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The Potter and his Materials

From the earliest ages of the civilization of China the potter has held an unique position in the social structure. From the very beginning he has been at the service of the community in which he has found himself, and he has served this community with a faithful devotion unparalleled by any other member apart from the tiller of the soil. While the farmer has cultivated what was immediately available for the survival of the group of which he was a member, the potter has had a creative task, to make vessels for storage, for cooking, and drinking, each essential parts in the chain of activities required for survival. His work in early ages was confined to the production of vessels of a purely functional character to suit the specific needs of the community, and if in later times the forms he created were esteemed on aesthetic grounds, this was because his mastery of the clay medium was sufficiently secure for him to be able to use his products as a vehicle for both invention and personal expression, the latter to some extent always reflecting the artistic climate of the age in which he worked. Indeed, without the potter’s own appreciation of the material and its possibilities, as well as its limitations, and his ability to handle these with both imagination and skill, much that we now have would scarcely have survived down the centuries.

While the potter learned how to use his local materials to build vessels that satisfied everyone’s needs and tastes, he also learned, and perhaps initiated, the technique of using fire for creative purposes. It is little wonder that in the Bible and other early religious and philosophical texts the potter plays such an important role. He creates for a specific purpose, and if what he creates fails to satisfy his own instinctive understanding of the basic material under his hands, whether he uses the wheel or not, he will destroy what he has made and start again, generally using the same material, for until it has been fired in the kiln the clay can be reused by damping it down; a fact all too often forgotten, especially by collectors unaware of what goes to making a pot.
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It is perhaps fair to say that collectors in the past have displayed a strong tendency to envelop Chinese ceramics in a mystique and expend upon them an adulation wholly inappropriate both to the material and to the attitude of the craftsman. Nowadays we are perhaps able to approach Chinese ceramic history in a more realistic manner, with an eye to the practical problems and the purpose for which the finished works were originally conceived. For they were intended for household and ritual use and not just to grace the shelves of glass-fronted cabinets. Thus we have to view Chinese ceramics, like those of any other culture, in terms of social and economic structure, as well as of technology, in order to discover how they developed.

It was possibly the almost unequalled resources of suitable raw materials in nearly all parts of China that made the use of ceramic materials so natural, and contributed to the long and virtually unbroken tradition down to the present day. It may, indeed, account for the pre-eminence of pottery over precious metals, pewter, and wood, the very reverse of the situation in Europe, and it certainly stimulated the potter's search for high quality in his work. The early achievement of sustained and controlled high temperatures, and the use of high-fired glazes, before the appearance of low-fired lead glazes in the third century B.C., again the reverse of what happened in Europe, is of peculiar interest. So also is the fact that the lead glazed ware was always intended for furnishing tombs and not for general household use. Higher fired glazes on hard earthenwares were already current alongside the sophisticated painted lacquers in aristocratic households as early as the fourth century B.C.¹

It may be worth repeating that the potter's primary purpose is to satisfy the needs of the community and himself, and to bear in mind that when a particular method of construction was mastered, and often indeed before this, decorative techniques were also being developed. Construction and decoration therefore evolved alongside each other. Sometimes they seem to keep pace with each other, and sometimes decoration appears to be abandoned and left behind. This may be due to the artistic climate of the age, as it is in some of the Sung period material, or it may be due to the character of the materials actually being used at the time, as in the T'ang stoneware, where the material imposes its own limitations. There is also the fact that the decorative techniques used on earthenware are not necessarily those most appropriate to stoneware, which may be made more aesthetically satisfying by some other means of decoration; then later it may be found that what was already being used on earthenware might under certain conditions also be used on stoneware, so an old technique is revived and appears a novelty in the different context.

Thus decorative techniques tend to vary not only on different wares, but in different periods and even regions. In fact the basic techniques in the decoration of earthenware can also be applied to stoneware and porcelain, but social and aesthetic factors are constantly seen in the evolution of ceramics in China, where
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with few exceptions all the techniques of construction and decoration with which we are familiar today had been developed by the end of the fourteenth century. How the potters achieved this, and what they actually accomplished with them is discussed in the following chapters.

Before turning to the proper consideration of our main subject and the background against which the developments took place, it is appropriate to describe the different types of pottery and clarify what is meant by some of the terms used; other terms encountered in the text will be found in the glossary. There is unfortunately much misunderstanding of what is meant, and confusions have arisen over the use of terms in many of the older books on ceramics, especially in those concerned with Chinese ceramics.

It is essential in the first place to understand that pottery is a generic term. It is the name for the product of the potter, whatever its form or distinctive material. Thus it applies without exception to all ceramic wares and comprehends earthenware, stoneware, porcelain and fritware, although we are not concerned with this last type in East Asian pottery. In writing of Chinese ceramics the tendency to introduce such terms as 'proto-porcelain', porcellaneous stoneware, and porcellaneous ware has confused the issue, and the first two should perhaps be altogether abandoned. The Chinese have two basic terms: t'ao, meaning pottery in general, is used in specific cases to indicate low-fired ware, or what we would call earthenware, and tz'ü, meaning high-fired ware, comprehending both stoneware and porcelain. The European distinction between these two is not made, although from our point of view it is a convenient one.

In studies of pottery in which the technology is a central theme it is the practice to speak of ceramic bodies. The term body is used of the clay material and any added temper in either the unfired or fired state and is applied specifically here to the interior part of the pot as distinct from the glaze. Earthenware bodies show wide variations in colour and texture, and are usually made from clays with a high degree of plasticity. The bodies fire well at temperatures between 800°C and 1,100°C, with an absolute maximum of about 1,150°C. If fired above this temperature they will slump, or collapse and melt. In the fired state they may be all shades from very dark grey, almost black, through all the greys to nearly white, and from dark reddish brown to pale buff or yellowish, and may in some cases be pinkish in colour. While it is not altogether uncommon to find clays which can be fired satisfactorily without modification beyond the necessary washing, potters generally add what is called temper, normally either crushed quartz or flint, which serves to improve the plasticity of excessively sticky clays, improve the silica content, and reduce the tendency to excessive contraction and even warping in drying. How much temper is added, and in precisely what form, the potter has to discover for himself, as naturally clays vary from one locality to another. As the grain size varies from the very coarse to the extremely fine and dense, so also the
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material in the fired state varies in its porosity, a matter which is also dependent on the firing temperature. If the body is coarse, which may be brought about by temper, it tends to be porous, but this is not an invariable rule. It is worth noting that an additional advantage of temper is that it opens the structure, or pores, and this helps the gases to escape during the firing, as well as helping in the initial drying process. Generally earthenware has to be glazed to make it impermeable, and the glazes need to be of the low-fired type. These may be lead glazes or leadless glazes; this is a subject which will be taken up at a later stage.

Stoneware is harder than earthenware, but similarly variable in colour and texture. It fires at temperatures in the range from 1,200°C to about 1,300°C. As for earthenware bodies it may be necessary to make additions of temper. In firing, however, the material sinters and fuses completely to form an impermeable body. Stoneware is rarely left unglazed, though the glaze may not wholly cover the object; the reason for glazing appears to be aesthetic. The Chinese use glazes of an alkaline type on stoneware, and these may be high in feldspars, hence they are often called felspathic glazes.

Porcelain differs from the former two in being constituted of two distinct materials, and invariably being pure white or very pale grey. In the fired state it is vitrified and translucent. The two ingredients are kaolin, a white firing relatively non-plastic clay of which there are massive deposits in China, and white China stone, petuntse (pai-tun-tzu, 'little white bricks'), a refined non-plastic felspathic material derived from decayed granite, which when washed and prepared for use is dried in small white blocks. These two materials properly combined produce a vitrified body when fired at temperatures of about 1,280°C upwards; later temperatures in the region of 1,400°C were achieved by the Chinese.

When fired, of course, the body is impermeable since it is vitrified, but because it is not very attractive in this state, it is usually the practice to glaze it. This can be done using a felspathic glaze, which will fuse at a temperature similar to that required for the body, or the body may be fired first to the appropriate temperature to secure fusion, a process giving rise to the term 'biscuit', and it can then be covered with a low temperature glaze and fired a second time. In descriptions of objects fired in this way, first to the porcelain temperature and then with a low temperature glaze, the glazes, which in China are generally lead glazes, are often said to be enamel on biscuit, or 'decorated in lead silicate enamels'. This is really a rather elaborate way of saying that the piece is lead glazed, and it may be confusing since the word enamel is often associated with metalwork.

The question of glazes is complex, but those used by the Chinese fall basically into two categories; those which mature at low temperatures, and those which mature at high temperatures, the boundary between them being roughly in the area between 1,150°C and about 1,250°C; it is impossible on the basis of our present knowledge to be more specific than this. The low-fired glazes are generally fluxed with lead, but some are leadless and thus alkaline. The high-fired