It is very important for them to be of the best quality, so that they will not be changed by time.

But persons who are better pleased by the beautiful work of a good painter than by a cheap coloured print turned out in thousands are now looking for something more interesting and with more of the potter’s art in it than the automatically produced goods of today. So the things made by the simple country potters, formed by hand, and hand-painted, of which no two examples are quite the same, are now much in request. A great number of persons are now becoming interested in the art of making pots by hand. Business men and women, housekeepers, men who are out of work but have expert hands, boys and girls newly out of school or still at school are using their undoubted powers in these new but old hand-arts. In them they have an outlet for powers never before used. Not only does the work make them surprisingly happy, but there is profit in it. They are taking up the work where the men and women of one hundred years back put it down, and even now some of their work may be seen in museums, where it may do its part in training the taste of the boys and girls of the future.
**LIST OF SPECIAL WORDS**

*(These are names of plants and animals.)*

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