

THE COPPER RED GLAZES
WITH PARTICULAR REFERENCE TO THE WORK OF BERNARD MOORE

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ABSTRACT

Copper red monochrome glazes, although rare, came to prominence in China during the Ming Dynasty and have subsequently attracted the interest of potters and collectors alike. The recipes and means of production were kept secret and frequently destroyed by their originators, thus adding to the mysteries of the field.

This thesis investigates all aspects of the history of the arcane copper red glazes, in particular the high temperature glazes, and provides the physical results of practical experiments which I have made in order to test the theoretical propositions embodied in the thesis.

The emergence of an acute interest in the glazes during the nineteenth century is evident in France, Germany and England. This development is traced through the scientists at Sèvres and Berlin as well as the work of individual potters, culminating in an extensive study of the work of Bernard Moore (1850-1935), with particular reference to his contribution to the copper red glazes. In addition the work of Bernard Moore's artists and decorators is reviewed.

As a result of the practical tests I have established one of the methods used by Moore to produce his low temperature copper red glazes as well as proposing the most likely methods he employed for high temperature glazes. The thesis is supported by appendices which catalogue Moore's work to be found in the major museums and collated technical information on recipes, methods and tests.

CONTENTS

Page

| | |
|---|-----|
| Acknowledgements | 1 |
| Introduction | 1 |
| Chapter 1. The copper red glazes in China | 10 |
| Chapter 2. The copper red glazes in France | 29 |
| Chapter 3. Bernard Moore 1850 - 1935 | 60 |
| Chapter 4. Bernard Moore as an artist and potter | 121 |
| Chapter 5. Artists employed by Bernard Moore | 142 |
| Chapter 6. Bernard Moore as a consultant | 167 |
| Conclusion | 174 |
| Footnotes | 182 |
| Appendices: | |
| I. Invoices, letters and family photograph | 199 |
| II. List of Bernard Moore's decorators | 208 |
| III. Documentation of the Royal Visit from Moore's scrapbook including Begg's illustration and family addresses | 211 |
| IV. Moore's ceramic marks with illustrations and check lists from museums and Sotheby's | 217 |
| V. Index of collected names of copper red glazes ... | 242 |
| VI. The Scherzer Report | 260 |
| VII. Documentation of tests and technical information | 265 |
| VIII. Glossary | 288 |
| Bibliography: | |
| Unpublished material and documentary sources | 290 |
| Published books and catalogues | 292 |
| Published articles from periodicals | 297 |
| Newspapers and miscellaneous | 299 |

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INTRODUCTION

This study sets out to trace and comprehend the development of the secretive and esoteric field of the copper red glazes, leading to a detailed study of the work of Bernard Moore. The arcane nature of the subject matter has ensured a paucity of primary source material together with an inadequate field of literature. This limited documentation and the concealment of methods and procedures over the centuries have contributed to a general level of confusion in the field of the copper red monochromes. There are only general studies or fragmented perceptions so that it has been necessary to carefully analyse the copper glazes and also investigate the conditions under which they were produced through personal practice and research.

The secrecy that has caused potters of the calibre of Ernest Chaplet and William Howson Taylor to destroy records of their life's work with these glazes and similarly for Bernard Moore not to want to publish or make known his techniques, needs to be explored and understood. To this end, and to share similar experiences, experimental glazes have been simulated to parallel historical examples and these are included as an appendix to the thesis.

The technical innovations in the production of Chinese porcelain during the thirteenth and fourteenth centuries combined with the obsessive Imperial patronage of the industry during the Ming Dynasty, led to a 'summit of attainment' in the field of ceramics. Against such a backcloth the monochrome copper red glaze was developed. Many writers of ceramic history in this century claim that the achievements of this era have never been surpassed. Equally, it would be true to

say that in no period since the Ming Dynasty has a nation's wealth been so largely channelled into the production of porcelain on such a vast scale. Again, it would be difficult to find similar examples of such brutal slavery as were engendered by the Emperor's eunuchs in their administration and control of the Imperial Porcelain Manufactory. This is stated not to deny any praise earned by the Ming potters but rather to bear in mind these two conditions which underwrite the fineness of some Ming porcelain. Firstly, there was the abnormal expenditure and secondly this was supported by an absolute power which ruled the manufacture. The flawless quality found in certain pieces of Ming porcelain reflects an age and a society that could achieve a terrifying perfection of production, at great human cost.

In the general history of ceramics, glazes and secrecy have often gone hand in hand. The possession of a glazer's book of recipes in the Potteries around the end of the eighteenth century could well have been equated with the possession of a livelihood, the information passing only within the family, from father to son. Industrial espionage penetrated some of these secrets and caused sums of money to be offered for recipes, where even a utilitarian transparent glaze could be comparatively valuable. (1) In consequence, glazes were often prepared behind locked doors and caution was exercised to make certain of security. Bearing in mind these procedures, it is difficult to visualise the watertight security that was applied to the special glazes produced at the Emperor's Imperial Porcelain Manufactory at Ch'ing-tê-chên. The production of this rare glaze on porcelain, with its religious significance, would have demanded utmost secrecy from the initiated. In the early reigns of the Ming Dynasty, this secluded

town possessed a thriving ceramic industry. Apart from the Imperial factory, there were between two to three hundred other private kilns.

(2) T'ang Ping-chun, in the "T'ao-Lu," writes of the virtuosity achieved in this area by the potters, when he proudly comments:

"There is no colour that the Town does not make, but the Ming palace factory alone make bright red." (3)

These special red glazes from the Imperial factory were exceptionally expensive to produce with enormous wastage problems. They were difficult, delicate and sophisticated glazes, the private domain of Chinese Emperors or the highest ranking noblemen, who could afford to finance experimental endeavours with no likelihood of commercial return. Different Chinese writers have described these red glazes in the "T'ao-Lu", their academic writing emphasizing the standing of such work with comments like 'greatly prized' or 'very much sought after.'

The concealment of the methods of production for this glaze had been kept by Chinese potters over the centuries. More than four hundred years were to pass before similar colours appeared in Europe. This secrecy, maintained for such a length of time, strengthened the sense of mystery which pervaded this glaze and seemed to heighten the desire of many potters to understand the methods of achieving the same rich hues.

At the time of the development of the red glaze, the Chinese had already demonstrated that their command of chemistry was far more advanced than any other region of the world. The Taoists had been preoccupied with a quest for an 'elixir of immortality,' and this had

encouraged an empirical approach to the nature of chemical substances. Although much of this activity can be seen to have parallels in the later European alchemy, there was a native inventiveness which enabled the Chinese to make dramatic leaps in their technology, far in advance of their European counterparts. Typical of this outlook was the early invention of gunpowder, initially used in fireworks; it was not until the tenth century that the more customary military usages were developed. Furthermore, and more pertinent to this study, the early development of porcelain itself demonstrates aspects of their chemical and aesthetic inventiveness at the highest level. As Dr. Joseph Needham has recently shown, the very early emergence of Chinese science and technology cannot be underestimated. (4)

The closely guarded methods of production have contributed to a romantic mythology based around the sanguine glaze. In many art establishments for instance the tale is told of the unhappy Chinese potter who, after failing to satisfy the Emperor's demands, hurls himself into his kiln. The burning body produces the correct reducing atmosphere and exquisite red glazes are the result! There are many variations to this tale, some say it was the potter's dog that was burnt in the kiln or his assistant, more sensitive people say it was his belongings! So it was a delight to discover the original story translated by Bushell from the "T'ao-Shuo."

"Their god, named T'ung, was once himself a potter. In former times during the Ming Dynasty, after the large dragon fish-bowls had failed in the baking year after year, the eunuchs in charge inflicted the most severe punishments, and the people were in bitter trouble. The god, throwing away his life for the rest, leaped into the midst of the furnace and died there, and the dragon-bowls were afterwards taken out quite perfect. His fellow-workmen, pitying him and wondering, built a temple within the

precincts of the government manufactory, and worshipped him there under the title of 'Genius of Fire and Blast', so that his fame was spread abroad." (5)

No mention is made of the red glaze at all! Dora Billington used to relate this anecdote in her lectures on the history of ceramics (6) and wisely hinted to her students that this story just might relate to the copper red glaze and of course this could be so. Other tales from untraceable sources mention firing the kiln when the moon is full or using only copper coins for the recipe from the reign of a particular Chinese Emperor. The well documented name "pao-shao," literally meaning jewel-fired, is another myth from the old tradition that powdered rubies were used in the glaze. Certain types of quartz possess bluish red colours although neither the quartz nor the rubies would give a red colour. So, a rich mythology surrounds the copper red glaze, where the imagination is fed by secrecy and ignorance but it also contributes to its fascination.

A different sphere of interest is represented by the low temperature glazes; the lustres or the earthenware copper reds. In working with natural lustres, an enormous variety of reds are possible with the fickle behaviour patterns of copper. The reds result from the prolonged reduction of various compounds of copper in the smoking process. The range extends from tints to shades of red; from pink, looking as though it had been produced by gold, through to deep ruby reds, reminiscent of the colour from Gubbio or some of the William De Morgan lustres. Historically this was another closed area until De Morgan generously presented his methods of production to the Society of Arts in 1892.

Within this field the earliest recipe I have discovered is in a book printed in 1660. It is a recipe for making false rubies and the prescription reads very much like a pottery glaze recipe, possibly one derived from an Italian pottery, like Gubbio, producing reds for maiolica. The work is entitled, "Eighteen Books of the Secrets of Art and Nature," with an amusing sub-comment, "A like work never before in the Englifh Tongue." It gives very basic instructions for making a type of dark red glass, which is remarkably close to a ceramic glaze. With the addition of clay to give a greater amphoteric content it would be a simple glaze. This was two hundred years before serious experimentation began in this area.

"To make a falfe Ruby."

"Some make a Ruby after this manner; They take Salt called Alkaly four ounces, powder of Cryftal three ounces, and of the beatings of fcales of Brafs, (as they call it in the Shops of Italy,) half an ounce, and of Leaf Gold fix grains, all must be mingled and melted in a Goldsmiths melting Pot in a Reverberatory. When the Crucible is cold and the fire abated, it is broken, and the matter muft be taken forth, and given to a Lapidary to forme and polish....." (7)

The 'beatings of fcales of Brafs' would supply the copper alloyed with zinc, both of these metals occurring in the late nineteenth century recipes (see recipes by Seger and Doat in the technical notes, page 279 and 281).

In any text on this subject, there are examples of confusion or problems provoked by the names used in the identification of specific red glazes. This is a complex area. A descriptive and comparative name indicating a subtle nuance of colour has subjective implications. The complexities immediately become apparent when looking at the whole

family of copper red glazes. At a basic designation they can be divided simply into high or low temperature glazes. Within these two classifications numerous sub-divisions exist brought about by factors such as differing recipes, the type of paste used, the kiln and the manner in which it is fired, the fuel, the behaviour patterns of the gases during a reduction and of course the nature of the weather. These components and others in a successful firing give permutations of colour, tone, texture, surface and depth. Thus poetic names like 'ashes of roses' or 'peach bloom' have been created to give a comparative description of these complex colours. This problem is teased to greater depth in the study but quite a typical example from this area is expressed by Gulland in his 'handbook' on porcelain.

"(Gulland is describing a Ch'ien-Lung bottle) As is generally the case in this class, the glaze has receded from the rim of the vase, thus forming a purple band, below which begins the proper sang de boeuf shade of yellowish blood-coloured red. With the light on it this is seen to be speckled or clotted. Hence, in France, it got the name by which it has become famous. The term sang de boeuf is, however, now sometimes employed to denote a much more beautiful shade of ruby red, which, instead of being clotted, is perfectly clear, and more like wine than blood. The use of the same term to two very different reds is a matter of regret, as it is apt to lead to mistakes, and it would appear better that the latter should be known by some separate name, such as "ruby red," so that there might be no doubt as to which of these two very distinctive glazes reference was made." (8)

Unfortunately, the identification of the different red glazes is not that simple. For instance, the two vases with sang de boeuf glazes in the Grandidier Collection housed at the Musée Guimet possess only a textured surface with absolutely no evidence of clotting. The description of colour experience is clearly an unscientific practice since no quantifiable elements are implied. The reliability of writers must depend upon both the volume of their experience and their capacity to

express themselves with clarity. 'More like wine than blood' illustrates perfectly the confusion brought through the use of names, in that some wine does have the same colour as blood, although fortunately without the clots. It is also possible to find red glazes gradated between the two types mentioned so that no distinctive hue is discernible. Gulland wrote these expressive comments in 1898 and it is apparent that he would be most disturbed by the contemporary use of the word 'flambé', discussed at a later point in the text. The quotation poses various questions. How much red glazed porcelain did these early writers see and how refined were their sensibilities to colour and surface? At the turn of the century, in many respects, the subject of Chinese ceramics in England was still in its infancy. The Sir Augustus Wollaston Franks Collection, with its systematic approach, illustrating historically the development of fictile art in the Orient, had laid a sound pioneering foundation. It was first exhibited as a loan in the Bethnal Green Museum, well supported by a comprehensive catalogue printed in 1876 then 1878 and issued privately in 1879. While the early experiments were taking place with the copper glazes in Europe, other progressive English writers were evolving and building upon Franks inceptive contribution. The labour of successive scholars like William G. Gulland, Stephen W. Bushell and later R. L. Hobson had enlarged and enlightened the history of Chinese ceramics in the early part of the twentieth century. But perhaps Gulland in his preface of 1898, places the level of attainment in perspective when he writes:

"We are very much in the dark as yet on many points, and cannot determine with certainty the age of much of the china we possess. However, we will find less difficulty, and perhaps more amusement, in studying the motives we see thereon, as also in discovering the purposes for which the various shapes were originally designed. The more we understand our china, the better we shall like it and value it" (9)

Gulland is expressing a simplistic viewpoint, which has since been superseded. It is now apparent that the early historians did not enjoy the same privileged access to either the quantity or quality of Cathayan porcelain that is readily accessible at the present time. What is less apparent, in the comparative sense, is the interpretation of colour at the turn of the century. A good number of writers of that era make aesthetic judgements of the European red glazes, equating them with the best Chinese glazes. These judgements are rarely sustainable. The Chinese glazes reflect the sensitivity of largely hand processes and the European glazes are basically analogous to industrial methods, both demonstrating quite different qualities. Surface, for instance, which is so critical to the quality of the colour was particularly neglected in the early descriptive passages on red glazes. For these reasons and quite probably others, it is possible to imagine why 'the Tiffany's ceramic expert' with a specialised knowledge of Chinese Art, wrote in 1904 about the Doulton red glazes at the St. Louis Exhibition "for exquisite colouring and purity of form, they rival the finest of the Chinese." (page 96). It is true that both Doultons and China produced red glazes but both show intrinsically dissimilar colour and surface qualities and as yet none has rivalled the best Chinese red glazes. This quotation is highly questionable and one which needs to be discussed and analysed more thoroughly in the following text.

THE COPPER RED GLAZES IN CHINA.

The early monochromes are a rare group of Chinese ceramics that came to prominence in the Ming Dynasty. The copper red glazes belong to this classification and fine works were achieved during the reigns of Yung-lo, Hsüan-tê and Ch'eng-hua in the fifteenth century. This initial section of the study follows their inception and subsequent development in the Far East, tracing the emergence of these arcane red glazes into Europe during the second half of the nineteenth century. It will investigate how this secret process was suddenly being used in Europe by a number of potters over a comparatively short period of time and, in addition, it seeks to establish the heritage on which Bernard Moore built his achievements at the beginning of the twentieth century. Throughout the text, since early source material is being used, it will be more accurate and appropriate to adopt the Wade-Giles method of Romanisation for Chinese names, as opposed to the newer standardised Pinyin system.

The main centre for Chinese porcelain production in the fourteenth century was Ch'ing-tê-chên. This unwallled town stands on the banks of the Ch'ang river in the district of Fou-liang Hsien, situated close to Nanking in the Kiangsi province. Chen means a township and it was founded during the Sung Dynasty in the reign of Ching-te (A.D. 1004-7), when an official was specially appointed by the Emperor, as Director, to superintend the manufacture of porcelain. (10) The Imperial porcelain factory was established in this town at the foot of Jewel Hill in the second year of the Ming Dynasty. (11) With an ancient tradition for high quality products in pottery and over five

hundred years of experience in porcelain manufacture, where 'the water and earth are suitable', Ch'ing-tê-chên was a natural choice. The powerful patronage of the Emperors with their desire for aesthetic pleasures in porcelain supported by the vast experience of the potters at Ch'ing-tê-chên, ensured that superlative results were to be achieved in the future. The demands of the Imperial court were, in time, to affect design qualities which in turn influenced the decorative arts generally throughout the land. Not only did this wealthy patronage spread Imperial taste but it was also to instigate and encourage many changes and technical innovations.

The monochrome porcelain stemming from the late fourteenth century owes something of its development to this newly found momentum. The documentation and early specialised literature on these wares is very rare. There are three main written sources that shed light on the technical processes. Chronologically, the often quoted letters of a Jesuit missionary, Père d'Entrecolle are the earliest translated source; he wrote two very detailed accounts from Ch'ing-tê-chên on porcelain manufacture, dated 1712 and 1722. Preaching in the area, he was uniquely placed as a European for he was permitted to observe the whole procedure. Although he knew little of pottery or porcelain, through watching the different activities and closely questioning his converts, who were potters, he was able to build up a comprehensive knowledge of porcelain manufacture at Ch'ing-tê-chên. These letters were sent to his superior in Paris and eventually published in Du Halde's book in 1735, "Description géographique, historique, chronologique et physique de l'empire de la Chine et de la Tartarie chinoise." A year later, this French edition was translated into

English by Richard Brooke. In the first letter Père d'Entrecolle describes the red glazes and he writes of two glazes being mixed together saying:

"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 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 their art." (12)

In his second letter written ten years later, in the ninth paragraph he says:

"I was mistaken when I said in my previous letter that the red glaze called Yu-li-hung (underglaze red) was made with red colour from copperous (ferrous sulphate), 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." (13)

Père d'Entrecolle reveals the arcane nature of this delicate process. From the earliest successes of the Ming potters, through to the present century, the secrecy and the enigma that has attended these red copper glazes and their numerous variants has almost engendered a magical or votive quality. It was not only the recipes that were denied to the Jesuit missionary, for while he mentions the firing of their kilns in considerable detail, the extreme importance of the kiln atmospheres for these glazes was to remain undisclosed.

From the outset, the identification of specific Chinese copper red

glazes was made intricate by confusing linguistic problems, which in turn were amplified by vague subjective nomenclature. The metamorphosis from character to sound and then sound to romanisation had presented problems of an esoteric nature. A typical illustration of these difficulties caused by changing language occurs in the interpretation of the word 'chi'. The three ideograms for sacrificial, relieving or massed, and sky-clearing sound very similar in Pekinese and transposed into romanisation, they all become 'chi'. Hence, when the three names were used to describe the early Ming copper red glazes, they were all basically representing the same coloured glaze. In Book Ten of the 'T'ao-Lu', one of the books not translated by Stanislas Julien, informative and diverse comments were collated under the convenient title "Additional Remarks". Here, the editor has observed that certain Chinese writers and potters have used different names for the reds, he writes:

"10. As regards 'chi' (sky-clearing) red I find that the Szu K'ao referring to Ming palace ware has 'chi' (sacrificial) red; and that T'ang of Shen-yang when speaking of the present day palace ware has 'chi' (sky-clearing) red; while in pottery jargon it is always 'chi' (relieving) red. Properly it is 'sacrificial' red. The fact is that the Hsüan Tê ware was made originally for use in the worship at the Altar of the Sun". (14)

These three names for the red glaze were further compounded with subdivisions decided by a tonal scale of intensity. They could either be fresh, bright or vivid as a pure hue or if the glaze was low keyed due to the firing or different materials being employed, it was called ruby red. Book Five of the T'ao-Lu, a historical description of the Chêng-Tê wares (1506-21) briefly mentions the two classifications of the copper red glazes, and simply states:

"Sky-clearing red comprises two kinds - 'fresh red' and 'ruby red.'" (15)

On the next page of the translation, in the reigns of Lung and Wan (1567-72 and 1573-1619), red glazed wares were being produced but with different glazes.

"Their sacrificial red vessels still continued to include fine pieces; but the red was neither the fresh red nor the ruby red species of sacrificial red." (16)

The quotation stops there, no attempt being made to describe the new reds of the late Ming Dynasty which were probably the darker toned iron reds, called by the Chinese fan-hung.

After Père d'Entrecolle, the second early major source on porcelain manufacture was a work consisting of six books, published in 1774, called the "T'ao Shuo", which translated means, "a description of Chinese pottery" (the Chinese regard porcelain as a particular type of compacted pottery). The work was commissioned by the Governor of Kiangsi and it was written largely by a scholar named Chu Yen. The first three books give a broad survey of the history of Chinese pottery up to the eighteenth century and the last three books are concerned with descriptions of historical specimens.

The third volume of the "T'ao-Shuo" contains a description of Ming ware, mentioning specifically the red copper glazes with some technical information on materials and colours. In the chapter on processes and manufacture, the writer preserves the secret of the copper red glazes by saying that the reds came from crushed rubies mixed with the glaze.

If this were so in practice then the rubies and the glaze would become quite colourless when heated. (17) It is of course possible that the writer was deliberately misinformed or that the red stones were not rubies. J.N. Collie, the famous chemist, presents a subtly different and possibly a more plausible translation to this part of Hsiang Yuan-Pien's manuscript, asserting that the colour of the glaze contains flashes of ruby-red from the precious stones.

"Among the ceramic productions of the reign of Hsüan-tê, deep red is the one variety that is most valued of all. Probably this is because, in the preparation of the colour, precious stones from the west were pulverized for the glazes, so that, after the porcelain had been fired, flashes of ruby-red sheen shone out from the depths of the rich glaze, dazzling the eyes..... It is truly the very crown of our collections of celebrated porcelain of different dynasties..... The tint of the red is crimson like fresh blood..... the tone of ripe cherries, or, rather, like the precious stones brought by the turbaned red-socked nomads." (18)

According to a footnote in Bushell's translation of this eighteenth century work in six books, the copper used in China around 1900 to imitate this early Ming ware was the powder scraped from oxidised copper vessels. The monochrome reds of the late fourteenth century varied considerably in colour, many were dullish or muddy through lack of proper firing. A few decades later, particularly in the reigns of Yung-lo (1403-24) and Hsüan-tê (1426-35) the best of these glazes possessed a lustrous brilliance, which, combined with the subtle high temperature surfaces, gave qualities that were quite superior to anything produced before or since. The "T'ao Shuo" attempts a description of these reds saying they were 'so bright as to dazzle the eyes.' The sanguine glazes were used on such items as stem cups, bowls and monk's cap jugs. It is evident that the clarity and technical perfection found in these paragons of monochromatic porcelain could

only be produced at the expense of a vast number of failures, such was the nature of the process. Other descriptions from this volume illustrate vividly how the superlative standards were achieved in the Imperial porcelain manufactory. The wealth of such patronage had encouraged a climate of research, which had in turn, inspired preferential methods of production which could not have any commercial justification.

"We are told in the "T'ung ya," that the Imperial porcelain after the paste had been shaped, was dried for a whole year before it was finished on the polishing wheel and made thin; and that, after it had been covered with glaze and dried, it was recovered several times; and that lastly, whenever the glaze was wanting in any place after the piece was taken out of the kiln, it was again polished and covered with glaze and baked anew..... At the private factories porcelain could not be made to equal this." (19)

The abnormal procedure of drying the wares for a full year, firing the work many times and other excessive techniques were very remote from the traditional approaches. With such disregard for expenditure, all manner of esoteric activities were possible. Experimental work with the copper red glazes would have flourished under these idealistic research conditions. The high failure rate and the essentially unbusinesslike endeavours of this precarious area could easily be absorbed with the opulent resources that emanated from the Emperor.

"The censors of the time indited a series of urgent protests against the expenditure by the Emperor of so much money on mere articles of luxury, which are preserved in the ceramic archives." (20)

More verifications of these conditions and qualities were recorded by a Russian ambassador to China from Peter the Great in 1692. His name was Ysbranti Ides and he states:

"the finest, richest, and most valuable china is not exported, or at least very rarely, particularly a yellow ware, which is destined for the Imperial use, and is prohibited to all other persons. They have a kind of crimson ware, which is very fine and dear, because great quantities of it are spoiled in the baking. They have another sort of shining white, purfled with red, which is produced by blowing the colour through a gauze, so that both the inside and out is equally beautified with crimson spots no bigger than pins' points, and this must be excessively dear, since for one piece that succeeds a hundred are spoiled..... There is another sort of violet-coloured china, with patterns composed of green specks, which are made by blowing the colours at once through a frame pierced full of holes, and this operation succeeds so rarely, that a very small basin is worth two or three hundred pounds." (21)

The blown or sprayed red glaze mentioned by Ides was dealt with in greater detail by Père d'Entrecolle in his first letter to Paris in 1712. (22) He writes of the 'petits points rouges' and says the glaze was known as a 'rouge soufflé'. He also makes it clear that it was a difficult glaze to produce and those who do so must 'garder toutes les proportions requises.' The last process described by Peter the Great's Ambassador could well be the very secretive and highly prized 'peach bloom', if it is so, this is the only early technical reference to be discovered.

These esteemed copper red glazed wares were elitist artefacts worthy of both Emperors and Royalty. In the Ming Dynasty, they were used in conjunction with other monochromes for ritual vessels in the court temples. Yellow, for instance, was symbolic for the Altar of the Earth, blue related to the Altar of Heaven and red was employed for the Altar of the sun. (23) The altar-cups held either wine or clear water to be offered up by the Emperor in worship of the sun. (24) The sculptural simplicity and the perfection of manufacture leaves little to be desired in many of these early Ming stem cups.

After the two letters of Père d'Entrecolle and the "T'ao-Shuo", the third main source of reference is a Chinese book entitled the "T'ao-Lu", which gives a description of the potteries of China, including a comprehensive study of Ch'ing-tê-chên. This volume was first published in 1815. It was translated by M. Stanislas Julien in 1856 and selectively incorporated into his book, "Histoire et fabrication de la porcelain chinoise". The complete English translation by G. Sayer was finished as late as 1951.

After a century and a half of aesthetic and technical achievement, the sixteenth century generally witnesses a decline in the colour and purity of the red glazes. Firing problems and variable materials had caused many failures and eventually the copper red glazes were abandoned for a period of time. During the reign of the Chia Ching Emperor (1522-1566), the low temperature coral or iron red was utilised to replace the copper. (25) The iron oxide was considerably cheaper and more predictable in use but it lacked the variety, brilliance and depth of the volatile copper recipes prepared for the 'grand feu' glazes.

One piece of Ming Dynasty, Chia-Ching porcelain still having a copper red glaze, somehow travelled as far as England and it was presented to Queen Elizabeth during the latter half of the sixteenth century. This was a silver mounted bowl with a red glaze on the outside and a blue and white interior. The reference states:

"..... this rare cup was presented by James II to H. Green of Rolleston Hall, Groom of the Stairs, with whose descendants it remained until purchased by Lord Swaythling. A cup just like it was presented by a Mr. Lychfelde to Queen Elizabeth as a New Year's gift in 1582: "Item one Cvp of Pursseline thinesyde paynted Red the foute and Cover sylver guilt poiz all/Xiiij oz.

quarter. exr. a Ringe Lyk a snak on the top of the Cover" (A.J. Collins, *Jewels and Plate of Queen Elizabeth I*, in the inventory of 1574, London, 1955, p.592). The finial, in the shape of a snake ring, is emblematic of self-consuming Time and the victory of Truth, derived from contemporary emblem books. Lychfelde's cup and this one have almost identical weights." (26)

(a gift of 1582 could not be shown in a inventory of 1574! This is a typographical error, other references show the date to be 1572). (27)

The earlier wood ash Chün glazes, which stemmed from the northern areas of China in the Sung Dynasty and later, were often decorated with blushes or transmuted traces of copper red. The main colour of these very delicate and opalescent stoneware glazes was a subtle lavender-blue. Their gentle tones were often textured with flecks, minute bubbles or fine cellular structures. These marks and variegated qualities were given at times vividly grotesque but descriptive names which were recorded in both the T'ao-Shuo, 1774, and the T'ao-Lu, 1815. To illustrate this point, the T'ao-Lu records under the heading 'Reproductions of the various glaze colours of the past', a number of curious names such as, mule's liver, horse's lungs and sea-pear red.(28) The names were used in an attempt to give accurate images of both the colour and texture of the glazes. These unusual designations were the same or similar to the names that were eventually applied to the later transmutation glazes of the seventeenth and eighteenth centuries (see page 242), although neither the T'ao-Shuo nor the T'ao-Lu use such names. Even the later partial translation by Julien of the T'ao-Lu in 1856 contains no suggestion of such a poetic nomenclature for the later glazes. Names commonly used at the beginning of this century like, sang de boeuf, lang yao, bean red and crushed strawberry must have appeared between 1856 (that is, after Julien's translation of the T'ao-Lu) and 1876, which is the earliest reference so far to the

French name, sang de boeuf. M. Grandidier's book. "La céramique chinoise" uses these names but his work was published later in 1894.

It could be that the Chinese, at the beginning of the nineteenth century, considered the unusual names as socially unacceptable and avoided their use in polite society. Sayer translates them as 'slang' (29), while Bushell, in the description of Chün glazes in the T'ao-Shuo, calls them 'vulgar'. This being the case, the Chinese writers of both books may well have felt it derogatory to apply the Chün terms to contemporary porcelain at the time of writing.

"The so-called colours, pig's liver, flaming red, and blotched blue and green like a baby's tear-stained face, these are only failures in baking of the above three glazes, not distinct varieties of colour. The vulgar names of nasal mucus and pig's-liver are only worthy of ridicule." (30)

In this eighteenth century description of ancient ware from the T'ao-Shuo, the term 'flaming red' could well have been the inception of the later French name 'flambé'.

The revival of the copper reds in the seventeenth century brought with it a new group of glazes and in time a new group of names. During the second reign of the Ch'ing Dynasty, the Manchu Emperor K'ang-Hsi inherited an empire divided between the north and the south; this unsettled state finally resulted in the gruesome rebellion of Wu San-knei from 1673 to 1681. The fighting brought about the destruction of the Imperial factory. This troubled and difficult period was followed by years of peace and prosperity, which enabled the arts, with enlightened patronage, to slowly blossom forth. Not only was the

Imperial porcelain factory rebuilt but the Emperor commanded a member of the Imperial Household to take charge as his superintendent there. Ts'ang Ying-hsuan was first appointed in 1682 to be succeeded by Nien Hsi-yao about 1723 and then perhaps the most famous superintendent and potter of the era, T'ang Ying, who held his appointment from 1736-49. These three men span what is regarded as a classic period covering most of three reigns: K'ang Hsi 1662-1722, Yung-Cheng 1723-35 and the cultured Ch'ien-Lung 1736-95.

This, of course, was the Imperial porcelain factory where Ides and d'Entrecolle had witnessed the making of different red glazes. They had seen reproductions of early porcelains being made and attempts to revive the Ming reds and other glaze effects. D'Entrecolle describes the making of 'antiques' towards the end of his first letter and gives a very graphic account of an ageing process.

"I mean that he (the Mandarin of Ch'ing-tê-chên) 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..... 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....." (31)

From a technical viewpoint many new and fine achievements were accomplished in the period from 1682 to 1795.

The attempted renaissance of the 'chi hung' glazes resulted firstly in a famous monochrome now known as 'Lang yao'. Many references state that this glaze was named after the Lang family, who became extinct in

1610 but in their time they were a family renowned for their fine porcelain. Alternatively, Bushell in his large tome "Oriental Ceramic Art" attributes the name to a successful viceroy Lang T'ing-tso, who supervised the Imperial potters in the middle of the seventeenth century from 1654 to 1668 ('yao' in the widest sense may be translated as pottery, potteries, porcelain or kiln). (32) In France, the glaze was known as 'sang de boeuf'. This was the name used by Scherzer in 1882. It appears even earlier in a catalogue of porcelain for the 'Bethnal Green Branch Museum', a book compiled by A.W. Franks in 1876 (33). The 'T'ao Shuo' makes no mention of Lang yao or sang de boeuf other than a footnote by Bushell on chi hung saying :

"this red is due to a silicate of copper, the base of sang de boeuf, peach bloom and other monochrome glazes so highly appreciated by collectors." (34)

This blood red glaze, deeper in tone than the brilliant Ming sacrificial red glazes, possesses a reticulated pattern of fine crazing with a flecked texture deep in the glass. The rims are normally white or yellowish white with the red colour sliding away in varying degrees from the top edges. Areas on a large vase where the thicker sections have attracted a thicker glaze in application, such as the foot or near the base, the shoulder and sometimes where the thrown forms are joined together will often show a darker tone. Many of the later sang de boeuf glazes have a tendency to melt and run off the form requiring the feet to be ground for a smooth finish. Some of the recipes brought back by Scherzer for the red glazes would be inclined to flow off the body. His recipes, for example, of glazes made with bottle glass and coloured glass beads would require additional amphoteric

like alumina to increase the viscosity, otherwise the glaze would be too runny and extremely difficult to use.

There was a rare oxidised version of the Lang yao, a bright apple green colour, occasionally showing spots of copper red on the verdant surface. This glaze was called Lu Lang yao or Green Lang yao. The same tonal qualities of green can be found on the bases of vases and bowls showing the red Lang yao on the outer visible surfaces. Technically, the unstable volatile characteristics of copper at high temperature would make it possible to take from the same firing a Lang yao and a Lu Lang yao.

In addition to the red and green glazes, copper as a protean metal was capable of producing a great variety of colours and textures when used with certain recipes. These unpredictable surfaces when they occur are called kiln transmutations and known by the Chinese as 'yao pien'. Transmutations, an alchemist's word, seems especially appropriate to describe the change of condition that generates the highly prized "apple green" or "apple red" depending on which colour predominates. This subtle and revered glaze was also known as "crushed strawberry" in the Far East, whilst in Europe and America the names "peach bloom" and "peach blow" are more commonly used.

The experiments with the monochromes including the copper reds were continued successfully into the reign of Ch'ien-lung (1736-95), under the inspired leadership of the famous T'ang Ying.

"He was deeply versed in the veins of the earth and the nature of fire. He selected with care all the materials, and everything he touched was fine, lustrous, and wholly without spot. His close copies of famous wares of the past were without exception worthy partners (of the originals); and his copies of every kind of well known glaze were without exception cleverly matched. The ability displayed in his prolific output is without exception abundant and all-embracing." (35)

T'ang Ying, formerly Imperial secretary was appointed to take charge of the Imperial works in 1728 in the short reign of Yung-chên (1723-35). Later, in the prosperous reign of Ch'ien-lung he was made commissioner of customs at Huai-an but still retained the responsibility for the porcelain manufactory. T'ang Ying was a man possessing the rare combination of both scholarship and practical ability whose leadership inspired the potters of Ch'ing-tê-chên to achieve marvels of technique hitherto unknown. Parts of his autobiography still exist and provide an atmosphere of the period.

"I have been seven years engaged in the work. Although but 'a broken-down horse', I put forth all my strength. My ability is poor, and my faults many, and it is only by the emperor's grace that I have escaped punishment..... The potter's work is a humble one, yet my own life, as well as that of the craftsmen, depend on the favour of the emperor, and I can not but proclaim the imperial grace." (36)

Strong in understatement, the lowly servant serves the divine ruler. It is difficult to reconcile his true ability with the words he has chosen to write about himself in the year 1735. One of the many areas he researched was the field of flambé glazes, usually attributed to the early eighteenth century. Like the 'peach bloom', flambé is a transmutation glaze. Originally, this was a high temperature reduced copper glaze, rich in lime and low in alumina giving a less viscous glass. The sliding streaks of colour were due to the molten glaze

which gave the appearance of flames with an opalescent effect. Reds, blues, purples, whites and greys were all streaked together. (37) At present, its usage as a name is quite ambiguous. The auction rooms, museums and collectors tend to apply the word 'flambé' as a generic term for the whole family of copper red glazes, even the very low temperature reds fired at just a lustre heat. If the new definition is now acceptable then the true significance of the term has been lost and it becomes confusing to use flambé to describe such glazes! The word flambé was not used in translating either the T'ao-Shuo or the T'ao-Lu, although the French potter, Taxile Doat working at Sèvres in the second half of the nineteenth century defines flambés or flammés in his book saying:

"This name is given to glazes which derive their colouring power from copper and iron, and which during the firing, are submitted to the constantly changing influence of the flames, also to the pyrochemical combinations which the various elements of the glazes produce together. It is easy to understand that at the high temperature at which these combinations are formed, it requires the greatest care to avoid the oxidising of a metal as sensitive as copper, which is turned green by an oxidising action lasting a few hours. Hence the unlimited variety of flammés." (38)

A very poetic description of flambé glazes was quoted by Philippe Burty in his book on the industrial arts in 1869.

"Upon this head, M. Jacquemart, who has most earnestly studied Oriental art, and can therefore discourse the best on it, says: "The scarlet coating attains an incomparably picturesque aspect: the surface is diapered with veined, flickering, capricious hues, like the flame of a bowl of punch; the red oxydule passes out of violet to pale blue, and to green protoxide, evaporating altogether in particular pieces whitened by the fiery ordeal, and thus furnishing happy strokes not accorded to the brush of the painter." (39)

Burty gives a curious and highly personal explanation of this phenomenon found in the patterning of the flambé glazes. This account also contains the earliest printed example at this point, of the word 'flambé' being used.

"The veined or mottled colours (flambé) are caused by jets of heat - for the atmosphere of the kiln is so incandescent we cannot talk of flame - which attack certain portions of the coating of the piece, and, by this greater degree of heat, modifies the tone or colour of the mineral element with which it is decorated." (40)

Again, R.L. Hobson writing on the high temperature Chinese glazes of the eighteenth century puts it quite succinctly:

"Hence the whole family of splashed and mottled glazes to which the French give the expressive name of flambé." (41)

Bushell and Medley would concur with these definitions of flambé, except that they would both mention the red, blue and grey streaking effect. Whereas, a recent Sotheby's catalogue contains this description:

"423. A BERNARD MOORE FLAMBE VASE of baluster form with cylindrical neck, the sang-de-boeuf ground covered with a feathery ground and blue 'hare's fur'..... (42)

or a recent exhibition entry from a catalogue at the Victoria and Albert Museum:

"29. VASE, probably earthenware, flared hexagonal shape, flambé glaze..... (43)

Both of these examples were describing a low temperature glaze with a uniform dulled copper red colour. Historically, neither in any way resembled the flambés nor the sang de boeuf in either appearance or temperature. C.F. Binns expresses similar thoughts in writing about the Doulton copper reds at the 'St. Louis Exhibition, 1904' when he says:

"A special pamphlet blazons forth the rediscovery of a lost art, whereas it is plain that the red is a low fire enamel over a porcelain glaze. The colours are indescribably rich, but the ware is not a rediscovery of Chinese copper red, nor has the art of this production ever been lost." (44)

Pere d'Entrecolle mentions a Yao-pien or transmutation effect that he was shown which seems to retain an extreme flambé quality.

"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 I am speaking of came out of the oven like a piece of agate." (45)

These exciting variations that were possible in such firings gave rise to many strangely imaginative and poetic names by either the Chinese or the French, but unfortunately the names have contributed to much confusion. Emil Hannover credits England with this creative act but there seems no evidence to support this viewpoint. He explains that in France they were just known as flambés, 'whilst in England they have a number of separate names taken from various animals, plants and precious stones. (46) Sadly, this seems unlikely, since some of the names like, 'camel's liver, horse's lung and rose red' are listed in

the "T'ao-Lu," which he could not have seen fully translated. (47) To emphasise this point, the monochrome catalogue from the "National Palace Museum Collection" in the Republic of China, translated from Chinese into English, lists some of these unusual comparative names. As examples, two that are little known in England, 'baby rat red' (a greyish colour with some tint of red similar to the colour of a newborn rat) and 'drunken-beauty red' (a pinkish-red similar to the rosy cheeks of a beautiful woman who has had too much to drink). (48) A further example was the use of 'sang-de-boeuf' as a descriptive name in the original report by Scherzer in 1882, this suggests the name was more likely to be either Chinese or French but not English. A list of these names that describe the subtlety of colour and texture of these glazes is contained in the notes for this page. (49)

The sang de boeuf continued to be made under the leadership of T'ang Ying. This glaze name is probably more familiar than any of the other named reds, apart from flambé, and yet its origins remain obscure. Margaret Medley suggests that this title was a term found first in E. Grandidier's book "La Céramique Chinoise", published in Paris in 1894. (50) Whereas it does appear in the 'Scherzer Report' on Ch'ing-tê-chên, dated 1882, and even earlier in A.W. Franks's catalogue of 1876 (page 22).

The copper red glazes continued to be used into the nineteenth century. The Ch'ing-tê-chên production list of 1864 records different sized bowls being manufactured with sacrificial red glazes. (51) Similarly, the records for 1900 at Ch'ing-tê-chên show that copper red dishes were still being made for the Court at Peking. (52)

THE COPPER RED GLAZES IN FRANCE.

In spite of the publication of the acute observations by Père d'Entrecolle it was over a hundred years before serious activity took place in Europe, attempting to reproduce the high temperature monochromes of the Far East.

Research into the greatly admired Chinese glazes was centred at Sèvres. The earliest dated piece of copper red glaze was an experimental test carried out by the chemist Alphonse Louis Salvetat, in 1848. (53) An early date, as it was about thirty years before other European ceramists were working in the same sphere. Salvetat was assisted by Ebelmen, the Director at Sèvres, as well as Stanislas Julien who translated a number of specialist Chinese books on ceramics, including part of the "T'ao-Lu."

Some credit for this early success must also rest firmly with Alexandre Brongniart, Director of Sèvres from 1800-1847. An influential man of diverse talents, he was responsible for much foundation work in establishing attitudes for research into the field of porcelain. Assisted by a staff of able scientists, Brongniart had surveyed and systematically analysed many of the clays and ceramic materials that existed in Europe. In conjunction with this activity, he and his assistants investigated fragments of historical ceramics from many countries. The knowledge gained from this information provided vital material for the experimental work that was pursued to produce new bodies and new glazes at Sèvres. The documentation of these surveys and researches was also used by Brongniart in his classic work, "Traite des Art Céramiques." This was published in 1844, towards the

end of his life, and beyond the tabulated findings, it contained a pictorial history of ceramics with an explanatory text. Additionally, such areas as the development of the potter's wheel, different types of kilns and various technical processes were included. Most important of all, was a set of drawings that showed the stages of Chinese porcelain manufacture. These illustrations relate in several respects to the descriptions given by T'ang Ying in the 'T'ao-Shuo and the 'T'ao-Lu'.

Rightly, much credence was given to the role of the scientist and his ability, through experimentation, to supply the technical answers to manufacturing problems. Apart from the pioneering and scientific approach, Brongniart was also interested in the visual and cultural aspects of ceramics. With the backing of M. Riocreux, he helped to establish a museum showing a highly selective display of international ceramics. The museum was founded in 1823, and after many changes and additions, it now adjoins or shares the same site as the porcelain works and it is called the "Musée national de céramique, Sèvres". Initially, this fine assembly of pottery and porcelain provided both a cultural need and a wealth of source material for the artists and potters who worked there.

Salvetat was particularly fortunate to work in such a lively and spirited background as had been built up at Sèvres. It was Brongniart who had encouraged the French missionaries in China to bring back from their travels examples of ceramics and related raw materials. This was demonstrated by an occasion described in Taxile Doat's book. He mentions that Pere Ly and M. Itier had dispatched some Chinese porcelain to Sèvres in 1847 and how:

"Ebelmen by breaking some Chinese pieces studied the different stages of manufacture and successful experiments gradually brought about a complete revolution in the processes of the decoration of hard porcelain." (54)

This was specifically a reference to decoration by applied pastes or 'pâtes-sur-pâtes', although the high temperature monochromes were also researched. Ebelmen was the newly appointed director of Sèvres replacing Brongniart. He worked with Salvetat analysing sherds of red monochromes sent to Paris by the two Frenchmen. The main constituents of these glazes were revealed and the fragments were also submitted to kiln tests. Salvetat discovered that a reducing atmosphere was necessary to produce reds and he found that the samples tested contained 4.6% of copper oxide. He records that after adding as much as 6% of copper oxide to the glaze on the Sèvres standard paste, a paste designed by Brongniart, the very high temperature needed for translucency caused the metal to volatilise. Salvetat lowered the maturing temperature of the body and achieved a slightly greater degree of success. (55)

The Sèvres Archives have preserved six of the early tests carried out by Alphonse Salvetat in 1848. Overall, looking at them as a group, red is not the dominant colour. These shiny glaze tests are for the most part, dark textured tones with small irregular cloud shapes of red. The general dreariness of the wares is due to a very heavily reduced firing and the excessive proportion of copper oxide used in the glaze recipes. The tests were applied to contemporary Sèvres blanks made and biscuit fired from Salvetat's more fusible paste. Two of the pieces were identical vases with foliated rims about eight inches high. They were covered by glazes which consisted mainly of

complex textured tones of smoky grey interspersed with small areas of low keyed reds and pinks. Neatly written labels in a dark sepia ink, probably scribed by Salvetat, were attached to the vases. One carried the following words:

"Pot A. Rouge de cuivre au grand feu truite imité du Rouge Chinois."

"Il a passé deux fois au feu dans le petit four d'essai; la seconde fois à la fournée des 16 Juin, 1848."

The other vase, of a slightly later date, had a badly chipped foot where the glaze had run, presumably attaching itself to the kiln shelf or sagger. This vase had three firings and while generally the colours were similar to Pot A, both the foot and the top lip bore traces of blue looking like pure cobalt oxide in the glaze. The label on this vase read as follows:

"Pot B. Rouge de cuivre au grand feu imité du Rouge Chinois."

"Il passe trois fois au feu dans le petit four d'essai; la troisieme fois à la fournée du 14 Juillet 48."

Accompanying the vases was a coffee can with a dull red glaze on the exterior. This was decorated on top of the red glaze with a painted band of grape vine pattern in gold near the rim. The coffee can was labelled and it could well have been fired with Pot B, since the information and the firing date were exactly the same. The remaining tests were three small identical bowls looking rather like cups without handles. These bowls had beaded decoration which was heavily gilded at the rim and the foot on top of some of the best red glazes in the group. The rich gold, the relief beading combined with a fine

depth of colour gave them a distinctive ornate Sevres quality. (56)

The results of these trials were presented to the "Academie de Sciences" in 1850. Seven years later, Salvetat published more experiments in "Les Leçons de Céramique" and most importantly, his experiments, recipes and working methods appeared as additional material in an edition of "Traite des Arts Céramiques" in 1877. Selected areas were translated into American by George J.M. Ashby and published separately with the title, "Coloring and decoration of ceramic ware," by Windsor and Kenfield of Chicago in the year 1898. (57)

Little progress was made for many years after the initial awakening and success at Sèvres in the middle of the nineteenth century. The French potter, Théodore Deck possessed a consuming interest in experimental tests with colours and glazes as early as the sixties. The following quotation, printed in 1869, indicates his pioneering research work of that period.

"(the writer has been describing a Chinese red glaze) European potters have not yet completely succeeded in imitating them. The furnace which has most nearly succeeded in this, is that of Théodore Deck but even that red has not all the desirable brilliancy and its blue-green, composed of copper, cannot resist great heat, and is very unstable. Notwithstanding this, the progress lately made by the Brothers Deck has been considerable."
(58)

A rare description of the chemical changes that occur between copper and oxygen, at high temperature, was printed in the first edition of Jacquemart's book, "History of the Ceramic Art," in 1873. Doubtless this had originated from the chemists at Sèvres, since it gives such a knowledgeable and graphic account of the complex transmutations.

Jacquemart wrote with an assured confidence in regard to the technical abilities of 'modern science,' although this was nearly a decade before the dated successes of Deck, Seger, Chaplet and at Sèvres. Nevertheless, his perceptive explanation of the chemical reactions that take place in different types of firing is extremely early and therefore historically significant.

"As to the cause of the transmutations, modern science knows it so well that it can produce any of these effects in the laboratory. Metals change their forms and aspect according to their combination with oxygen. Thus, to confine ourselves to the subject in question, oxydulated copper furnishes to vitrifiable painting a fine red, which, thrown in a body upon the vases, forms the tint called "haricot" (a kind of fawn colour); with an equal quantity more of oxygen it becomes protoxide, and produces a beautiful green, capable of being transformed into sky blue, when the oxygenation is carried still further. Now these combinations may be effected suddenly in the furnace, by means of bold manipulation. When a clear fire, placed in a strong current, draws a considerable column of air, all the oxygen is not consumed, and a part of it combines with the metals in fusion. If, on the other hand, thick smoke is introduced into the furnace, of which the carbonaceous mass, greedy of oxygen, absorbs everywhere this gas, necessary for its combustion, the oxides will be destroyed and the metal completely restored. Placed at a given moment in these various conditions by the rapid and simultaneous introduction of air and sooty vapours, the haricot glaze assumes a most picturesque appearance; the whole surface of the piece becomes diapered with veined and streaked colorations, changing and capricious as the flame of spirits; the red oxydulate, passing by violet into pale blue and to the green protoxide, evaporates itself even completely upon certain projections, which become white, and thus furnishes happy accidental combinations." (59)

Another clarifying point of interest made by Jacquemart in the same book is the definition given for the flambé glaze.

"What is certain is, that we find vases with the flashed glaze (couverte flambée is the commercial name in France of the yao-pien) of very ancient date and of practised, not accidental, execution." (60)

He confirms that originally the term flambé specifically referred to

the high temperature glazes and not the reds which are associated with prolonged lustre firings; since yao-pien were the furnace transmutations that occurred only at porcelain temperatures.

Jacquemart is demonstrating a rare technical knowledge four years before Salvetat published his methods. His biography is not now widely known but it is evident that he had a broad interest in the technical and historical aspects of ceramics, publishing seven books on the subject in the 1860's and 70's. Solon makes a brief biographical reference, describing Jacquemart's livelihood in a single sentence.

"Jacquemart could not rest satisfied with the matter-of-fact occupation he had to follow in the custom-house offices, which he entered as a youth and where he afterwards occupied a distinguished position." (61)

Solon also supplies one of the sources of his understanding of technical methods linked with Sèvres, when he writes of Jacquemart's experiences and associates.

"To hear such men as Riocreux, Pottier, Fillon, Gasnault, and all their colleagues, discourse on the fascinating subjects, to be initiated in their discoveries, to share their patient investigations, was bound to end in more than a fruitless admiration for the objects of their common pursuit." (62)

From 1877 on, after Salvetat's methods were published, the number of artists and potters precariously attempting to fire copper red glazes in their kilns was starting to spread and multiply. The major motivation was undoubtedly due to the enlightenment and generosity of the Sèvres Manufactory in permitting Salvetat to communicate the

results of much of the expensive scientific study, particularly as the area had been so secretively guarded in the past and the present.

Edouard Garnier addressing the Society of Arts in 1888, says, on the same theme:

"Faithful to its mission, the manufactory of Sèvres has liberally divulged to private enterprise these various processes" (writing of the porcelain bodies and colours achieved by Salvetat, Lauth and others), "as well as many others discovered since, and it cannot be denied that considerable influence has been exerted on modern ceramics by the numerous inventions that have issued from the State-aided manufactory." (63)

Sèvres, whether supported by the monarchy or the state could ably afford to encourage research. Structurally and financially it was quite unlike a normal profit making commercial industry. In several respects it could be favourably compared to the Emperor's porcelain factory at Ch'ing-tê-chên. As to the different ownerships, Doat leaves no doubt whatsoever over which controlling power he preferred as an artist and potter.

"Moreover, in place of the jealous hiding of the discoveries made in the laboratory, which was characteristic of the administration under the monarchy, the present democratic government gives out every ten years all the new processes." (64)

This practice of publishing experimental information was basically to assist France's own ceramic industries. The reality, in sheer practical terms, meant that it would be virtually impossible to prevent this spread of knowledge from covering the whole of Europe, in a short space of time.

Salvetat's additional notes to Brongniart's famous book, added in

1877, serve as a typical example of the comprehensive texts allowed to be printed. They were based wholly on laboratory work carried out at Sèvres around the period of the mid-nineteenth century.

"We may here treat more fully of the Chinese red colors, produced by copper, referred to above.

At Sèvres I was able to reproduce the Chinese hard fire red, by means of two analyses, the one of the plain red, the other a flashed red having the following composition:" (65)

The recipes follow, accompanied by an intriguing account of the various tests he applied to the original fragments of the Chinese red glazed porcelain. After more formulae, together with several pages of personal experiences and information in this area, he finishes by suggesting three possible solutions to the problem of producing the copper reds.

"Finally some samples of sharp-fire red porcelain, made at Sèvres, reglazed with cobalt blue glass, showed violet and bluish tints similar to the flashed vases of China.

Since the early attempts I have made other trials, operating differently, first by way of reduction, where the copper was originally in the state of silicate of peroxide of copper; second, by plunging the fired porcelain into a bath of glass, colored red by protoxide of copper.

On closely examining the porcelains of China it is easy to believe that all three principles, which served as the basis of these different methods, were employed in that distant land." (66)

These assumptions, seen in their time, were imaginative deductions by Salvétat from his pioneering study and the straightforward glaze reduction is still the commonest technique used for producing copper reds. The glaze on glaze technique was used successfully by Taxile Doat and many succeeding potters. The third process, using the bath of glass would have many limitations. Whilst it could be achieved

with trials or test tiles, it would be a difficult, almost impossible technique to apply to larger scale complex work.

I have made a number of tests of Salvetat's recipe for the 'plain red glaze,' taken from the book "Coloring and the decoration of ceramic ware." There were many failures and frustrating disappointments. This was not just with Salvetat's formula but it also applied to the other experimental tests carried out at both high and low temperatures. The elusive nature of the copper red glaze has proved to be much more subtle and difficult than originally anticipated. A fine margin divides failure and success; although these failures, when they have occurred, have led in turn to a greater empathy for some of the potters mentioned later in the text. The struggles and deeds of men such as Chaplet, Howson-Taylor and Moore are now much more clearly felt and understood.

Bernard Moore's approach as a potter to experimental tests would have been essentially that of the practical man, one who succeeds by empirical methods and experience. He would employ his working knowledge and understanding together with his considerable innate talents to achieve the end results. Moore would have pursued these experimental glazes as an inquiring potter rather than using the analytical methods employed by a trained chemist, since, as Mellor neatly puts it, he 'had the advantage of not having been spoilt by a university training.' The following tests have been made in the same spirit as Moore's experimental approach recognising the wide discrepancy possible with certain raw materials.

Most of the problems experienced with the practical work have emanated

from the fine degree of control necessary with the kiln to achieve an even reducing atmosphere. William De Morgan, in his 1892 lecture, indicates this aspect of the process by saying that after many glaze experiments, the chemical composition of the recipe is no more important than the handling of the kiln. Personal experience has shown that for high temperature glazes the regulation of the kiln is absolutely critical to the success of the colour and tone. As some of the test pieces show, a very wide range of colour is possible with the wrong atmosphere.

It was necessary to slightly change two of the ingredients in the formula given by Salvétat. Flint had to be used to provide the silica rather than the unobtainable Aumont sand and similarly, black copper oxide was substituted for copper peroxide. These alterations had no apparent effect on the colour of the glazes, which, in the main, closely resembled the tests at Sèvres. The surface of the glaze however was not quite as shiny as the French examples, which could well be due to the variable nature of feldspar in composition and changing the sand for flint. When the glaze was applied thickly quite a number of the tests suffered a rash of metallic black spots, a familiar texture often found in glazes when an excess of copper is used. The three test pieces in colour possess a certain dullness, similar again to some of the glazes at Sèvres. Even so, this was a fine French innovation and the quality of the sanguine tones simply demonstrated the need for further development and refinement.

The porcelain test piece no. 1, shows Salvétat's recipe on top of a Staffordshire medium stoneware glaze with additional tin oxide. The

under glaze, one used by Dora Billington, was selected as being typical of the kind of recipe that Moore could well have used in his experiments. The tin was added mostly as an opacifier but also to fix the protoxide of copper, as suggested by Salvetat in his notes on page 50. The deep toned red that resulted was possibly predictable with such a large proportion of copper oxide present in the recipe.

The same glazes were applied to example no. 2, except that the red was much thinner. Here the glaze had a distinctly liverish colour, similar in quality to certain rare Ming porcelain of the fourteenth century. Porcelain, often with peony or chrysanthemum designs, that have been painted with copper red underglaze. All three Salvetat specimens were fired to 1250c, in a reducing atmosphere which was commenced at a dull cherry red heat. (See kiln log on page 272).

The final test no. 3, shows Salvetat's glaze after the correction made by Seger reducing the copper content to .92%. The same base glaze is used and the red is slightly brighter than the other two examples although the smaller quantity of copper has formed a rather cloudy texture.

Other tests were executed using the plain red glaze directly on to the porcelain in its biscuit state but these were just muddy in colour after the firing. (Further technical information is to be found on page 265).

The renowned German chemist, Hermann August Seger, as 'Chief of the Chemical-Technical Experiment Station,' at the Royal Porcelain Factory, Berlin, had also been analysing the Chinese copper red glazes but at

a later date. His findings were much the same as Salvetat's apart from the content of the colorant and here Seger's precise tests show the presence of only .92% of Copper Oxide. (67) Comparing both sets of results it appears that Salvetat had mistakenly included the lead content with the copper. It is apparent that if Seger's lead oxide and copper oxide were added together, then the recipes of the two red glazes would be very similar indeed. Dr. Mellor draws a parallel conclusion in an article written for students, that was printed in the "Staffordshire Weekly Sentinel," in 1905. (68)

Professor Seger's collected writings give an authentic atmosphere to the spirit that surrounded this pioneering area. His observant and concise records illustrate well the values placed on these copper red glazes and his 'polemics' show the determined competitive feelings to claim credit for any initial achievements. In the second large volume of Seger's collected works, under the heading of "Technical Polemics", and sub-headed "The hard fire red of European Porcelain", a Professor Schmidt was debating the accuracy of an article written in 1883 by Seger. (69)

"...the statement is made that the most important achievement of the past year was the production of the Chinese-reds which, until now, has only been prepared at Nankin. (70) The article continues to mention a few, usually very defective, pieces produced in European potteries, and finishes up by saying that the production of these pieces was more in the nature of a fortunate accident than the result of systematic experimenting with the aid of technical chemistry. This statement is to be corrected." (71)

Schmidt, reverently acknowledging Salvetat's contribution to the copper red glazes, describes a visit to Théodore Deck's studio, in 1882. A visit made before the Berlin Porcelain Manufactory had made their

'Chinese-reds'. Whilst he was there he saw:

"...an entire collection of such porcelains in all shades of the hard-fire red from the brightest, glossy transparent cherry-red to the darkest, matt, and opaque blood-colour, and in addition long-necked, small bottles in bright red, showing many aventurine - and gold-like, shining particles, pieces truly grand and magnificent. (72)

The letter continues by mentioning a technical chemist, A.Buenzli who worked at Krummnussbaum in Lower Austria. He had exhibited copper red glazes at a trade fair at Leipzig in 1881. Schmidt concludes by stating that the three ceramists, Salvetat, Deck and Buenzli had all produced and displayed publicly Chinese hard-fire reds before the Royal Porcelain Manufactory at Berlin.

Seger's impassive reply was reasoned and to the point, saying that Schmidt was not proposing potters who were responsible for the production of work on a commercial scale. He continues by adding that he greatly admired the work of 'such a fine chemist as Salvetat' but that on this occasion his interpretation of the analysis of the red glaze was wrong. Writing on Théodore Deck, Seger claims that he possessed 'since 1880, about 20, mostly smaller pieces showing this red colour, but these are not saleable'. The ones he does sell, states Seger, were so expensive because he found them very difficult to fire, 'is this not a manufacture based on accident?'

"It is not surprising that Th. Deck possesses pieces in all variations. Any one acquainted with the manufacture will realise that hardly ever, even two pieces of the same color come from the kiln. This is likewise true with us." (73)

Lastly, Seger dismisses the commercial production aspects of Buenzli, saying that at the trade fair of 1881, he showed only three pieces of 'Chinese-red' and only a dozen at the fair of 1882. Whilst at Berlin, 'burns are made in a kiln holding five cubic meters of red ware without an appreciable loss.'

"It is possible that a person who has systematically striven to attain the result may have met with a fortunate accident. Not his intention but the success is accidental, and hence the statement, "the production of these pieces is due more to a fortunate accident than to the systematic results of technical chemistry," is justified." (74)

This quotation ends the reply from Seger to Schmidt. Seger, it would appear, substantiates his claim that the Royal Porcelain Manufactory at Berlin, backed by Seger's scientific ability, was the first to produce on a commercial scale 'Chinese-reds' in the year 1883. Twelve red glazed vases are listed in the archives at Sevres, dated according to the register entry in 1883 but there was no evidence to suggest a production line of copper red glazes. (75)

"The Collected Writings of Hermann A. Seger," gives an unusually detailed account of the technique used by Seger in firing the red glazes at the Royal Porcelain Factory in Berlin. The methods used for producing reds he describes as an 'extremely difficult process.' Like De Morgan he stresses the importance of the firing saying:

"On the contrary, alternately reducing and oxidising conditions of the fire-gases are required in order to produce it (the red colour), and the difficulties in manufacture lie less in the composition of the glaze itself (although this is also of importance) than in the proper constitution of the fire-gases." (page 282)

His clever idea was to initiate briefly into the reducing atmosphere a stream of clean air to prevent the smoky carbon penetrating the glaze and making it a dark grey colour. In practice, it meant that every quarter of an hour during the reduction, the interior was oxidised for one minute. This was reproducing atmospheres that would have been found quite naturally in an external wood-fired kiln, where it is difficult to avoid the smoky conditions of reduction. In effect, this simulation that Seger devised, was reverting back to the earlier Chinese firings and it seems likely that he was inducing similar fire-gases. This delicate process demands frantic activity on a large gas kiln, since it takes nearly a minute to adjust the main damper, the four primary air controls and the secondary air damper. Should the period of oxidation exceed the minute, then the intenser colours resulting from the smoky gases would be lost, the reds would quickly transmute to green or white. The operation suggested by Seger consists of very short sprints, that may well have to be sustained for periods of twelve hours or more! The two Seger test pieces were both fired to this schedule and his recipe, which he calls 'dark red Chinese glaze,' was used for experiments. This particular formula is an awkward one to prepare in that part of the recipe has to be fritted in a reducing atmosphere first, before being mixed with a porcelain glaze. The same medium stoneware glaze with additional tin was put under the Seger red glazes.

Test no. 4 was using the fritted red glaze applied thickly and whilst it is fractionally brighter than Salvetat's dark toned red, it is still lacking purity. The second one, no. 5, was simply applying a very thin layer of the red glaze and this has left a pink cloudy blush

on the surface.

Seeger's dark red glaze was applied to personal work and although one or two had rather brighter colours, none in the slightest respect, resembled the qualities and tones to be seen in any of Moore's high temperature red glazes. The famous German chemist's pioneering and painstaking experiments in this specialised area of ceramics are obviously considerable but none more so than his understanding of the kiln atmospheres. His perceptive studies in this field remain as a most important and illuminating contribution. (Technical information to be found on page 282).

Meanwhile, the activity at Sèvres in this field had been further stimulated by new comprehensive information from China giving recipes, materials and technical processes. By 1880, with the style of Japonisme accepted through increased trade with the Far East, national exhibitions and other influences, the Manufactory of Sèvres was as enthusiastic as ever to obtain still greater knowledge of oriental methods in porcelain production. With this in view and having achieved only limited success with high temperature colours, the Ministry of Public Instruction requested the French Consul, Scherzer, at Han-Keou to gain more detailed information of the techniques used in porcelain manufacture at Ch'ing-tê-chên. In a report dated December 23rd, 1882, Scherzer wrote a most thorough and detailed account of the Chinese production processes. This intelligence was unpleasantly obtained by a French party led by Scherzer and well protected with a police guard. From a position of strength they were able to secure production secrets from the crumbling and decadent Imperial Manufactory. With a military

precision Scherzer describes the journey by boat, recording the differing environments, the voyage across lake Po-Yang to the mouth of the river that leads to Ch'ing-tê-chên. Approaching the town, he gives a vivid impression of the scale of manufacture of ceramics when he writes:

"...but on leaving this place (Ouang-Kan), navigation was hindered by the accumulation of porcelain shards, saggars and bricks which clutter the bed of the river and form veritable rapids succeeding one another over a length of 60 lis which I took two days to cover (one lis is about 500 metres so that Scherzer was writing about a distance of approximately 19 miles)." (76)

He mentions 'nocturnal expeditions' or 'sorties' to examine the porcelain kilns, both empty and filled with saggars. Complete measurements were taken accompanied by informative sketches as requested by Sèvres. The first comments on the red glazes were disappointing.

"The copper red Tsi-houng, or Sang de Boeuf, so much appreciated by the connoisseurs is no longer made since the death of the last man who possessed the secret of its making. Over twenty years ago the management of the Imperial Factory excused itself in a statement to the throne, for not being able to execute an order for vases covered with the Tsi-houng glaze which had been made for his Majesty." (77)

Scherzer learnt the secrets of making the 'crackle glazes' and a variety of colours including, blue, black, celadon and white with blue underglaze decoration. Another copper red, which he calls "Kun-houng", he was able to investigate after visiting 'the only unique factory' producing this colour.

"The director of this establishment refused categorically to tell me the recipe which is used to prepare this high temperature glaze. I managed all the same to get some for myself without his

knowledge and during the second visit I was able to ascertain for myself the identity of the elements which had been shown to me with those used in the vases with the red Kun-houng glaze. I noticed that the body destined to receive this glaze is harder than is normally used, it has in effect to stand up to several successive high temperature firings. Kun-houng glaze is applied to the biscuit, firstly by dipping and then by spraying. I have in my possession, vases with glaze applied before being fired in the glaze firing, I have also brought back samples of the body used and of the materials which go into its composition. As for the copper red, Yeou-li-houng (yu-li hung), it is applied on raw porcelain and receives the ordinary glaze (this is underglaze red)." (78)

Kun-houng is an unusual name for describing the red. In Chinese, Kung is either palace or offering, so possibly Scherzer is describing the sacrificial red glaze? Much other information was collated from this expedition, particularly from the samples that were acquired. So much so, that just over a year later, in 1884, Sèvres was able to show publicly a group of red glazed pieces at the Exposition de l'Union Centrale in Paris. The considerable enthusiasm of Sèvres for their red glazes was not shared by the critical Seger. Whilst Taxile Doat was saying 'for the first time were grouped reds of copper..... rivalling the palette of Chinese ceramists' with phrases like, 'quite sensational'. Seger wrote a report on the whole Exhibition and on the red glazes of Sèvres he wrote:

"The above mentioned firm like many others I will mention later, has made experiments aiming to produce a red glaze by the use of cuprous oxide. These experiments have not led, however, to a clearness of color worth seeing. Of the twenty to thirty pieces of this kind exhibited, only a few show the character of the cuprous oxide color in its richness; the rest (probably three-fourths) have a black color with only here and there a trace of red." (79)

Seger, it would seem, searches for an industrial perfection, a perfection of the machine. This aesthetic judgement is also reflected

in his critical appraisal of the wares by Théodore Deck, where he describes his early work of 1880 as 'not salable' and believes the manufacture to be based upon accidents. (80) In spite of Seger's comments on the Sèvres copper red glazes, the value of the unique report by Scherzer was immense. Amongst this comprehensive wealth of material, Scherzer describes a Chinese method for achieving a reducing atmosphere beyond the normal adjustment of dampers and air controls in a kiln (p.278). This was accomplished by placing slow combustible material within the saggar containing the wares with the copper glazes, a technique that has been adapted by many European potters and potteries in the twentieth century. The Royal Lancastrian Pottery, for example, have used a variation of such a process in their production methods. (81) A distressed pot by Bernard Moore in the collection of the City Museum and Art Gallery, Stoke on Trent, suggests that such a technique was used by the fireclay disc attached to the foot. This circular disc fixed by a high temperature glaze to the base of the pot is almost identical to an illustration by Scherzer. (82) A copy of this important text by Scherzer is housed in the library of the Sèvres Manufactory and it was printed in the "Bulletin de la Société d'Encouragement pour d'Industrie Nationale", in the month of April, 1900.

One significant personality woven into this pattern, showing the development of the copper red glazes, was Ernest Chaplet (1835-1909). He was representative of a group of very early pioneers in France, who had abandoned the hard classical traditions layed down by Sèvres in favour of a more personalised approach. The group, known as artist-potters, had successfully combined the roles of both artist and potter resulting in ceramics of a highly innovative nature. During his life,

Chaplet had worked in a number of potteries. Initially and while still a teenager, he worked at Sèvres and on one occasion he had assisted Emile Lessore (a pupil of Ingres) with the decoration of three important vases for the Universal Exhibition of 1855. In a letter to the art critic Roger Marx, Chaplet says:

"In our free time, Lessore, a great admirer of old ceramics and faience, showed me how to decorate some pieces of faience in white. Suddenly it became clear to me: I had found my calling." (83)

Chaplet also worked with Joseph Bracquemond, the painter and engraver in charge of Haviland's studio pottery at Auteil near Paris. The two artists had met during the war in 1870 and when Bracquemond was appointed as artistic director of the atelier in 1874, he immediately offered his close friend Chaplet a position so they could work together. The year of his appointment coincided with the first independant exhibition of the Impressionists. Paris, the cultural centre of the art world had attracted the leading artists of the day. Chaplet had met and known many of these painters, including Paul Gauguin, who was to work in his pottery later in 1886. In this stimulating environment Chaplet had first hand experience of differing visual influences and his studio produced designs showing such varied qualities as Japonisme, Naturalism and Impressionism.

It was Bracquemond who introduced Chaplet to the copper red glazes. Jean d'Albis, Chaplet's biographer, writes:

"One day, Bracquemond said to Chaplet: 'Have you ever seen any beautiful pieces of Chinese flammé?' And he took him to an antique dealer's shop on the Quai Voltaire to show him some. It was love at first sight. Chaplet immediately wanted to try his luck." (84)

Haviland, the porcelain maker of Limoges, after seeing the red glazes of Sèvres at the 1884 Exhibition, pointed out that the red glazes were not on true porcelain and that it was quite a different matter to obtain the reds at the higher temperature of 1380c. He had been making tests on copper reds for nearly two years and eventually, motivated by the Sèvres success, he employed a specialist chemist, M. Lebrun de Rabot to work with Chaplet in their quest for the reds. On the 30th March, 1885, Chaplet wrote:

"I unstacked the kiln this morning; I've discovered the trick and next Saturday we'll have our reds. The smoking worked perfectly. I'll stack next Thursday just about everything I have in porcelain that's already bisqued. Send bisqued ware to us at the Rue Blomet, both big and small pieces." (then just over two weeks later, on the 15th April, he writes in a letter)
"We de-kilned last night. The load is not very good. Some of the bottles are handsome but many of the pieces have green spots mixed in with the red." (85)

From 1885 on, Chaplet was producing a large quantity of copper red ceramics in both stoneware and porcelain. Much of his work was experimental, the thick glazes with their geological qualities were the results of several glaze firings. The surfaces of the glazes were often ridged in thickness with mottled textures, the colours were subtle at times with variegated red, blue and violet surfaces.

Seen in its late nineteenth century context, Chaplet's creative approach must have proved a startling revelation to many. His researches into nature's chemistry on at times heavy and often unresolved forms was the opposite extreme to the studied technical perfection of Sèvres.

Chaplet was capable of virtuoso performances in controlling kiln atmospheres. Taxile Doat illustrated this ability when he was describing the erratic nature of the copper glazes, he writes:

"However, Chaplet has shown me two flammés which were absolutely identical on their four faces, although each of these faces was of a different tone. I must add however, that these two pieces were only 2 $\frac{1}{4}$ inches high and had been fired side by side in the same sagger." (86)

Jean d'Albis after careful research of Chaplet's correspondence has discovered fragments of information on his secret methods of working.

"The porcelain was first fired at 1,000c at Limoges. The bisqued ware was sent to Paris where Chaplet dipped it once and sometimes even twice into glazes of varying composition. Afterwards, he used a long thin brush to apply a mixture of copper oxide diluted with gum in water." (87)

"The firing of a vase simultaneously in an oxidising and reduced atmosphere seemed an impossible feat. Chaplet closed the side of the vase which he wanted green in a container of refractory earth, thus closing it off from the reducing effect of the carbon. He bore holes in the other side of the container. He also arranged the pieces in the kiln in such a way that they shielded each other." (88)

"Never be afraid to fire again; only fire can give you a solid compact matter, a deep colour, an interesting texture. If your first fire is not enough put your piece through a second firing. Ask of a third kiln what the second has not accomplished. The harmonies which fire gives are always beautiful....." (89)

This romantic belief in the alchemy of the fire is further endorsed by Taxile Doat, who said that, 'Chaplet used to refire five or six times in order to perfect a copper hue.' (90) Both Chaplet's style and his approach to work were that of an artist, with clay and glazes as his media. He was an artist in the twentieth century sense and his use of specially designed saggars and the delicately controlled firings,

illustrate how Chaplet personalised the technical processes and to some extent, help us to comprehend his secretive attitudes to his work.

The development of the copper red glazes from their inception have consistently been synonymous with secrecy and mysticism. Chaplet had followed in this tradition and perpetuated the syndrome of the arcane glaze. Delaherche relates this experience of taking over ownership of a studio of Chaplet's.

"A month after signing the contract, as Chaplet wanted to do a kiln-load of 'flambés' for himself, he asked me not to come to the Rue Blomet until the firing was over. I, of course, followed his wish which was quite legitimate." (91)

The same type of close attitude remained with Chaplet to the end of his life. Shortly before his death, when blindness had put an end to his career as a potter, he stacked his kiln with various documents and set light to them, so that nobody in the future could copy his work. (92) In a similar manner, Howson Taylor of the 'Ruskin Pottery' had destroyed his documentation near the end of his life. His wife described the sad occasion to James Ruston, who described it in this way:

"The formulae and manufacturing secrets of the sang-de-boeuf were deposited with Lloyd's Bank at Smethwick. In 1934 Mr. and Mrs. Taylor withdrew these documents, took them to the Ruskin pottery and burned them in an old grate at the works. No employee of the works knew the secrets and neither Howson Taylor nor his father had divulged them to anyone." (93)

Professor Henry Armstrong in writing Bernard Moore's obituary recalls his last conversation with Moore, on this same topic, he wrote:

"At the last entrancing talk which I had with him, I strongly urged him, before it were too late, to set out his main experiences and reflections in print. He point-blank told me it was not to his interest to discuss his work openly." (94)

This common outlook of secrecy in some measure reflects earlier characteristics found in the eighteenth and early nineteenth centuries, when secret glaze books were equated with a livelihood and stolen recipes being purchased by rival concerns were commonplace. Science had assisted in breaking down most of these barriers in the second half of the nineteenth century. Yet in another light, there was a suggestion that the secrecy was rather more than just protecting recipes and a technique. Chaplet, Howson Taylor and Moore had all made personal contributions to the field of copper red glazes and their differing individualistic approaches were closely interwoven with the technical processes. Their ideas and methods were so intricately related that concept merged with technique and the activity became largely an introspective involvement matured by instinct, experience and technical prowess. In keeping with the residual romantic spirit of the time, individuality in the sphere of art was equated in some measure with the secrecy of endeavour.

A very different viewpoint was demonstrated by the scientists, who, in the main had shown an open and forthright outlook, making known publicly their discoveries although without having quite the same expressive commitments as the artists and potters. At Sèvres, the two chemists M. Lauth, who was also Director of Sèvres and M. Vogt, the chief chemist, carried out much experimental work in developing new pastes and the 'grand feu palette.' Some of the successes at the 1884 Exhibition were due to their efforts, particularly in the use of a body

which became known as the Lauth-Vogt paste. Lauth was also credited with the scientific regulation of the reduction atmospheres in the kilns at Sèvres, kilns that had been specially designed to give an even reduction by M. Auscher. The results of the experiments and labours of Lauth and Vogt in this pioneering field were printed in a small paperback book called "Notes Techniques Sur La Fabrication De La PORCELAINE NOUVELLE", printed in Paris by Charles Unsinger, in 1885. Some information was given on 'flambés' with Salvetat's six per cent of copper still being used. A much more sophisticated paper was produced by Lauth in conjunction with Dutailly, a former chemist at Sèvres, in 1888. It was titled "Recherches sur les rouge de cuivre, les flammés et les céladon," and is part of a book called "Recherches sur la Porcelaine." (95) This paper on the copper reds is referred to by Seger in his writings as "an extensive treatise" of the methods employed at Sèvres and Dr. Mellor refers to it as the "classic paper." (96) Lauth and Dutailly's paper sprang from the combined knowledge and experience that had accumulated in the last forty years at Sèvres. It was based upon the early work of Salvetat and Ebelmen, which was developed by a succession of refinements from other chemists. The Scherzer report was often quoted, emphasising the importance of his sortie into Ch'ing-tê-chên. The various pastes, processes and recipes were dealt with in some detail, the latter showing a gradated reduction in the proportion of copper used.

Probably the most open and comprehensive account on this subject, for practical purposes, occur in the writings of the Sèvres painter and ceramist, Taxile Doat. He wrote a series of articles on ceramics which were printed in the United States in 1903, by the publishers of a magazine called Ceramic Studio. The articles were mostly concerned

with describing in considerable detail, how to establish and run a studio pottery. He furnishes at a practical level some of the discoveries of Sèvres from about 1880 on, tackling many of the aspects experienced in the production of the copper red glazes. Apart from giving an account of raw materials and different recipes, he has recorded his firing charts which give full information of his kiln control. Later in 1905, these informative articles were collated together to produce a book entitled "Grand Feu Ceramics". This book could be compared directly with, "A Potter's Book" by Bernard Leach, printed in 1940, in that they both share much common ground. There was a brief historical background to ceramics in Doat's book linked with a history of Sèvres and in addition to good extensive technical information, the writing is permeated by his attitudes and philosophies. On the first page, for instance, he has been describing the monumental vases produced by Sèvres in the first half of the nineteenth century and decorated with reproductions of paintings; these he interpreted as 'decorative mistakes.' As a man capable of doing these reproductions of paintings, he writes this:

"Sèvres delighted in this glorious mistake until it received in 1847 from Father Ly some of the productions of the Far East. Then cultivated minds understood that there was something else to do then to transmit to posterity, on indestructible material, a marvelous but unfaithful reproduction of the perishable works of painting." (97)

Doat's imaginative description of that poignant moment, referred to an incident that had actually occurred before he was born. Doubtless the occasion had been discussed many times in his presence by the older employees at Sèvres. Doat, it seems, is giving credence to the aesthetic qualities possessed by the Chinese porcelain. A painter

acknowledging that a glaze could stand in its own right without the traditionally lavish embellishment normally associated with Sèvres manufacture. The quotation was also describing in part the awakening enthusiasm for the copper red glaze, which was eventually to lead to their successful production.

Taxile Doat was able to write an explicit account of ceramics, describing each technical process at a practical level, because his enthusiasm, energy and devotion had caused him to establish his own complete pottery at home, away from the factory at Sèvres. He represented one of a group of artist-potters in France, who felt the desire to develop personal ideas, from the concept through to the final result with total control at each stage, as opposed to being one of a team at Sèvres. To support this individual approach, it was essential to comprehend fully the technical aspects, in order to pursue such experimental work.

Fortunately, as stated earlier, his addiction to the copper reds combined with the overt philosophy of Sèvres, enabled him to communicate quite freely his working knowledge of this field. The descriptions in the book are basic and encourage an empirical approach to personal work, without getting involved in the intricacies of the industrial world. This level of communication, make him particularly lucid to other practical and innovative potters.

He has an obvious affinity for the Chinese monochromes and in a chapter of his book entitled, "Colored glazes, flammés, flowing

glazes," simple directions are given to the reader for the production of reds from copper. These unsophisticated instructions reflect more the ambience of an artist; they are more about feelings and taking unscientific delights in the succession of unexpected but fascinating results.

The four tests presented, using Doat's recipe, were all fired on the same shelf in the kiln. No. 6 and no. 9 had an alkaline glaze plus tin underneath the red, while no. 7 and no. 8 both had the medium stoneware with additional tin below the red glaze. The technique used for the firing was the method proposed by Seger, that is, oxidising the reducing atmosphere very briefly every quarter of an hour. The four quite different colours produced illustrate well the subtlety and difficulty of firing the reds from copper in a high temperature range. The very dark test no. 6 almost black in places, has been penetrated by the carbon during the reduction. The dark textured red sample, no. 7, which lay beside no. 6 in the kiln, was nearer to the Chinese reds and similar to some of the few high temperature reds made by Bernard Moore. Next in this row of tests lay the one with the pale liverish colour, no. 8, showing slight reduction. The final piece, at the end of the row no. 9, remained quite oxidised and pale green in colour. This experimental gas firing has produced a range of colours described by Seger, when he writes:

"It was shown in the production of the red colour that in using one and the same glaze, not only the shade of color in the same burn is subjected to extraordinary fluctuations, so that it runs through all shades from black through brown to sealing-wax-red and light bluish green, but also that some pieces are colored differently on one side than on the other, according to the intensity of the draft through the pile of saggars; some burns may produce in the same glaze a more or less beautiful color than

others, and again some burns may be totally spoiled and not produce any red color at all, everything appearing gray or black." (98)

The experience gained from working with Doat's glazes on both tests and personal work do suggest his book, "Grand Feu Ceramics," as a likely source for Moore's high temperature reds. This is just a sense reaction, since no corroborative evidence has come to light to substantiate it, other than the glazes possessing distinct similarities with each other.

Doat was indeed fortunate to be working at Sèvres, since this presented a favoured access to the knowledge of many famous potters and chemists who worked there, as well as the opportunity to use the bank of information accumulated there from the missionaries in China and men like Scherzer. The fine museum attached to the factory would also present a unique situation for first hand study of Chinese ceramics. In addition, Doat knew the secretive Chaplet, one of the greatest exponents of high temperature copper reds in Europe. If one sought a good influence, then Doat's pedigree was of the highest order. As mentioned later in the thesis, none of Moore's high temperature copper red glazed vases have been dated, although purchase dates, where they exist, indicate the earliest to be 1920. (99) Kathleen Moore thought her father's high temperature work was carried out towards the end of his career. Since the book was published in the middle of the Edwardian era and since Moore's glazes look like the glazes of Doat and were produced well after the book was printed, a case could be argued. There is a slight pattern that fits, although the evidence is flimsy.

This historical background to the copper red glazes has set out to identify the main sources of information available in this field up to the year 1905, the year Moore had established himself at Wolfe Street. No mention has been made of the low temperature red glazes used, for example, by William De Morgan with his lustres, since this area is mentioned elsewhere in the text (pages 81 to 87). It now seems apparent that during the 1880s there was a considerable body of knowledge readily available as a basic starting point for those wishing to pursue such a venture. The information in Doat's book of 1905 on the 'flambé' glazes had mainly been culled from this formative period at Sèvres during the eighties, together with the study entitled "Recherches sur la Porcelaine" by Lauth and Dutailly, printed in 1888. The instructive and comprehensive writings of Seger, published in 1902, linked with the Scherzer Report and a number of different pamphlets from Sèvres had provided cumulatively a good foundation for the host of potters in Europe around 1900.

Bernard Moore was widely known to his contemporaries for the production of numerous specialised glazes, particularly those based on the copper reds. He was documented as a versatile man possessing wide ranging talents and abilities, a master potter, an empirical chemist and a ceramic consultant; a pioneer with deep interests and commitments to his native industrial society of the Staffordshire Potteries. This section of the study will concentrate upon the life and achievements of Moore who, despite the celebrated reputation which he acquired during his lifetime, remains a relatively undocumented and enigmatic figure.

The obituarists record him as a generous and kindly person who was greatly respected and admired as a potter, adding that he was imbued with a thirst for experimentation in the field of ceramics. This endeavour to 'make nature reveal her secrets' (100) helped to support an idealistic attitude that was described as both unbusinesslike and unworldly. Possibly it was these attributes that contributed to the unobtrusiveness of his public figure whilst his richly glazed wares received generous acclaim and publicity, especially his innovatory work with copper glazes at high and low temperatures. In addition to these oriental sanguine colours, Moore worked with transmutation glazes, subtle lustres and a whole spectrum of surfaces and textures. This experimental palette of precious hues was highly regarded by many critics in the Edwardian era; in praising them, writers were careful to point out the latent potential of his work for the ceramic industry as a whole. His red monochromes, his variegated glazes and lustres with many different combinations and permutations could, it was thought,

stimulate and promote a totally new direction for the Staffordshire potteries. A direction that was following in the wake of the Arts and Crafts movement, placing the emphasis on individual values rather than those embodied in an impersonal and mechanical approach. This was reflected, in some measure, through the wares designed and decorated in his small studio by the capable young artists he engaged in the period before the first world war, men and women who combined their talents and painting abilities with Moore's extensive knowledge of pottery, porcelain, glazes and colour.

Sir William Burton, Pilkington's first managing director, was much influenced by Moore's experimental achievements. A life-long friend, Burton was always a passionate supporter of this pioneering area, particularly the monochrome copper red glazes.

"The only English porcelain-maker of today who has departed from the beaten tracks, is Bernard Moore, who has produced some notable triumphs in the way of flambé glazes in endless variety of colour and decoration." (101)

And then later in Burton's book, the last paragraph on the last page:

"We can do no more than mention the wonderful development of flambé and lustred 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 future". (102)

Bernard Moore was presented as a lone innovator amongst the porcelain manufacturers for his experimental wares with coloured glazes and lustres. A similar lone image or saviour was created by the Rhead brothers in their book. They say:

"In the potteries today is one potter who has done something to redeem Staffordshire from the charge of indifference and decadence - Bernard Moore - a potter in the truest sense of the word. He is master of all the resources of the potter's craft, and his work alone shows Staffordshire still capable of coping with the potters of France". (103)

This bland and hopeful critique is typical of the commentary on Moore found in the critical literature of the period.

Bernard Moore was born at the midpoint of the nineteenth century. He was born into a comfortable middle-class environment and baptised in the Roman Catholic faith. His parents, at that time, lived on the outskirts of the industrial area, near the family factory. Their address was, The Cottage, Normacott, Longton. Bernard's father, Samuel Moore, was a master potter and an established Longton porcelain manufacturer, a partner in the firm of Moore and Hamilton, who ran a manufactory called the St. Mary's Works, Mount Pleasant. His mother was the daughter of a farmer who lived and farmed near the small village of Draycott, just a few miles away.

Bernard was born into the rapidly developing industrial age of Victorian England, just one year before the opening of the Great Exhibition in Hyde Park. His date of birth was January 13th, 1850. Bernard Moore's youngest daughter, Kathleen, when she was interviewed failed to trace her father's birth certificate. She confirmed the date of birth from an entry in a small family bible. This bible contained a page headed, 'Family Register,' which recorded births, marriages and deaths of the family written in Bernard Moore's own hand. (104)

Most of his early formative years were not documented. So far no

evidence has come to light of any primary education, although it was well within the family's income to have engaged a private tutor.

The only tangible knowledge found of this period was contained in a splendid model, said to be made by Bernard Moore, of his father's new porcelain manufactory, the St. Mary's Works. His unusual talents and practical abilities are much in evidence in this miniature architectural work. The model was built mostly with cartridge paper, liberal quantities of animal glue and paint. It demonstrates an aptitude for graphic and three dimensional work, displaying a remarkable facility in handling materials for a twelve year old boy. The base, made of pine covered with velvet and edged with braid, had a small label attached written by Bernard Moore saying:

"Made by B.V. Moore
Finished March 21st,
1862. B.V.M."

The initials B.V.M. are perplexing. Miss Moore thought that Samuel Vincent, his brother, had played a minor role in the construction and thus the 'V' had been slipped into the initials. Hugh Vavasour, the owner of the model, was unable to offer an explanation although he knew that the work was largely by Bernard Moore. The year 1862 was the completion date of the real building and March 21st was the day before the young Bernard attended Mount St. Mary's College for the first time.

The first traceable education of Bernard Moore was at Mount St. Mary's College, Spinkhill near Sheffield. This College was founded in 1842 by

the Society of Jesus in order to provide an education for boys from Catholic families. No full reports have been found showing his progress and achievements at College, whilst the primary source material that does remain is very fragmented, giving only partial glimpses of Moore's schooling in Derbyshire.

At the age of twelve, young Moore had joined the school. The exact date was Saturday, March 22nd, 1862. The next recorded note shows that a few days later, on 28th March, he had begun to take music lessons (a fact noted because music was an extra), learning to play the tenor horn. (105) But there were no records to show what talent he had in this field. When Miss Moore was asked if her father was at all musical, she jokingly replied, that the quickest way to empty a room filled with people was to allow her father to sing!

The following year 1863, the documentation shows that Bernard was joined at school by his younger brother Samuel on January 3rd. Evidently, in spite of Bernard Moore's retiring nature in later years, at school he was very active on the stage. He performed in several productions. He is first recorded in Shakespeare's "King Richard III", acted on 29th December, 1862, with Bernard as Henry, Earl of Richmond. Three days later on the 1st January 1863, he was in another production as the first carbineer in, "The Thumping Legacy", a farce by John Madison Morton. In the summer of the same year on 4th August at "An Academical Exhibition", he recited an anonymous poem, "On the death of an Infant". He ended the year with two performances, one on the 29th December, where he took the part of Trebonius in Shakespeare's "Julius Caesar"; and the other, acting as Frederick Templeton in, "Deaf as a post", a one act farce by John Poole.

Unfortunately, no records exist at the school showing interests or attainment in any of the non-academic subjects of the curriculum such as Art or Sport; yet in later life he was known to have been a keen sportsman, participating in, steeplechasing, yacht-racing, boxing, cricket, tennis and golf. (106) Kay Moore said that he enjoyed drawing and he was always doing little odd sketches. (107) No mention was made of any type of science, although two activities were referred to, indicating academic strengths as a boy and bearing some relevance to his successes in later life. Firstly, his recorded appearance in, "Le Grondeur", a farce by Brueys et Palaprat (first performed in 1691), from which it could be assumed that he was competent in French. This does seem to be an important fragment of information, since much of the early literature concerned with the copper-red glazes was originally in the French language. Miss Kay Moore could not recall her father speaking fluently in any foreign language. She said "he could get by, he was always travelling, but if we went abroad with him he would make us sit down and listen to linguaphone records." Secondly, his final recorded appearance on the stage in what the school called, "Great Academies", was held on August 4th, 1864. This end of school year entertainment was designed for the parents and local gentry, so that the pupils could demonstrate their scholarly accomplishments to what must have been a totally admiring and receptive audience. Two pupils, Bernard Moore and John Toovey displayed their combined knowledge of:

"Arithmetic, Algebra to Simple Equations and Euclid Books I and II." (108)

No mention was made as to how this ordeal was carried out but it does

confirm his youngest daughter's statement that he loved mathematics.

The highest class at Mount St. Mary's College would be equivalent to the fourth form in a secondary school today. His age, and no further reference of any description, would suggest that he left this establishment in August, 1864. (109) It was customary in those days, assuming that parents could afford the fees, for the pupils to round off their education by transferring to the Roman Catholic College, Stonyhurst, in Lancashire, on the slopes of the Ribble valley. Bernard Moore's son was directed along this path in his education, but the present staff at Stonyhurst say there was no Bernard Moore listed in the 1860s. The evidence seems to stop abruptly there and much of his education still remains undocumented.

The next chronological point of contact was established by the writer Jewitt, who mentions Bernard Moore as a teenager, commencing his career at the St. Mary's Works, Longton.

"He first became associated with the firm about the year 1867, when the style of the business was Moore and Son." (110)

If the date of this association is accurate, then Bernard Moore would in reality be assisting his mother Teresa in the factory management for most of that year, since his father, Samuel died on January 17th, 1867. His death had occurred at the age of 62, suffering from the common potter's illness of chronic bronchitis. (111) Again, when Jewitt writes of Bernard Moore's father he says:

"In 1862 he built the present manufactory (ie. St. Mary's Works), and in 1870 he was succeeded by his two sons, Bernard and Samuel Moore, who, from that time have carried on the business under the style of Moore Brothers." (112)

This information was not correct. The title Moore and Son used after 1867 refers to mother and son. Teresa, eventually supported by both sons, managed to maintain the business, although as late as 1871 the first, the very first registered design only bears the signatures of Teresa Moore and Bernard Moore. The first registered design for the Moore Brothers was November 14th, 1872. So it would seem the time between 1870 and 1872 was one of slow change and it should be regarded as a period of transition. Under the management of the brothers, Bernard was to be mostly concerned with the practical side of manufacture and its attendant problems, a pottery manager; whilst Samuel was to be more concerned with the general administration as a commercial manager.

The statistics of the designs registered at the Patent Office, now housed in the Public Record Office at Kew, draw a graphic account of the commercial success achieved by the new Moore Brothers. The very first designs that were ever registered and protected by patent numbers, spring from the period of transition of 1871. There were just two entered under the name of Moore and son. In the following year of 1872, eight designs were registered, seven as Moore and Son and the last one as Moore Brothers (this was a model of a swan). In 1873, under the name of Moore Brothers, ten designs were registered; the range of subjects varying from cups, saucers, plates, bowls through to modelling and ornamental wares. From this point on, a consistently steady flow of new designs were being registered yearly, indicating a lively and developing

situation at St. Mary's Works, brought about by the capable and energetic drive of the young owners. The type of work towards the end of this decade, protected by patent, shows diverse extremes with utilitarian artefacts at one end of the scale, and ornaments, photograph frames, large size mirror frames, lamps and candelabra at the other. These records infer that the brothers responded favourably to the challenge of both leadership and growth, so necessary to a large industrial manufactory.

The ornamental designs, registered at the Patent Office, were illustrated with small sketches. These unsigned sketches indicate a broad design ambience, probably directed towards what would have been called a lower middle class market. They show that the production styles were rich in ornament or activity, possessing a virtuosity of technique which was flavoured with a sweet type of novelty, typifying a particular Victorian taste of that period. The wares and compositions were often excessively adorned with modelled flowers, birds, domestic pets, cherubs, putti and general rustication. The figures, when they were used, were coyishly posed with hints of classicism curiously mingled with other styles and innovations.

All of this porcelain was produced with a standard body which had a very distinctive quality. When an earthenware glaze was added to the standard body, it possessed a brilliant glassy white tonal quality. Sir William Burton describes it as a Parian body covered with a lead glaze.

"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". (113)

This quotation from Burton supplies information beyond just the factories that used similar bodies. It suggests a comparative scale with Moore Brothers as a pottery of some size and importance. It was also worth noting that the title Moore Bros. was used for 1870.

Another contemporary comment, which supports Moore Brothers as a porcelain works of some importance, was written by Leon Arnoux in an article published in 1877. He said that Stoke, whilst one of the smallest towns, possessed the most important manufactories of richly decorated china.

"The greatest bulk of that ware is, however, made at Longton, one of the pottery towns which has a reputation for the cheapness of its goods; but of late a decided tendency to improve their quality and prices must be noticed among the generality of its manufacturers. Several of them, like Messrs. Ainsley, Moore, Barlow and others, are trying to raise their goods to the same level as those of Stoke". (114)

In many ways Moore Brothers were influenced by the wares of Mintons, even down to the globe of the world trade mark. So it is surprising to note, that the famous art director at Mintons should single out a competitor for praise. Possibly, the link forged by men working for both factories helps to explain this attitude of benevolence. An artist like H. Sanders worked at Mintons from 1872 producing pate-sur-pate under Louis Marc Solon. (115) At a later date he was assisting Moore Brothers to produce similar work. Copying successful designs had been carried out quite openly in the Potteries and elsewhere, a practice that

largely faded as designs were registered and legal protection gathered strength towards the end of the century.

It is instructive at this point, to consider one piece of work in greater detail. this untitled ornament was manufactured after 1872 and bore the impressed mark of Moore Bros. It consisted of three cherubs bashfully playing with a cracked egg mounted on a rococo styled base with some fine quality gilding. In all the aspects of production the work reflected good craftsmanship with a high degree of finish. The white body fitted the earlier description given by Sir William Burton; it was translucent and very white, with a lead glaze of a lower temperature covering it. The glaze was very glassy, the potter would describe it as having a very fatty surface and quite reminiscent of the qualities found in Goss or Belleek. An area of fine turquoise glaze surrounded the egg, a rich turquoise with the hue and pureness of Sèvres or Minton's glazes. Yet, in spite of these good points, the concept and the design generally seemed weak and lacked coherence, the treatment of the subject matter was cloyingly sentimental and the overall composition seemed unsuccessful three dimensionally. On balance, the technical accomplishment and fine craftsmanship could be seen to out-weigh the fine art element.

Jewitt writing in his famous, "Ceramic Art of Great Britain", draws attention to the high standards displayed in the glazing.

"The Persian turquoise glaze made by the firm is remarkably clear and brilliant in colour and not surpassed by any other houses".
(116)

He also creates a useful picture of the range of wares produced, describing in detail a design registered in May, 1874.

"A camel teapot - the Arab tying on the bale forming an excellent handle, and the neck and head of the camel an admirable spout - is a well conceived design, and is powerfully and cleverly modelled". (117)

One of these teapots is in the collection at the Victoria and Albert Museum. The inventiveness, wit and style of its design follow in the best traditions of 'novelty teapots', from the sophisticated white salt glazed wares of the eighteenth century to the flights of unlikely fancy of today.

Jewitt makes laudable comments about the utilitarian wares of the firm, but throughout his summary it is apparent that he has placed emphasis on the high standards displayed with glaze, colour and enamel.

Towards the end of the description of Moore Brothers and their wares, he says:

"In china and also majolica, Japanese reproductions are made. In these the well-known Chinese ruby glaze has been cleverly imitated; it is rich and full in colour". (118)

This is the earliest reference to the use of red glaze by Moore Brothers. Whilst Jewitt alludes to the Chinese ruby glaze, the surface of the teapot does not remotely possess the qualities of any Chinese copper reds! It is too 'fatty', dull in tone and too mechanically perfect in colour. A good description of the metal compounds giving reds, known and understood in the 1870s, was contained in an article by Leon Arnoux:

"The sub-chromate of lead gives a very bright red, but it is very unsafe and mixes very badly; the reds made by calcining the common sulphate of iron are preferred. From this, according to the degree of fire all shades of red may be got, from an orange red to a deep purple brown. The pinks, purples, and crimsons are made from the precipitate of cassius; this is obtained by pouring a weak solution of tin in the chloride of gold". (119)

The ruby red seen by Jewitt was probably either from the precipitate of cassius or from the sulphate of iron. Whichever may have been the case, reds were difficult colours to achieve in glazes and it was an informative statement by Jewitt that as early as 1874 someone in the factory was responsible for producing coloured glazes of quality.

The two young brothers, presumably backed by talented leadership in the factory, made substantial progress in the early years. They went from strength to strength, their efforts culminating in the firm winning international awards at both the Sydney and Melbourne Exhibitions.

The new found wealth from the Australian gold rush was to make Sydney's International Exhibition of 1879 very attractive to businessmen from all over the world. Firms that were anxious to obtain a foothold in this new and rapidly developing market had difficult decisions to make. In spite of the vastness of Australia, the population was still, at this time, very small; about two and a quarter million people. The discovery of alluvial gold in the middle of the nineteenth century had caused trade to multiply dramatically. Against this background, the two Moore brothers had taken a brave and speculative decision. They would display their porcelain at both the Sydney and Melbourne Exhibitions. To do this would require courage, enterprise, a sense of adventure and a determination for expansion and growth in the firm's economy.

It was decided that Bernard was to travel with the wares, organising overall the exhibitions, transportation, sales and other generalities. It was understood that he, the practical partner, was to be away from the firm for between one and two years. Samuel was to remain behind managing the factory on his own. For one partner to be absent for such a period of time, quite apart from the financial risk, does suggest a stable and successful business. One consideration which would assist the business viability of such an exploit was that communication could in those days be achieved by cable, quick but expensive. However, orders from the exhibition, at reduced rates, could be cabled straight home for immediate dispatch; even so, there still remained a sea voyage which would delay the order for two to three months.

Miss Kay Moore still possesses several pieces of ephemera and a letter relating to the Sydney Exhibition of 1879. At one time these were all the property of Bernard Moore. His exhibitors card, looking like a miniature British Passport in dark blue and gold, containing a photograph of himself together with three small drawings thought to be the work of Frederick Villiers. (120) In a similar style is a free travel permit from the New South Wales Railways issued to Mr. Moore as an exhibitor. Ephemera, although maybe without an intrinsic value, often gives a new dimension or ambiance towards the feeling and understanding of the occasion. Bernard Moore's letter, written in his own hand, had such a quality. It was expressive, showing him as a thoughtful caring son, concerned to learn that his mother had been suffering from ill-health and concerned at not receiving a letter from her. (121) Mail in those days would take a minimum of six weeks to travel from England to Australia, possibly longer. Beyond the

difficulty of communication, the different concept of time is indicated by the slowness of allotting space to the firms exhibiting their wares. The letter suggests he was passing time for nearly ten days before he knew where his display was being placed. Then having a space, it was interesting to learn that Moore himself took on the specialised task of erecting the showcase!

After the exhibition opened, the firm of Moore Brothers was to receive an award for the quality of their porcelain. In the official record of this Exhibition, it states on page 204:

"Classes 206-216 Ceramics, Pottery, Glass etc. Moore Bros. Longton, Staffordshire - Artistic Porcelain. First Degree of Merit Special".

Later in the report from the judges, only two potteries share long paragraphs of commendation, Moore Brothers and Wedgwood and Son, J. The actual award, from the report, was 'a Small Silver Medal', which was equal to third place (the first medal was gold, and the second a large silver medal).

The report gives a good idea of the Victorian richness of the exhibits and it is worth quoting in full to show the range of work transported half way round the world, when a journey of that length was still quite a perilous adventure (there was an amusing account in, "The Graphic", of 1879 of French exhibits and trophies arriving two months after the exhibition had opened - they had been shipwrecked, rescued and finally delivered!).

The report reads as follows:-

"A very fine and well assorted collection of raised flower ornaments, all of the highest artistic design, and beautifully executed. The combinations of the various colours in all articles is very delicate and striking, and denotes great progress. An excellent collection of pâte-sur-pâte work, the originality of design and skill displayed in workmanship being of the greatest artistic merit. The colours are delicate, the glazing is very fine, and the transparency is remarkable. This firm also shows a collection of cloisonné enamel upon a turquoise ground, which rivals in colour old Sèvres. The gold burnishing is of the greatest delicacy and beauty, showing the greatest progress in porcelain decoration. We consider the combined collection as worthy of a special mention". (122)

The second exhibition which was held at Melbourne just a year later, in 1880, proved to be rather more successful than the Sydney venture. It had larger attendance figures and whereas the Sydney Exhibition made an enormous financial loss, the Melbourne Exhibition actually made a small profit.

Once again, the two brothers were to experience success for both themselves and the firm. They were awarded a Grand Prix and a gold medal by the judges for their porcelain, although the official report does not single them out for any special mention. The report says that Wedgwood, Minton and Doulton's ware were 'shown to the best advantage', the latter producing 15,000 miles of drainpipes every year, which seemed to attract particular attention. Perhaps the only comment that would embrace the Moore Brothers says:

"endless varieties in style and workmanship were exhibited by the Staffordshire and Worcester potteries." (123)

Mis Kay Moore said quite unequivocally that her father attended the

Melbourne Exhibition, although there exists no material evidence to support this comment other than that the brothers wares were exhibited there. In a sense, this was partially corroborated by his friendship in New Zealand with the military artist Frederick Villiers, who was also an illustrator for "The Graphic." He was engaged on a world tour for his paper, which included recording the exhibitions in Australia as well as visiting New Zealand. Following Villier's published work in the weekly paper gives a rough idea of the itinerary and dates of his tour. If a time lapse of three months is allowed for sending back to England the 'art work', then in the year 1880, during the months of June and July, he would have been touring New Zealand. (124) This coincides with the months between the exhibitions when Moore would have been looking for fresh business or simply experiencing the geography of this new world. It has been said that in New Zealand, they had both traversed the North Island from coast to coast, a considerably hazardous journey at that time. For this achievement, a Maori chief presented him with a ceremonial cape; a very rare occurrence and honour for a white man. This episode says much of the nature and physical capabilities shown by Bernard Moore. Although somewhat confused, it was graphically described by Miss Kay Moore, when she was interviewed.

"The funny thing is that after that, they exhibited there (this refers to Sydney). That of course was the Moore Brothers - they were exhibiting. He went on to New Zealand from there, where he met a man called Charles Villiers - he's not a pottery man is he? - who we understand to be a correspondent of "The Times." He and my father walked across the North Island of New Zealand. They were the first white men to walk right across, in Maori country from coast to coast. They had a guide called Kate and they got across. My father used to do simple conjuring tricks and they thought he was marvellous. He could make a half-a-crown disappear - you know, the sort of thing he used to do for us. Anyway, they walked across, just for the fun of the thing - for no particular

reason - and the guide gave my father a Maori cape. We had it hung on the wall. Then, in the war, a New Zealand girl, who was in the forces, was introduced by some mutual friends. It was not here but when I lived in Staffordshire. And when she walked into the house, hanging on the wall was this cape. When she saw it she said, "Oh, a Maori cape. I've never seen one outside a museum". I was quite staggered. It was a small thing, knitted in rope with feathers on it. It had been tossed about and got very tatty. Anyhow, the friends who had brought her had been very great and very kind friends to me and I thought perhaps they would like to have this cape (this was fairly recently) in order to give it to this girl who had gone back to New Zealand. I thought it ought to be back in New Zealand and there was no one here who would think anything of it. Therefore, I gave it to this friend to send to Miss Knight. So he did all the right things and wrote to the New Zealand Embassy and they got most terribly excited. Apparently it is almost unheard of for a white person to be given a thing like that - or it was in those days. They were so excited about it that they gave it a special pass to get it into New Zealand. Eventually, it went off by air - a friend took it - and with this pass it did not have to be unpacked, and it ended up in the Christchurch museum. They wrote asking for some details of it. I didn't know anything more about it, so I wrote off to, "The Times", to ask about Mr. Villier. At that time the strike was on so they wrote back and asked me to write again. I wrote again just recently and they said they couldn't find anything about anyone called Villier. So, it can't have been anything to do with, "The Times", which is rather sad. I thought I would try, "The Daily Telegraph"; it might possibly have been, "The Morning Post", which is a very old paper. But I cannot find anything about him. From there he went on to the Sydney Exhibition (Melbourne). He wasn't all that young: 50, 60, 70 - he was 29 or 30. It was quite adventurous, wasn't it? I know he was at Roto Rua just before a tremendous earthquake. There was beautiful pink terracing, geysers etc. I know he was there just before it was pretty well wrecked. It is quite nice now, but I believe it was much nicer in those days".

This was narrated quite spontaneously, showing warmth and admiration towards her father but also showing a wonderful recall of events described so long ago. I asked about the exhibition and she said, "Oh yes, of course, it was Melbourne."

In 1880, while Moore was exhibiting the firm's wares and enjoying commercial successes in Australia, the remarkable Théodore Deck was exhibiting his first collection of copper red glazes at a gallery in

Paris. John Adams, in later years to become one of the directors of Poole Potteries, was a young painter in the studio of Moore between 1909 and 1910. He recollects Bernard Moore expressing a deep interest in the experimental pioneering studio pottery of Théodore Deck, as well as the work of William De Morgan. (125) Dr. J.W. Mellor, Moore's colleague in much consultancy work after 1905 and a close friend, also writes of Deck's exhibition of copper red glazes, but at a slightly later date:

"M. Dick exhibited a fine collection in 1880 (writing about the copper reds - the type-setter has mistakenly placed an 'i' in the name instead of 'e')." (126)

The achievement then of Deck's copper red glazes and several other European potters, was known and understood prior to 1905 in Staffordshire. John Adams, reflecting back to the early interests and enthusiasms in monochromes and new surfaces:

"the fever about Persian effects and lustres, crystalline and glaze effects infecting successive potters on the continent and in England..... Everything must have roots and every aesthetic and scientific advance is led by other men's discoveries. Trees without roots do not grow to the sky". (127)

After a welcome return to England, with fresh experiences and adventures in both Australia and New Zealand, Bernard Moore must have found difficulty in settling down to the highly ordered industrial society of the 'Potteries'. Shortly after his return, he fell in love with Mary Frances Dawes and following a courtship they married on July 28th, 1884. His bride was eight years younger than him, being born on April 6th, 1858. She bore him two daughters and two sons. Sadly, they were

to share only five years of married life, living at Crayford. Mary died just seven days after giving birth to Bernard Joseph Moore. She was in poor health before young Bernard was born, suffering from puerperal fever which was brought about by contaminated water from a well. (128) The Moore family were devout Catholics, and the entry of his wife's death on the 'Family Register' page of their bible was:

"Mary Frances Moore died on December 27th at 5am 1889, fortified with all rites of Holy Church R.I.P."

The Moore Brothers rarely failed to achieve some recognition or accolade at International Exhibitions, and once again the 'World's Columbian Exposition' held in Chicago in 1893 was to prove no exception. They were awarded yet another 'Grand Prix' for the quality of their work. The Royal Commission for the Chicago Exhibition of 1893 had this entry on page 224.

"352. Moore Brothers, St. Mary's Porcelain Works, Longton Staffordshire. China tea, breakfast and dessert ware, ornamental table decorations, candelabra, lamps, vases, pâte-sur-pâte".

This broad spectrum of work was shown in America, very similar to the selection chosen for Australia in their earlier business exploits. The range gives a good indication of the variety of wares which continued to be produced at Longton in the last decade of the nineteenth century.

Contemporary with the Chicago exhibition appears the earliest example so far of Bernard Moore's commitment and research into the use of the copper red glaze. The evidence to support this view was discovered in

a Sotheby's auction catalogue, dated March 22nd, 1973; and described thus:

"A rare Wedgwood earthenware bowl by Bernard Moore, signed, the shallow rounded bowl supported on three ruby crayfish feet, the exterior painted with crab roundels on a smoky grey ground, the interior entirely ruby, 9 ¼ in; 25 cm, impressed Wedgwood, Etruria, England and date code for 1893. There is no record of Bernard Moore being employed at Wedgwood but he was closely acquainted with members of the factory and possibly decorated the piece for them, the body being a standard shape".

The accurate description of the glaze indicates that the bowl was fired in a reducing atmosphere, so it was likely that Moore would have fired the work, since this was a specialised and delicate operation, demanding some experience. It was interesting that this red glaze with the smoky grey ground could have equally described much of the later work produced in the Edwardian decade. (129)

Not only was Moore acquainted with employees of the Wedgwood factory, but it was more than likely he was also friendly with members of the Wedgwood family at that time. At a slightly later date, correspondence took place between him and Audrey Wedgwood, when she was managing the family business, and she often sought his advice and friendship. (129)

Josiah C. Wedgwood also held Moore in high esteem. In Wedgwood's book, 'Staffordshire Pottery and its history', published before the first world war, he wrote this:

"From an artistic point of view the only improvements of recent times - Besides M. Solon's pâte-sur-pâte and Doulton's stoneware - the lustre ware of Mr. William Burton and the 'flambé' ware of Mr. Bernard Moore..... He (Burton) and Mr. Moore are the most enterprising chemists and experimenters of the present race of master-potters, and their efforts have also been accompanied by a marked improvement of taste in enamelled earthenware and porcelain". (130)

There was also a possibility that Moore was invited by the Wedgwood family to decorate some wares with this new ruby glaze. The third possibility was the accepted practice at Wedgwood for visiting artists to decorate standard blanks. (131) Whatever the truth of the situation was, the date itself of 1893 has some ceramic significance.

At a simplistic level, two main methods were used in the production of copper red glazes. One, with copper as a slip or an integral part of a glaze; the other, applying copper compounds by various means to the glazed surface of the wares; this could be carried out at low temperatures with soft glazes. Copper lustres were produced in this way and if the lustre firing was prolonged at a slightly higher temperature the copper would break up into the glaze giving a red colour. William De Morgan had been experimenting in the field of lustres and on May 31st, 1892, he delivered his famous lecture on this subject to the Society of Arts. Nearly a month later, on June 24th, it was published in the, "Journal of the Society of Arts". De Morgan gave a history of the subject, followed by a frank and detailed account of his researches, explaining the bodies, recipes of lustres and a number of different methods of achieving reduction firings to make lustres and ruby red glazes, just one year before the Wedgwood red glazed earthenware bowl was manufactured.

Another contributing factor to Moore's deep interest in experimental glazes was undoubtedly his association with Sir William Burton at this period. Particularly so, as Burton was an active member of the Society of Arts, he lectured there himself on a number of occasions and would therefore be fully cognisant of De Morgan's generous revelations.

They both had a compelling enthusiasm for the copper reds, as well as a mutual professional involvement in the fields of pottery and science, according to Lomax. Abraham Lomax was Burton's chemist at the Royal Lancastrian Pottery and he wrote the following words as a description of his employer's personality.

"Similar things can be said of him for, in all who come under his spell, he kindled and fed the flames of interest, enthusiasm, and desire to excel. This strange power emanated from him effortlessly; he was a genius in whom artist and scientist were combined in an effusive and dominating personality." (132)

This friendship between a master potter and a talented chemist may well help to interpret Moore's words spoken to a reporter from the "Pottery Gazette" in 1905. When he stated that 'he has devoted ten hours a day to chemistry for twelve years.' (see page 111) This precise number of years recalled by Moore subtracted from 1905 would give the date of 1893.

It could always be argued that the Wedgwood bowl, in spite of the date code, was just a blank used by Moore for glazing at a later date, although it would be unusual for Wedgwood to release such blanks. It does seem probable then, that the preceding evidence would give credence and support to the likelihood that the glaze stems from this comparatively early date of 1893.

One of Moore's painters at Wolfe Street named Hilda Carter has given an important description of his process, for the low temperature copper reds. The technique described was basically the same as De Morgan's in approach. It was also the same method depicted by William Burton in a

lecture given to the Society of Arts on "Lustre Pottery," on April 30th in 1907. Hilda Carter has written this:

"The Rouge Flambé was mixed into a grey slurry with a medium which I suspect contained ball clay, mixed to consistency which enabled the paintress to produce intricate designs, always visible during the decorating process against the white glazed background of the piece. The medium was not affected at the first firing except to deposit the Rouge Flambé which dried on as a grey deposit. This was finally "polished" off to reveal the typical red pattern." (133)

Parallels to the methods used by both De Morgan and Burton are quite apparent. The approach of Burton is perhaps more similar.

"All that is necessary is that some compound of copper or of silver, or mixtures of the two, should be mixed with a suitable proportion of some inert substance, which can be either china clay or ordinary red brick clay..... The mixture of clay and metallic salt having been carefully ground, like any other pottery pigment, can be painted over the fired glaze, using any ordinary potter's medium, that is they can be painted on with turpentine and fat oil, with sugar and water, or, as the mediaeval potters did, with vinegar. (then follows a comprehensive summary of reduction firings). When the pieces are taken out of the kiln they are still coated with the lustre pigment, which can, however, be easily scrubbed away with soap and water, unless the temperature has been too high, when it will be found that the lustre mixture has been fused into the surface of the glaze, leaving a nasty grey non-metallic film and a spoilt piece of ware." (134)

John Adams indicates a similar low temperature technique by writing that the flambés and the silver lustre were decorated together, suggesting a firing of no more than an enamel temperature being used in Moore's studio. (135) Of course within these simplified parameters there was sufficient room for manoeuvre for many personal variations with body, glaze, metallic compounds and firings. Illustrating this point, curiously enough, was the statement made by Burton in which he says that he does not know what processes Moore employs.

"During the last year or two fresh attention has been paid to the lustre process in this country, especially by Mr. Bernard Moore, the famous Staffordshire potter, and ourselves, and although we are the best of friends and freely criticise each other's work neither of us knows the process used by the other. I should like to say that I consider many of Mr. Moore's effects not only novel in themselves but strikingly beautiful." (136)

From the foregoing information, a number of pointers and details suggest a firm link between Moore's methods and that of the technique practiced by De Morgan. The most obvious and persuasive argument being that many of Bernard Moore's dark red glazes have a strong similarity to some of the reds of William De Morgan. Some typical examples to illustrate this assertion would be the small 'mei-p'ing' forms from the Andrade collection at Plymouth. Another pointer is the evidence of dating; Moore's earliest known copper reds stem from 1893, one year after De Morgan's address to the Society of Arts. John Adams contributes corroborative information by writing that the flambés and lustres were fired together in the same kiln, suggesting the low temperatures used by De Morgan. Both Tomlinson and Hilda Carter write that the painting was carried out on top of a white glaze, in the manner of De Morgan. A further point has been supplied by Hilda Carter, who thought that the medium used for the reds was ball clay. This indicates a lustre recipe, particularly as the 'grey slurry' she describes could well consist of black copper oxide, commonly used for reds, and the ball clay. Certainly the two ingredients mixed together would give a grey slurry. The hypothesis that Bernard Moore's inception to this field was, in some part, motivated by the implicit revelations presented by William De Morgan has been further supported by following similar practical experiences. Of course, Moore made many personal contributions to this field and the aim of the exercise has not been

to reproduce his glazes but rather to see if De Morgan's comprehensive instructions could have provided a direction for Moore.

Firstly, a series of tests were carried out at the traditional earthenware temperature, to see if the technique for natural lustres was feasible for copper red glazes. William De Morgan gave two guiding comments about the base glaze. He mentioned that the beauty of the Persian lustres may well be due to the use of an alkaline glaze and secondly that tin glaze was the most susceptible to lustre.

Accordingly, an alkaline glaze was prepared and made opaque by the addition of tin oxide (further technical information see page 266). The glaze with the additional tin had an astonishingly wide fluxing range of over 200 deg., stretching from 1040c to 1280c, so it was applied to all of the varying tests, even when different temperatures were used.

The test piece no.10, a porcelain body, was fired to a biscuit temperature of 1060c. The alkaline glaze was applied by dipping and then fired in an oxidised atmosphere to a temperature of 1100c. A lustre recipe was prepared from the information given in De Morgan's discourse, containing, in the main, china clay and copper carbonate. The china clay is slightly more refractory than ball clay and the copper carbonate replaced De Morgan's copper scale (the copper scale is verdigris, which in turn is mostly copper carbonate). The copper carbonate could equally be replaced with black copper oxide. It was necessary to add gum arabic to the recipe to help the lustre in its liquid state to adhere to the smooth shiny white glaze. It was also necessary to heat the test piece, thus allowing the liberal application

of lustre to dry quickly, so that not too much of it ran off. The test piece was then fired in a small front loading electric kiln with green wood being used to obtain the reducing atmosphere.

The normal lustre is achieved by having a very smoky atmosphere for a short time at a dull cherry red heat with the kiln then being allowed to cool. De Morgan advises prolonging the reduction to obtain the copper reds. After a number of experimental firings, reds were obtained after lengthening the reduction in the test kiln to three and a half hours. After each reduction firing, the kiln had an oxidised firing to remove the coating which forms on the elements so that the wear on the kiln was not unduly hard. An open grate was built in the chamber to prevent ash getting to the elements. Measured quantities of wood were fed through a bung-hole in the top of the kiln. The door, the bung-hole and all other apertures were sealed with clay once the reduction was underway; this helped to ensure that the gases remained in the chamber as long as possible. There were many failures. If the firing was under-reduced the test piece remained pure white under the grey powdered clay. Over-reduction, the clay was scratched away to reveal a battleship grey. When the firing was judged correctly, it was really quite a thrilling experience to see the warm red appear after rubbing away the neutral grey powder. The middle toned red glaze on test no. 10 was identical to similar tones seen on certain pottery of William De Morgan (the log of this firing no. 270 is included in the technical appendix, page 268). The strength and the length of the reductions were most important considerations.

The second series of tests, based on the work of William De Morgan,

were represented by test piece no. 11. This was an attempt to produce the reds by the lustre process on higher temperature work. Since much of Moore's work is on porcelain or bone china that has vitrified, a test piece of porcelain with an alkaline glaze was fired to 1280c. At this temperature, the body had vitrified, showing a remarkable difference in shrinkage. The lustre was applied to this matured body with a high temperature glaze and fired in a similar manner. The only difference being that it was necessary to take the lustre firing a little higher, up to 800c, to allow the harder glaze to soften. The resulting reds were richer than the earthenware tests and the attached test no.11 is a facsimile in colour of a glaze on a personally owned vase by Bernard Moore. The final example no.12, came from a number of tests carried out with a bone china body fired to an earthenware temperature and using the same alkaline glaze and lustre. All of these pieces were pinkish in colour and possessed an atmospheric cloudy surface but where the lustre was thick a dullish red appeared.

These three examples, no.10, no.11 and no.12 are selected from a series of tests which spring directly from the information supplied by William De Morgan. They furnish the final proof that establishes the influence and direction of Moore's development with his low temperature copper red glazes.

The process is a difficult and delicate one, yet it could not be compared to the sensitivity and control required for the higher temperatures. The type of kiln used is quite critical. Earlier in the century, full muffle kilns were manufactured with secondary gas burners in the muffle to burn away the unwanted oxygen. These kilns

gave the very controlled atmospheres so necessary for the red monochromes. Today, they are not considered safe for general use so they are not available but ideally this would have been the type of design Moore needed to produce with some certainty controlled reduced firings. These kilns compare very well with the saggars used by the Chinese for their red monochromes, having the slow burning rice husks within to deal with any oxygen that escapes the main reduction taking place outside the saggars. (diagram of Chinese saggars page 278).

The tones and intensity of Moore's low temperature red glazes vary considerably and in view of the kind of technique involved, this is not surprising. Yet, there is a type of red used by Moore that is obviously a product from a slightly different process. It is quite commonly found. It has a very sharp, bright red glaze of an almost poisonous intensity, looking very much like an enamel. One such glaze exists on a Moore pot in a personal collection. Apart from the richness, close inspection reveals that a metallic slip, possibly iron, has been used under the red glaze and there is no evidence of a white base glaze. Similar intense reds were produced by Edward Wilkes, when he was working for the Howsons. They are easy to identify in that when the glaze has been wiped from the foot the dark slip remains. I mentioned this to two colleagues, Dr. Harpum and Dr. Rollinson, both geologists, and they said that the elements in the glaze could be easily analysed with an electron micro probe. A flake of this glaze was carefully removed from a damaged Moore pot with the aid of a diamond cutter and mounted on a special slide with a metal foil frame. It was analysed at Leicester University by their analyst, Mr. R.N. Wilson. (Page 273)

The main elements present were lead, silica, alumina and copper. There were no traces of silver, gold or chromium which were partly expected. The probe only penetrates to a slight depth below the surface and whilst proportions are visually indicated by graphs, in practice, to deduce recipes from this information proved to be totally inaccurate since the glaze is built up in laminae of differing compositions. Two facts were worthy of note in the analysis; the high content of lead, nearly one sixth of the total recipe consisted of lead, so that the geologists were firmly convinced, in spite of the layering, that a great deal of lead was present in the glaze. Secondly, the results indicated that six per cent of copper was present, the same proportion that Salvétat discovered in the Chinese glaze. If the copper was applied by the lustre process it would be concentrated near the surface.

The other interesting observation from this slight diversion was the nature of the body of Bernard Moore's pot. After the glaze flake was removed, the body of the pot was exposed, revealing a very white and soft porcelain body, far from its maturing point, suggesting a low earthenware firing range.

From all of the foregoing information, it is now apparent that the work of William De Morgan especially and the knowledge of lustres already understood in the Potteries, together helped to form a significant resource for part of Moore's researches with the low temperature reds.

(137)

If Bernard Moore's earliest red glazes had been on porcelain and fired

at a high temperature then the roots and inspiration of his experiments would have been sought in Europe, looking at the work and publications of men like, Salvetat, Seger, Deck, Lauth, Vogt or Doat; alternately, the bulletins printed by the "Ministere de L'Instruction Publique et Beaux Arts," covering the experimental red glaze research at Sèvres in the 1880s. (138) From the limited evidence, it appears that Moore's interest in this sphere occurred at a much later date.

Prior to 1893, the high technical perfection in glazes had been apparent in the work of Moore Brothers, as was the versatility in colour of their glazes, particularly in the range of wares bearing the earthenware 'majolica' type glazes in the Minton tradition. Jewitt singles out the qualities of their enamelling, glazes and colours, which were mentioned earlier in the text. To achieve such standards suggests that painstaking tests and research were carried out in the early days of Moore Brothers.

Drawing a parallel with Mintons substantiates this thought, in that the fine Minton archives were and remain the most comprehensive and illuminating documents in this area. Leon Arnoux, 'Art Director and Superintendent' of Mintons from 1849 to 1892, was a most exceptional man of many great talents. His large leather bound glaze recipe book still exists. Written in a fine copper-plate hand with a bistre type ink, the book records the systematic efforts made to develop and refine many bodies, glazes and colours. The famous turquoise glazes of Mintons were equated with continuous testing over the years, subtly changing in quality or adapting to fresh bodies or pastes. Likewise, though developed much more quickly were the numerous coloured glazes already

mentioned which were confusingly known as 'majolica' glazes. These were introduced on Italianate ware at the Great Exhibition of 1851. In a similar way research of this nature must have been carried out at the St. Mary's Works, possibly with Moore cast in the same role as Arnoux. The fact that Moore became a ceramic consultant in later life would help to support this assumption, as well as the red glazed wares, marked 'English Longton', that were being produced at the Moore Brother's manufactory before 1905.

Little documentation was discovered for the years leading up to the end of the century. Since Samuel's death in 1885, Bernard had successfully taken control of the firm and there is no reason to assume that the business was anything but flourishing. The last recorded design was registered at the Patent Office on January 9th, 1891. After that date no entries appeared up to and including 1905. Richard Pilsbury had been appointed Art Director and Chief Designer in 1892 and remained so until his death in 1897. He was a talented modeller, whose centrepieces and decorative lamp bases were individually mentioned in the sale of Moore Brother's work at the closure of the factory in 1905. (139) Percy Shelly the master potter, writes praise of an exceptionally talented potter's manager in a Mr. Hackney. He was at Moore Brothers in the latter years and he was believed to have been trained at Mintons, but no other information was forthcoming. (140)

After the Wedgwood lobster salad bowl of 1893, the earliest red glazed wares so far discovered were dated 1902, leaving a period of nine years between the two dates. It is certain that many items with experimental red glazes must have existed in that period and later documentation

would strengthen this supposition. There are examples in both the British Museum and the Leicester Museums bearing the date of 1902.

The Plymouth City Museum and Art Gallery possess a large collection of Bernard Moore's ceramics, bequeathed in 1952 by Cyril de Costa Andrade, an antique dealer and writer. Amongst this most varied assortment of his wares is one small red glazed vase with veined textures that appears to have been made in 1901. The museum records that date on the accession card but after some personal deliberation, it now seems that the numeral resembling a one, could well be the back upright stroke of the figure four, after a slight glaze flow had caused some obliteration. (Acc.No. 1952.53, see photograph on p.225).

All of these early wares have a low temperature deep red glaze on a white porcellaneous body. The surface of the glaze is very shiny and the colour has gentle variations. Some of the vases have additional marks, veins or textures which could well have been achieved with splashings of uranium or chrome oxides, while others have painted decoration. Positive information has not come to light on the recipes he used for this work, although visually, apart from the glassy surface, the reds are reminiscent of the glazes produced by William De Morgan. Moore's notebooks do not contain knowledge that contribute any enlightenment to this area. Miss Dawson, in her book on Moore, records the ingredients for one particular underglaze colour romantically called 'Peach Blossom'; that was found amongst Moore's belongings now owned by his grandson. Sadly, this has nothing whatsoever to do with his personal glazes. The same recipe was fully documented in a book called "Pottery Recipes", and printed word for word at the much earlier date,

than any she quotes, of 1884. (141)

In the year 1901, Moore was engaged as a consultant, being paid a very high fee for his experienced services. It seems certain that he was appointed to assist with the red glazes at Doultons, because he was already quite knowledgeable and successful in the lower temperatures of this area. Otherwise, why should such a lucrative position have been offered to a master potter who was committed as a director of a large porcelain manufactory? Moore's secrets and his abilities were being sought in the hope that they could contribute to solving the problem of red glazes for factory production at the higher temperature.

Lomax writing in his book of Lancastrian Pottery, describing events at the turn of the century says:

"William Burton was enamoured of Chinese flambé. He often spoke of its glories, and wrote effusively about it. He was impressed with Bernard Moore's achievements, and with the exhibits of flambé at the Paris Exhibition of 1900. I am unable to trace how early we began our experiments for it, but the records show that in the period from April 1901 to May 1904, many were made, and all of them were suggested by William Burton." (142)

Then again, in a similar manner, writing in the same book about William Burton:

"Early in his career as a potter he became acquainted with the eminent potter, Bernard Moore, and was very much impressed by his successful reproductions of some of the famous glazes of the Oriental potters, particularly flambé and turquoise. It may have been this association with Bernard Moore that inspired William Burton to attempt similar reproductions. If this association did not initiate the idea in his mind it certainly intensified his longing to make the attempt." (143)

William Burton had worked as a chemist for Messrs. Josiah Wedgwood and Sons during the years 1887 to 1892 and inevitably the paths of Moore and Burton would overlap. While Burton lived in the Potteries, he had directed his considerable talents towards the application of science to pottery. He had also taught at the Wedgwood Institute in Burslem as well as the Science Schools in Hanley. A cultured and well educated man, Burton was also a gifted speaker, giving numerous lectures on the subject of pottery in the district. (144) For all these reasons together with the shared addiction and enthusiasm for the copper red glaze, his association and friendship with Moore was strengthened by so many similar interests. It may well be that Burton's influence helped to motivate Moore's intense study of chemistry in the twelve years before 1905 (see page 111).

The two quotations from Lomax, combined with the engagement of Moore as a consultant for Doultons, establish credence to the conjecture that there was considerable activity in the copper red glaze research by Moore, between the years 1893 and 1902.

The engagement of Moore by Doulton's, mentioned earlier, was made at the suggestion of John Slater, the art director of the firm. Slater and Charles J. Noke had themselves been experimenting with copper red glazes earlier in the 1890s. (145) The proposal was that Bernard Moore should work with the young Cuthbert Bailey as a part-time consultant for a fee of £2,000, a very large sum of money in those days. (146) Cuthbert was the son of the factory manager, J. C. Bailey. They aimed to follow in the footsteps of Seger and produce copper red glazes in a repetitive manner that would be economically viable. Seger claimed to have

achieved this in 1883, saying it was one thing to produce a pot with a red glaze but quite another to have a controlled production line. Doultons, who became Royal Doultons the same year these experiments started, was probably the only manufacturer in this country to be successful with a production line in this field at the higher temperature. It was perhaps predictable with the backing of Royal Doultons and the considerable combined talent of men like Moore, Bailey, Noke and Slater that their venture would be finally resolved by the successful commercial production of copper red glazes. Generalising, these glazes were in no way similar to the Oriental reds, they lacked the subtleties and variations that the Chinese glazes possessed. Most of the Doulton glazes had a very glassy surface with a uniform red colour, giving a quality of perfection that reflected industrial production. Nevertheless, the result of this research was a fine technical accomplishment by this team in a most difficult ceramic area. Bernard Moore had always held a deep admiration for the ceramics of China and it was possible that this experience with Doultons motivated his experimental work towards the higher porcelain temperatures. Wilton P. Rix writing in the Art Journal for 1905, says:

"To Mr. Bernard Moore undoubtedly belongs the credit of the first reproduction of these old effects. Beyond this, he is also to be congratulated on the inspiration he has given to Mr. Cuthbert Bailey, whose persevering study of technical conditions has enabled him to bring from the kiln many pieces of "Rouge Flambe", "Peach Blow" and "Haricot" which vie with the best examples from the East." (147)

Doulton's 'flambé' wares were first shown at the 1904 St. Louis Exhibition in the United States, the fruits of much labour from the whole team that worked on the project. The success was astonishing.

and a number of awards were collected for these remarkable exhibits, which owed a great deal initially to the talents and experience of Bernard Moore. Tiffany's ceramic expert with a specialised knowledge of Chinese Art said of this achievement:

"I can safely say that for perfection of glaze, as well as for exquisite colouring and purity of form, they rival the finest of the Chinese. As collectors have already given up in despair searching for choice specimens of the early Chinese red glazes, they have at least the satisfaction of knowing that they can now acquire superb examples in Doulton porcelain, made in the same manner, coloured, streaked or mottled, which are their equal chemically and artistically; in fact have everything that the most enthusiastic collector could desire but antiquity. From the complicated nature of the process, every piece is practically an individual specimen, bearing upon it the marks of the master, and worthy, therefore, of its place in the finest collection of ancient or modern pottery". (148)

This enthusiastic reception of many superlatives from Arthur V. Rose, was reiterated by the judges who presented Doultons for their flambé and other ceramics, thirty awards, two Grand Prix and four gold medals. (149) This surge of approval from the expert at Tiffanys was generous in the extreme, generous to the point of questioning the validity of his exaggerated appraisal. Did Doultons really 'rival the finest of the Chinese' porcelain? Was the three years spent on research in the Potteries to be equated with the standards achieved by Imperial patronage over the centuries? Had Mr. Rose seen and handled the finest of Chinese porcelain? The credit and congratulations were earned by Doultons for this success but observation would suggest that the flambés and monochromes they produced were just different to the traditional glazes from the Far East.

Apart from being a director of a large porcelain works and a ceramic

consultant for Doultons, Bernard Moore was also supportive to a number of societies and industrial organisations. He read many papers to the Ceramic Society and he was elected as their President during the period 1902-3. (150) His stature in the potteries as an industrialist together with his specialised knowledge and experiences caused him to be involved in several Public Inquiries of differing natures. Amongst his most important contributions in this area were his strenuous efforts to control the dangerous lead compounds involved in general ceramic manufacture. The use of free lead in the Potteries and the appalling statistics of death through lead-poisoning were frequently discussed by Parliament, the Home Office, manufacturer's associations and many other public bodies. Accordingly, acts and regulations were introduced, around the turn of the century, in an effort to protect those men and women who were unhappily employed in the use of this toxic material. One such official inquiry, whilst more concerned with the manufacturer's opposition to inappropriate legislation, did include Bernard Moore and his thoughts were expressed on this emotive and delicate subject.

Moore with his friend and colleague William Burton and Rawdon Smith were elected to represent the pottery manufacturers at an Arbitration Proceedings in November, 1901. Essentially, the main discussion was centred around the merits of fritted lead glaze and unfritted lead glaze. The ill-advised Home Office sought to impose 'particular compositions' on the manufacturers before they had been proved practicable. The evidence and services rendered by the three chemists caused the civil servants to adjourn the unpopular portions of the proposal for a further eighteen months. In appreciation of their successful efforts the Association of Pottery and Tile Manufacturers

held a complimentary banquet for Moore, Burton and Smith on the 18th December, 1901. At this gastronomic celebration, the local press reported the end of Bernard Moore's speech.

"There were men, finally, who thought that a brother manufacturer who used leadless glaze or a glaze of low solubility, or even one who fritted his lead, was a kind of traitor. He cared nothing for the opinion of such men. He recalled the words of Lord James, who hoped the manufacturers would do their best to make the world around them a better world and to improve the conditions of their workers. If he (the speaker) refrained to do what he could, he would stand there ashamed. If ever restrictive legislation of an injurious character were imposed upon the trade, it would rest at the doors of those who sat still and did nothing to improve their methods." (151)

This rhetoric conveyed a slightly stiff forthright quality, perhaps as one would expect from an employer, although an employer who recognised the desperately serious problem that the Home Office had to resolve. The idealism of the 'better world' was carried into Moore's own factory at Longton, when his firm ceased to use free lead in the glazes employed there. (152)

Miss Kay Moore spoke with some degree of emotion about her father's deep concern at the irresponsible use of lead in the Potteries, saying that he had a life's ambition to eliminate lead poisoning. So, it was with considerable alarm and consternation that Moore learned, during this sensitive period, that one of his decorators at the St. Mary's Works was suffering from the much feared lead poisoning.

"I know he was terribly upset and he could not understand it. And they found she was a paintress and she had been licking her brush. The brush was held in with metal and she had absorbed the lead from the metal on the brush. She did not have it badly, but it is a very insidious thing lead poisoning, it builds up." (153)

Low temperature enamels, as with certain glazes, could contain a high proportion of lead. To shape or point a brush in the mouth when painting with enamels would be a very dangerous action, easily leading to a toxic condition. This could more readily account for the poisoning of the paintress, rather than her licking the metal ferrule of the brush.

A few years later, Moore was again involved as a member of the Departmental Committee on the use of lead in the Potteries, giving evidence before a variety of statutory bodies, as well as the Smoke Abatement Inquiry. (154)

1905 was to prove a catastrophic year for Bernard Moore. At the age of fifty-five, he was forced to sell the whole industrial complex of porcelain manufacture at Longton, to honour debts incurred by a syndicate of which he was a member. This tragic occurrence was to terminate, after all this time, the successful family business of Moore Brothers at the St. Mary's Works, leaving a desperate situation for Bernard Moore to resolve.

It has been said that the syndicate was involved in monopolising supplies of bone, although Miss Kay Moore spoke with conviction of distributing 'this clay to the potteries.' (155) Apart from the recorded spoken word, no other evidence has come to light to establish the truth of this predicament.

"They lost a lot of money in some sort of clay syndicate and they formed a company to distribute this clay to the potteries. It was an unlimited company and something went terribly wrong and it went bankrupt. We were liable. Well, the other six people in it

declared themselves bankrupt, but my father said, no, he would take on the debt. The bank and other people told him it was very silly and that he should go bankrupt and start again, as it were. But no, he thought it was a debt of honour. In those days, £32,000 was a tremendous amount of money. So they sold the works to pay the debt. It paid the debt, but that meant he had no money and he had to start practically from scratch, with nine of his brother's children and three of his own. Who would do that now-a-days? But nobody would have nine children now-a-days, would they?" (156)

The debt of honour being settled in that manner says much about his character and it really confirms the written words of Gordon M. Forsyth:

"From a worldly point of view Bernard Moore was not a success, because money-making had no place in his life. He could if he had so desired have been a very wealthy man, but he preferred mental and spiritual riches to the more material form of wealth." (157)

At a more factual level, the trade magazine, "The Pottery Gazette" records the closure of the Longton Porcelain Works in the following report.

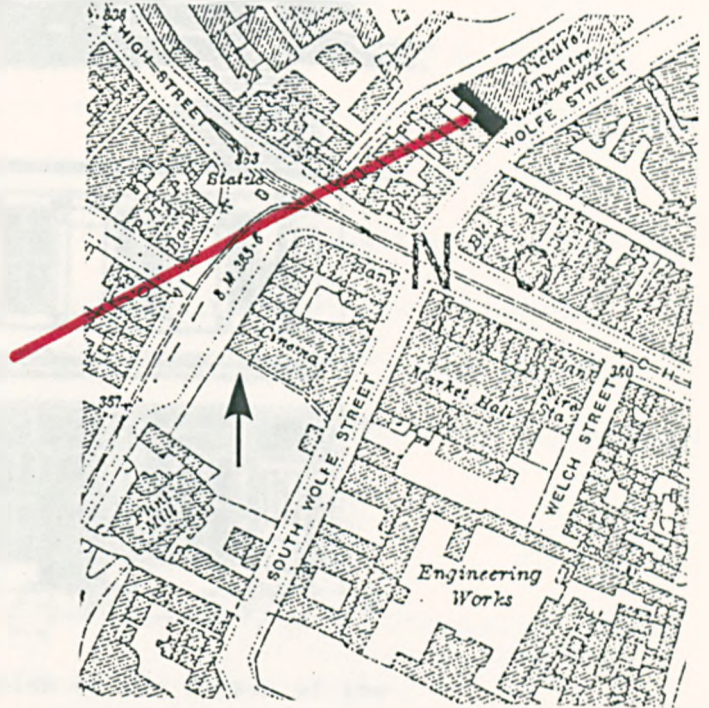
"The intelligence has been received with unmixed regret in many quarters that Messrs. Moore Brothers are giving up the St. Mary's Works, in High Street, Longton, and that Mr. Bernard Moore, the head of the firm, is removing from the town. The loss, both to the china trade and the town of Longton, will be a heavy one, for the business has for many years enjoyed a worldwide reputation for its artistic productions." (158)

The trade magazine goes on to say that Mr. Moore has been invited to set up a pottery in America but the probability is that he will stay in the area and 'open a factory solely for special art ware.' In fact he did decide to remain in the Potteries, moving his place of work just a short distance to Wolfe Street, near the centre of Stoke on Trent. In a comparatively small terraced building he established both a ceramic

consultancy and a tiny art pottery which would enable his considerable talent, experience and compulsive interest in specialised glazes to continue. This pottery activity was contained mainly within the building in three ordinary domestic sized rooms but to call it a factory would be a most exaggerated and misleading description. The scale of operation was more similar to that of a studio pottery organisation. "The Potteries, Newcastle and District Directory," published by the Staffordshire Sentinel Ltd., Hanley, in 1907, shows that the new premises were set between an oyster merchant called Antony Noccetti at number seven and a tile merchant on the north side named Leonard Wood, whilst Bernard Moore at number nine was described as a "consulting potter."

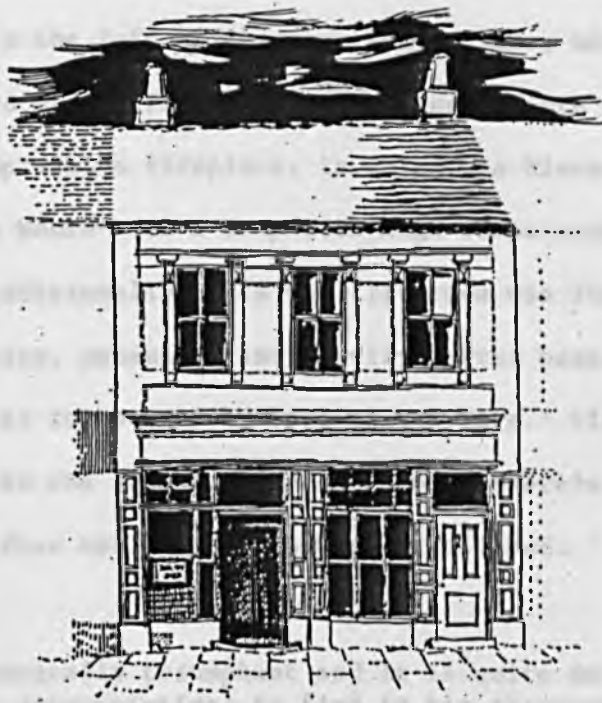
The facade of Moore's new property had a length measuring approximately twenty three feet. This frontage contained two entrances, the larger one towards the left was used for direct access to the showroom, while the other door on the extreme right opened up to reveal a staircase leading to the upper floor. Attempts were made to trace the previous business carried out on the premises, largely to see if there was any evidence of a small bottle kiln erected in the rear yard. Directories and rate-books were searched for this purpose but the efforts proved to be unsuccessful. In essence, the building was designed like a small shop with the largest room, Moore's showroom, being used as the main selling area. Outside, at ground floor level, the bricks and mortar were clad generously with panelled wood and surmounted by a fascia board, having the appearance of a late Victorian or Edwardian shop-front, whilst the upper part of the building was rendered with decorative pilasters around the windows and at the two extremes of the

Detail from Ordnance Survey
Map of Stoke on Trent, 1924,
scale 1:2500 - showing the
location of Wolfe Street with
Moore's Pottery next to the
Picture Theatre.



Detail from aerial photograph
of Spode Works, 1929; showing
the rear of Moore's Pottery
alongside the towpath of the
Newcastle under Lyme Canal.





Reconstruction of the facade of the showroom in 1913, built up from fragments of a photograph of that period and the building as it stands today. The frontage measures twenty three feet.



Rear of Bernard Moore's premises as they are today, identifiable on the aerial photograph. The high wall on the right and the marks on the wall opposite show evidence of a roof across the yard. This is indicated as a line on the Ordnance Survey Map.

facade. In the Edwardian days, Moore fixed a brass repoussé name-plate in the window to the left of the showroom entrance, which simply stated, "Bernard Moore, Potter." (159) Passing into the showroom, there was an impressive fireplace, in which the Minton tile blanks had been covered by Moore with a deep rich high temperature blood red glaze. (160) Additionally, this well lit room was furnished with appropriate tables, pedestals and heavily carved bases supported elegant showcases to house 'the special art ware.' (161) The Rhead brothers describe one such display containing Moore's best experimental work, shortly after the new studio was established.

"It is technically triumphant and it is quite delightful (though in a sense disappointing) to find in his showroom a case of pottery - perfect in colour and artistic feeling - which he will not sell, but prefers to retain for mere pride in its accomplishment." (162)

A rather strong assumption, since the work displayed must intentionally have been a fine advertisement to many of Moore's clients who came beset with their own technical difficulties. They must have gained assurance and succour from seeing these 'triumphant and delightful' examples from the consultant who was to help solve their problems. From the back of the showroom, a door led to a narrow yard about ten foot wide, flanked on the right by a spur of the building, while on the left stood an unusually high and purposeful dividing wall with a height of approximately ten feet. Tomlinson writes that in his day, this yard contained "a normal bottle-oven fired with coal....which no one was allowed to enter." (163) Possibly this exceptionally high wall was used as an additional buttress to the kiln? Only about an eight foot length of this wall exists today so that it is not possible to pursue this

conjecture. Although, Hugh Vavasour, the grandson of Bernard Moore, also recalls a bottle kiln at the far end of the backyard at Wolfe Street when he was a young boy, but he could remember no detailed information. Adams, who worked for Moore three years after Tomlinson, records "a large gas muffle in the yard of the premises." Both the side of the building and the wall carry evidence of a roofing arrangement which extended across the yard. It seems likely this was constructed to protect a kiln. The large scale Ordnance Survey map published in 1924 records such a structure across the yard. (page 102) Looking at the rear of the site today, there is little evidence of the important Newcastle under Lyme Canal which used to run parallel to the lane at the back of the premises. Many changes have occurred since Moore's occupation, a number of them appear to have been carried out when the building was sold in 1936. The metal window frames look as though they were fitted around the mid-thirties. The end wall of the building by the lane has been rendered over sooty bricks. The side wall of this part has heavy wooden lintels set into the brick probably to create spaces for a horse and cart. The lintels remain but the spaces are now filled in with metal casement windows and bricks. The remains of a powerful support set into a partial column for a hinge suggests the end of the yard was closed by a heavy gate or gates. Back in the building upstairs, the space above the showroom was divided into two smaller rooms. One was used by Bernard Moore as the main office for receiving his clients, where he 'kept their records in a series of cupboards on the wall.' The same room boasted a telephone (Stoke on Trent 892) and the usual office fittings. The adjoining room, with a table in the centre, was used by the designers and decorators like Tomlinson, Wilkes and Adams. On the same floor but at a slightly lower

level, in part of the building joined on at the back, were two more tiny rooms, overlooking the yard on one side and the canal on the other. In these studios 'the plain flambé and simple patterns were painted by one or two other women employees.' (164) R.R. Tomlinson, summing up his thoughts on Moore's studio says:

"It was an art pottery in the truest sense." (165)

The innovatory nature of Moore's enterprise with special glazes and glaze effects was manifest in these very modest premises. Contemporary with Moore, other English potters were equally addicted to the arcane reds, although no other potter paralleled the scale of Moore's establishment. Notable pioneers such as Howson Taylor, Owen Carter, Charles Noke, William Moorcroft and others had all striven with the production of these seductive glazes. The historical notion that one had to have the status of an Emperor or to be nationally sponsored in order to produce glazes of this description had clearly proved false. The earlier patrons could afford the luxury of that kind of enterprise, without profit being the sole controlling motive. They were capable and rich enough to absorb failure on the one hand and permit the necessary high expenditure on the other. Research had always been notoriously expensive in all branches of industry and in ceramics it usually became the prerogative of the larger firms to shoulder such investigations. Moore, fully aware of all sorts of likely difficulties from earlier experiences, was prepared to operate in this speculative area, attempting to underwrite the risks incurred with his secure consultancy business.

In many ways, Moore's studio concept was comparative to the workshop of William De Morgan which produced the lustres and the earthenware copper red glazes. Both potteries were small and essentially art orientated, with just a few highly skilled assistants on a permanent basis. In the technical processes of the two potteries, the control of the kiln atmospheres was of paramount importance to the success of their final work. Industrially produced 'blanks' were used for the variegated rich glazes that were produced in each pottery and both men shared a common interest in the chemistry of the glazes. They were however, quite divergent in their education and occupational experiences. De Morgan had an Art background and was trained at the Royal Academy Schools. He knew and worked with many well established painters of the day and dwelling in London he was closely embroiled with contemporary cultural activities. Moore, on the other hand, was initially an industrialist and a master potter, who was fascinated by the visual and scientific aspects of glaze research. Most of his close friends and associates were either scientists or industrialists living in, or quite near to the rather insular area of the Potteries.

Tomlinson described Moore's new business saying it was an art pottery in the truest sense, presumably implying that the studio in Wolfe Street was producing pottery of high aesthetic merit, which was largely the work of artists rather than the repetitious labour of the factory system. Or, he may just have been differentiating between Bernard Moore's pottery and some of the unpleasant, very cheap factory products that were advertised, paradoxically, as Art Pottery. The term Art Pottery was very imprecise; it was commonly used to describe a small venture in ceramics, possibly an offshoot of a larger firm like Mintons

or Doultons, where the visual qualities of the ware reflect the personal statements of an artist. A glance at the advertisements of any "Pottery Gazette", around 1900 would serve to illustrate the vagueness of the term. The reproduced 'art work' in these graphics show a range of abject vulgarity in 'noveltyware' or 'fancyware' at one end of the scale, but bearing the label, Art Pottery, stretching to refined quality artefacts at the other. The prefix of 'art' seems to have possessed a powerful and commercial persuasiveness that made it financially rewarding whatever the quality of the product!

Many Victorians were aware of low standards of design and shoddy manufacture. Much has been written by nineteenth century writers decrying the effects of industrial developments on our society. Writers such as Carlyle, Ruskin and Morris were famous for their protests and their idealistic struggles for dignity of labour and quality of life, in the midst of this mechanical age.

"Men are growing mechanical in head and heart as well as in hand."
(166)

Educationists had also fought to achieve a finer quality of life. Schools of Design had been founded in the 1830s and pioneers like William Dyce and Sir Henry Cole had made worthy contributions towards raising the standards of design. The well documented undertaking known as "Summerly's Art Manufacture," also promoted by Cole, was a small but significant example of the efforts being made to improve and unite both the functional and visual standards of manufactured artefacts. Significant because a number of eminent industrialists were assisting Cole and displaying a watchful interest in the results of these

activities.

The Schools of Design and their influences; the manufacturers with their wealthy patronage; artists devoted to craft revival; the international exhibitions spreading knowledge of other cultures; all had played their roles in varying measures, ensuring the unlikely existence of the art potter in this industrial era. The title 'art pottery' then sprang from these complex strains, the prefix expressing an approval or civilised pride that the artist had been involved with manufacture, and had attempted to produce beauty in design.

Throughout the nineteenth century, much effort was made to forge this link. Prince Albert had spoken on a number of occasions at the Society of Arts on the importance culturally and economically of Art and Manufacture working together in harmony. Such was the theme of the journal, "Art-Union", the title implying that the pursuits of both parties should unite. The following quotations from, "Art-Union", 1st May, 1848, give a perspective of the value and desirability of a term such as 'art pottery', in the Victorian era.

"(writing on Art and Manufacture) In the primary ages both were combined in one person; through periods of progress they advanced concurrently; and to ensure the perfection of both, the bonds by which they are united, instead of being relaxed, should be drawn closer together in mutual alliance. The Artist offers to the Manufacturer the conception which is sure to command the homage of the public; the manufacturer enables the artist to give his conception not merely a local habitation in material reality, but an existence which admits of its being known, appreciated, admired and applauded.Let us not be misunderstood; we do not wish artists to become the servants of manufacture; we do wish them to become friends and allies; their partners in educating the people; in improving the tastes, and consequently, the morals, of the community; in developing the intellectual strength and the intellectual resources of the United Empire."

As well as producing 'special art ware', Bernard Moore probably spent the major part of his time as a ceramic consultant. His earlier successful experiences in assisting the firm of Doultons and others with their technical problems must have greatly encouraged and stimulated support for this new business undertaking. An undertaking that would supply a sufficiently stable income to support both his own family and his brother's children, who were still able to reside at their large house, called, 'The Grange' at Draycott, in spite of the financial crisis.

One of the remarkable aspects of Moore's life was his reputation in the ceramic industry as a chemist, in spite of the fact that there is no firm evidence to suggest that he received any formal training in this discipline.

"Like Michael Faraday, Mr. Bernard Moore had the advantage of not having been spoilt by a university training, so that his natural faculties had not been damped, distorted, or deflected into orthodox grooves." (167)

It was an especially fine achievement to reach such high professional standards through his own initiative and endeavours, standards that enabled him to work as an equal partner with chemists of a national calibre, men like Sir William Burton or Dr. Joseph Mellor. An article in "The Pottery Gazette" in the year 1905 says of Moore's scientific ability:

"Mr. Bernard Moore is recognised as one of the most expert chemists the potting trade possesses, and when it is mentioned that he has devoted ten hours a day to chemistry for twelve years of his life, it will be conceded that his knowledge of the science ought, indeed, to be extensive." (168)

The correspondent of "The Pottery Gazette", confirms Moore's ability as a chemist but of greater significance is his mention of the specific period of intensive study. The statement to the reporter was very specifically expressed as 'twelve years'. This was not a generalised reply, such as ten or nearly fifteen, but twelve years exactly. Assuming that Moore was referring to the last twelve years, and there seems no reason to doubt this, he would have started in the key year 1893. Significant because it was the same year as the date mark on the ruby red glazed Wedgwood bowl by Bernard Moore, made just twelve months after William De Morgan's famous lecture. Whilst De Morgan was chiefly remembered for his revival of natural lustres, with the red glazes being a by-product of secondary importance, almost the reverse was true of Bernard Moore; his name was always associated with the copper red glaze.

"Mr. Bernard Moore's two cases show the remarkable outcome of years of exhausting research which enabled him, first among English potters to reproduce the colourings of some of the rarest and most prized of Oriental glazes, and even to carry them further. The prevalent colours of this ware are splendid deep reds, which pass at one extremity into shades like those of rich, dark marble and, at the other into clouds of delicate colour."
(169)

Another similar comment in, "The Manchester Guardian", September 4th, 1909:

"This gentleman (Bernard Moore) has paid particular attention to the production of the varying shades of ruby, and it would certainly appear that he had mastered the secret of this art. Here were examples of crockery ranging from a delicate ruby to a dark brown, and each one evidenced the care that has been bestowed on its production."

The technical innovations in the Far East evolved over considerable

periods of time. Sharp observation, experience, instinct, sensitivity supported by enormous labour must have all contributed to the attainment and discoveries of the Chinese potters. Enquiring minds, and the desire to experiment were reflected in their achievements. They had no established discipline of science which could be used to explain phenomena, for the practical experience preceded the theory, or, reason followed the deed. The first copper red glazes were probably quite fortuitous, the result of a damaged flue perhaps or an accident within the kiln, that by chance gave the appropriate atmosphere. Excitement and the wish to reproduce such brilliant glazes would have been caused by such a happening. Experiments, deduction and reasoning would have eventually led to some understanding of the process involved. Such thoughts and conjecture for the Chinese potter could well be paralleled by Bernard Moore's circumstances, experience and successes:

"Research was the breath of his nostrils and he revelled in it. He talked little but said much." (170)

Gordon Forsyth, in writing Moore's obituary, speaks of his philosophy and quest for truth and beauty by quoting Moore's own words:

"Only to earnest seekers after truth does nature reveal her secrets." (171)

A.L. Hetherington, a friend and famous chemist, strengthens this comparison with an early Chinese potter, by relating the experiences of Dr. Mellor in doing some joint research with Bernard Moore:

"Naturally I wanted to deal with the problem in one way and he in another, we therefore agreed to go our own ways and link up later

on. I wanted to examine all the possibilities, ultimately rejecting those which appeared to lead in unprofitable directions, I anticipated that my friend's method would furnish what the mathematician calls a specific solution of the problem, and that the more elaborate procedure would give a general solution. Mr. Moore worked in his own way. I was very interested as a spectator. I was amazed at the unerring instinct displayed by my friend. Like a bloodhound on a fresh trail, he went rapidly ahead, and in my opinion he arrived at a successful solution of the problem in a very short time - excepting, of course, for the clean up of a few loose ends. He was well on the way to the winning post before I was ready to start. I can see J.F. Böttger proceeding in a similar manner in researches which culminated in his discovery of the secret of manufacturing Chinese porcelain in Europe, in 1709. Once or twice I was wicked enough to wish that something would go radically wrong with Moore's work so that I could observe how he would pick up the lost trail, but unluckily (!) he had no real setbacks. The research in his hands went remarkably smoothly." (172)

In spite of the dreadful set back in 1905, Moore, already well established as a consultant, had steadily built up a reputation as the owner of a small but unique art pottery, producing rare and specialised glazes. Recognition of this success was socially endorsed by a visit of King George V and Queen Mary to Bernard Moore's showroom on April 22nd, 1913. Happily, there is primary source material for this important occasion, so perhaps one may be permitted to dwell longer on this event.

Bernard Moore kept two large scrap-books of printed personal records which were filled with a variety of cuttings from magazines and papers. One volume was devoted to the meeting with the King and Queen. On the cover in embossed gold letters was the title "Royal Visit to Mr. Bernard Moore's Works April 22nd, 1913." This contained most of the available contemporary literature that was printed in the National and local newspapers together with articles from trade and other periodicals. The second book recorded a larger span of life and

it was of a more general nature relating to his speeches, his work or his family. These two red leather quarter bound scrap-books are now the property of Bernard Moore's grandson and much of the following information stems from this source, particularly the first volume.

The Royal Visit of the King and Queen to the area of North Staffordshire was the first for many years and their itinerary was announced well beforehand. The Manchester Dispatch, in reporting the details of the regal tour on 12th March, 1913, mentions specifically the schedule and the intention of the visitors to spend some time at the studio in Wolfe Street to see "Mr. Moore's rouge flambé ware." The newspapers generally set out to stimulate the excitement naturally felt by the people of the Potteries towards such an important and rare social occasion.

On the day the event was comprehensively reported in most newspapers. As planned, King George V and Queen Mary made a scheduled stop at the showroom of Bernard Moore to inspect a display of wares with special glazes and to converse with the Moore family. This occurrence was reported in at least eleven major papers and these press reports demonstrate a remarkable word for word consistency of fact and opinion, which suggests that the story emanated from one accredited correspondent. Perhaps the best coverage of the day was given to their Majesties inspection of the Minton factory, where they were shown a display of ornate and expensive wares. Moore's Art Pottery in Wolfe Street was geographically situated between Mintons and the King's Hall, where the formal reception took place. That the showroom with Moore's experimental glazes should warrant a visit by Royalty was in itself an overt indication of the esteem and importance in which he and his work

were held. Moore was well known through his awards and successes at major exhibitions and the Queen herself was a keen collector of his work. She had purchased one of his glazed vases at the White City Exhibition of 1909. This, together with the sense of intrigue created by arcane glazes as reported in the papers, may well have caused the Queen to request a meeting to see his latest achievements.

Alternatively, local dignitaries, who regarded his work highly, could have decided to give his studio a priority over many other larger potteries. A number of well established ceramic industries were not included in the crowded schedule but they were encouraged to display a selection of their wares at the King's Hall, where King George V and Queen Mary were formally received by the Mayor and Corporation.

The cuttings from newspapers in the scrap-book emphasise that Moore's experimental work was regarded as significant and his special wares were known to collectors and connoisseurs universally. The use of such esoteric words as rouge flambé, sang de boeuf and peach blow reported commonly in the press could only have been understood by the initiated. "The Times" on the 21st April, describe Moore as "a consultant potter rather than a manufacturer," and continues, saying he will present, "an almost bewildering exhibition of splendid colour." The large vase decorated by Tomlinson to commemorate the Royal Visit was mentioned in most papers (described on page 212). It also formed the focal point of Begg's monochrome painting in "The Illustrated London News" (page 214). In an undated letter to Mr. Bemrose, Tomlinson says: 'You are correct in concluding that Moore used china for his small pieces and earthenware for larger vases etc.' Although later he writes:

"Moore's son Major, who died recently (c.1963), had the large Vase I designed and painted for the visit of King George the Vth to the showroom. He told me that he intended to leave it to the V & A museum. Do you know of its whereabouts? as this vase was in a hard paste porcelain." (full letter reproduced on pages 204).

Tomlinson makes an interesting point in classifying this large vase as hard paste porcelain. The Pottery Gazette, in spite of the detail and space devoted to this item, does not attempt to identify the body. Those who have, designate it as earthenware since most of Moore's large pots are low temperature. Miss Dawson's monograph on Bernard Moore clearly classifies it as earthenware, as did the Victoria and Albert Museum in their exhibition of Bernard Moore's work and the British Ceramic Research Association, where it is at present housed. To test Tomlinson's written information a visit was made to the BCRA at Penkhull, Stoke on Trent. Dr. Murfin, an employee, was kind enough to remove the vase from its venerated display case in the library. The unglazed part of the foot of the vase possessed that vitrified bone-like surface so typical of true porcelain. Moisture was applied to the foot but there was no demonstration of absorption. Dr. Murfin was surprised, so much so that he instantly placed his tongue directly on to the foot but felt no stick as one would on a porous earthenware surface and once again the trace of moisture remained on the foot. Dr. Murfin agreed with the identification that the body was in fact true porcelain thus verifying Tomlinson's identification.

On April 22nd, the King and Queen spent twelve to fifteen minutes in the showroom of Bernard Moore appraising the collection of ceramics and conversing with some members of the family. The King admired and was greatly impressed with the rouge flambé and the sang de boeuf

exhibits in the main centre showcase, while the Queen seemed to be more attracted on the other hand to the gold lustre, the crystalline effects and a small piece bearing a beautiful Persian blue glaze.

(Pottery Gazette 1.5.1913)

"Where do you send most of your work?" Her Majesty asked. "Abroad." Mr. Moore replied. "I hope you did not lose anything at Brussels?" the Queen rejoined. "Indeed I did." said Mr. Moore, "I lost all my exhibit." The Queen was then shown the only unbroken vase of two thousand, rescued from the fire at the Brussels Exhibition. The decoration was spoilt by molten glass from the showcase, which had run down the side of the pot and formed small globules in cooling. (Daily Express 23.4.13 and the same comments in Pottery Gazette 1.5.13).

Moore's reply that he sent most of his work abroad could not have been predicted as no other evidence has come to light to corroborate this statement, unless it meant in context that his work was sold through international exhibitions. Since he frequently exhibited his wares in many countries, this could well have been a major outlet for his limited sales. A letter from Moore's son printed in "The Times", confirms this supposition. He had written to the paper to correct two inaccuracies which had been inadvertently included in Professor Henry E. Armstrong's appreciation of Bernard Moore, after his death. This letter was printed in "The Times" on April 8th, 1935. Several days later, attempting to amend these mistakes, Moore's son writes:

"Secondly, Professor Armstrong is not correct in stating: "By a great calamity his own fine collection of his happiest creations was destroyed by fire when on exhibition at Brussels." The pottery section of the Brussels Exhibition in 1910 was entirely

destroyed by fire but the exhibitions of 'Bernard Moore Ware' consisted chiefly of commercial pieces of Flambé, Sang de Boeuf etc. produced for sale at that exhibition, and this was immediately replaced by other pieces from stock. I remember well the papers publishing an account saying that the Bernard Moore Exhibition was destroyed, including the whole of my father's collection, but it should be realised that the latter consisted only of a few pieces of his choice specimens not for sale." (173)

'Immediately replaced by other pieces from stock' was slightly inaccurate since this was the work John Adams recalls decorating in the summer vacation of 1911 with Tomlinson. Several months after the fire, they were both working 'to replace those which had been destroyed.' (page 154).

The Daily Chronical made this comment the day after the Royal Visit, in describing the attributes of Bernard Moore's work:

"These, which are now directed by Mr. Bernard Moore's nephew, produce the wonderful flambé glazes which are now as greatly cherished by collectors as the finest Chinese and Japanese potterybeautifully streaked, blotched and spotted effects of red, purple and grey were produced for his (the King's) inspection."

The nephew was Reginald Moore, who looked after the showroom and assisted as a general manager in the art pottery.

Bernard Moore's son worked for a number of years at Wolfe Street and he was present on the 22nd April, helping to conduct the important visitors around the displays of pottery and porcelain. Briefly, he was born on December 20th, 1889, at "The Grange", Draycott and christened Bernard Joseph Moore, although later he was given the nickname of 'major'. His main education was at Stonyhurst College,

Lancashire, from 1902 to 1906. The following year, he was studying at the "Pottery School", Stoke on Trent, under a young Dr. Mellor and on rare occasions, his father. At the same time, from 1907 he was also assisting with the work at Wolfe Street until 1913, when he joined the firm of Wedgwood. During the First World War, he was commissioned, and curiously enough attained the rank of 'Major'. He now held the title officially, which must have been useful in differentiating himself from his father. In the first part of the letter to "The Times" mentioned earlier, Major Moore, after the death of his father in 1935, wrote:

"I have been associated personally with my father and his work since 1907. For a number of years, both before the late War and after, I assisted him in firing his colours and glazes, Sang de Boeuf, Crystalline, Golden Flambé, etc., and during these times he gave me intimate instructions in the recipes and the manipulation of his colours and glazes. I, too was an experimentalist in them and the knowledge acquired by me will, I hope, be used in the future to the advancement of ceramic art." (174)

Mrs. Webb said in conversation that her mother felt that Bernard Moore was keen for his son to work with him at Wolfe Street and eventually take over the business, adding, he was quite upset when his son left to take up his appointment with Wedgwood.

The "Manchester Dispatch", 21.4.13, makes an interesting technical observation, which indicates the reporter's awareness of glaze qualities and possibly indirectly links Moore's low temperature glazes with those of William De Morgan, William Burton and others:

"The brilliant rich red glazes favoured by the potters of the Far East known as "Sang de Boeuf" "flambé", and "Haricot", are here shown in perfection, free from the lustre effect of other methods."

As initially stated, most of the accounts describing this Royal Occasion were identical in a number of papers, yet two stand out for individual reporting and quality. Firstly, the "Staffordshire Weekly Sentinel", printed on April 26th, which gave an informed appraisal, fully comprehensive and more important, rich with observed detail; "a piece of gold flambé, gorgeously iridescent." Secondly and perhaps predictably, a trade magazine, "The Pottery Gazette", gave full documentation to this regal event. Their account was sufficiently detailed to include the working drawings for Moore's presentation vase, designed and decorated by Tomlinson.

Great attention, coverage and enthusiasm were reflected by the press for this visit. The preparatory reports and slow build up by the media resulted in a happy and eventful climax on the 22nd April. The occasion, probably planned to bolster up the trade of the ceramic industry, was a huge success at a social level. The tales of secret glazes of the Orient made good copy, they created a compelling narrative that caught the imagination of both the press and the public. The extensive publicity given to Bernard Moore as a potter and consultant must have been stimulating and rewarding in many ways. (Further notes from Moore's scrapbooks on page 211).

BERNARD MOORE AS AN ARTIST AND POTTER.

The influences and factors that helped to shape Moore's visual vocabulary and stature as an artist remain adumbrated qualities of an isolated nature. To explore and comment upon these different attributes would contribute towards some comprehension of his oeuvre.

The early biographical comments in the text, shed little light on this side of his character. The only evidence from this period was the fine model, made by Bernard, of his father's new pottery at Longton. This was made at the age of twelve and it demonstrates exceptional practical skills together with a certain delight in the joys of making. Other than that, there are the comments furnished by his old school which give some indication of an interest in the areas of drama and music but no enlightenment as to his potential in the visual and practical fields.

In adult life, responsibility was thrust upon him at a comparatively early age. Prior to 1905, Moore had spent most of the thirty five years at the St. Mary's factory, working with porcelain and adding to his art experiences the particular aspects of that three dimensional world.

As an isolated thought, the friendship that was struck up between Moore, at the age of twenty nine, and the artist Frederick Villiers in Australia, may well have suggested kindred spirits. Kathleen Moore has said that her father was always doing little sketches, when he had odd moments.

Moore's apparent capabilities with porcelain are evinced in a tale written by his close friend Dr. Mellor in an article entitled "The Absent-minded Beggar". This contribution was written in 1937 and based upon Mellor's reminiscences of Moore. The introduction starts with a poem by Rudyard Kipling, which is quite perplexing:

"He's an absent-minded beggar,
And his weaknesses are great;
..... but 'tis always best
To take him as we find him." (175)

The first paragraph of this writing poses the question as to whether 'we love our friends more for their little faults than for their big virtues?' Later, he describes Moore giving evidence in a court case in London as to whether a Sèvres vase, which had been sold for a lot of money, was genuine or not. Towards the end of the case, Moore was asked how he was so sure the vase was not genuine and how he could be sure about the precise age of the vase? Mellor then writes Moore's words in quotes:

"Certainly, I made the vase myself. When I was a young man I wondered if I could make a good imitation of a Sevres vase, and the vase in question was the result. It disappeared unaccountably from the show-room - presumably it was stolen. You will find scratched on the bottom of the vase a private reference to my notebook, which, amongst other things, tells me the date I made this vase." (176)

Mellor then says the case collapsed but writes, "The coincidence seemed to me so extraordinary as to be embarrassing."

What Mellor meant by the last sentence is open to interpretation. This strange narrative has been used as the only example that could be traced

indicating Moore's personal abilities and standards with porcelain. It is most unlikely that any one person could cope, at such a professional level, with all of the specialised processes involved. A vase from Sèvres would be the result of team effort from the designers, the modellers, the mould-makers, the pressers through the firings to the glazers, the painters and the decorators. Mellor probably meant that Moore designed or orchestrated the making of the vase and that, in fact, he was assisted by the various specialists in his manufactory. Lastly, on this episode, it is interesting evidence to note that Mellor questions the coincidence and not Moore's ability to produce a copy of the Sèvres vase.

Much more vital, and nearer to Bernard Moore's true media as an artist, was the first hand experience with colour and glazes.

"Ever since he was a boy, the science of potting attracted him, and he made it the chief hobby of his life to make all the colours of the rainbow in glazes from the various metals." (177)

Here, working with the kilns, he was to witness and be excited by the magic of the whole glazing process and it was this area that was to have the most profound influence on his later work. These daily experiences of transforming the differing raw materials into a whole spectrum of glazes, were sustained for over three decades, and were to build up within Moore a special chromatic vocabulary. This vocabulary linked with his broad industrial experience inevitably led to refinement and the refinement resulted in the quest for the elitist area of glazes, the copper reds.

"A composer in copper especially, he gloried in being able with its aid to call up almost any colour upon clay." (178)

Indubitably, Moore relished the unsure and adventurous world of experimentation, it presented a challenge to his competitive spirit and supplied problems that his unique talents could invariably unravel. This latter quality was demonstrated clearly by his decision to devote more time to ceramic consultancy after 1905, where the ability to resolve problems was a paramount qualification. This competitive spirit was reflected in the way he played games; a keen sportsman, he took all his games seriously, and always tried his utmost to win. (179)

Beyond functional artefacts, Moore Brothers were renowned for their decorative porcelain, a style of work that could be fittingly called 'parlour porcelain'. These commercial designs, fragile, lighthearted and frequently sentimental in content displayed no self-conscious aestheticism.

"The large range of fancies, embellished with orchids, blackberries, and cupids of various shape and size, with his large groups in the form of lamps - notable amongst which was the blacksmith group showing three little cupids in the various processes employed in a blacksmith's shop, and arranged very cleverly round the base of the lamp standard - found a ready sale, especially in the United States." (180)

The effects and slight influence of this decorative and somewhat pretentious porcelain were to remain with him occasionally after 1905, and it was reflected by examples of affected modelling, together with the netsuke type objects that were produced with the copper red glaze. (181) However, the new century and a little later the move to Wolfe Street were both to bring, in the main, a changing spirit to Moore's

designs.

The fashions and climate of the new century reflected moves towards a new art style, towards a greater simplicity of design; the rich and complex mixture of borrowed imagery that typify late nineteenth century artefacts was fading to a different stylistic idiom. Pressures and influences from International Exhibitions, from industrialists and from certain entrepreneurs together with the labours of artists and designers of such stature as James McNeill Whistler, Walter Crane, Kate Greenaway and Christopher Dresser, had all made strong contributions to this transposing field of taste, from as early as the 1860s.

The Arts and Crafts Movement, by the nature of their philosophy, had presented relatively little innovatory work; they were idealists for whom the revival of hand craftsmanship with feelings for the Gothic spirit had confining limitations. In a rapidly expanding industrial economy, their methods of production and the necessary financial aspects of their craft approach, virtually ensured that any likely influence would have little effect on the whole of society in the field of design. These artists were designing against the tide of mass production. Their worthy ideals were possibly more significant historically than the comparatively small output of expensive artefacts, avidly sought by the select few.

Artists and designers, many associated with the 'Aesthetic Movement', were to play convincing roles in this scene of changing taste. In a like manner, some of the powerful industrialists were an understated influence. Firms like Minton and Doulton with their studio type,

'art potteries' and production lines of immense proportion, were to inject a new dimension into the field of design. When such firms patronised the fashionable and assymetric style of 'Japonisme' it meant in effect that this composite oriental inspiration would be seen by very many people. This positive craze for far eastern designs was very commonplace in the last three decades of the nineteenth century.

Commercially some of the most influential and design-conscious emporia of London and Paris were importing and selling wares from this far continent; particularly strong was the trade with Japan. Established personalities like Arthur Lasenby Liberty, who opened an oriental goods salesroom at 218a Regent Street in 1875, before his famous store was founded at Chesham House. Samuel Bing at his well known shop in Paris, "L'Art Nouveau", founded in 1895, was also trading in oriental goods including Chinese ceramics. A friend of many established painters, Bing dealt universally, exporting wares to the rest of Europe and whilst he was generally regarded as a main figure in the development of 'Art Nouveau', he was as well an enthusiast for the English 'Arts and Crafts Movement' and an eminent collector of oriental art.

Museums were purchasing Chinese and Japanese pottery and porcelain in the last two decades of the nineteenth century. The Aesthetic Movement, with a declared interest in Chinese blue and white porcelain from artists like Rossetti and Whistler, had stimulated a taste for collecting Chinese wares. At Sèvres, as early as 1847, (182) research was uncovering some of the secrets of the Chinese monochromes and the successful Sèvres Exhibition in Paris in 1884 of the copper red glazes on artist's individual pieces, showed the promise of an expanding

market. All these facets, joined to William Morris's philosophy that recognised the aesthetics of simple handmade artefacts, were sublimated in the contemplative refinement of the early Chinese ceramics. As trade increased with Japan, so the interest and enthusiasm for their products by artists and collectors appears to have waned and weakened. Contemporary literature at the end of the century seems to identify the early Chinese ceramics as being synonymous with good taste. The esteemed French potter, Taxile Doat, on visiting the 'Paris Exhibition of 1900', describes his reaction and judgement on seeing the ceramics of both countries.

"Japan replaced art by cleverness and its great display gave only the impression of unbearable coldness. China had remained deaf and had jealously kept for the eyes of the adepts its treasure of idealism and good taste." (183)

This assessment by Doat, perhaps somewhat biased by his love of Chinese ceramics for nearly thirty years, was also shared by a number of artists, potters and industrialists; it heralded a fresh awakening and recognition of the unique high standard of achievement found in the ceramic art of China. In England, the ceramics of both France and China at this Exhibition planted a passion in the industrialist and chemist, Sir William Burton of "Pilkingtons", to produce individual pieces of pottery with monochromatic or experimental glazes. (184) Doultons followed a similar path when Bernard Moore was engaged as a consultant in 1901. Parallel with the French artist-potters like Deck and Chaplet, although chronologically much later, English potters also found similar motivation and men like Howson Taylor and Moorcroft were starting to experiment with flambé and transmutation glazes early in the twentieth century. From these activities it was apparent that a demand existed

for work of an individual nature, akin to the wares of China in some respects and bearing experimental and sometimes very rare glazes.

The one unifying factor that managed to permeate nearly all of the wares from Wolfe Street was the influence of the ceramics from the Far East. Moore's great love of Chinese porcelain is strongly reflected in his work. The passion for the copper red glazes may well have been at the root of his interest in Chinese wares. His affection for and understanding of Chinese monochromes was a pioneering interest for England, well in advance of Edwardian taste.

Later, many other English studio potters were to demonstrate their interests in Chinese ceramics; potters like George Cox, Charles Vyse, William Staite Murray and Bernard Leach all found a motivating force in Far Eastern cultures.

Tomlinson has described Moore's 'deep knowledge of Chinese pottery' saying that 'Bernard Moore was very well known at the Victoria and Albert Museum.' (185) After studying a large selection of his work, it is apparent that nearly all the forms that he favoured are to be found in the Chinese ceramic collection at the museum. The presentation vase produced for the King and Queen's visit, for example, is a baluster form sometimes described as a yen-yen vase, (186) of which the Museum has several similar K'ang-Hsi antecedents in their collection. The double gourd, the mei-p'ing, the vault of Heaven are all traditional Chinese forms represented in the Museum's collection and all are to be found amongst Bernard Moore's ceramics from Wolfe Street and earlier. Many other examples could be cited in a similar way. These Sino-English

forms produced for Moore by highly skilled craftsmen, steeped in the traditions of Staffordshire pottery, often possessed unresolved qualities through lack of knowledge on the designer's part, rather than being the result of inadequate throwing. To expect a Staffordshire potter to produce Chinese forms, it could be argued, is basically wrong. These unresolved qualities where the 'feel' is wrong could be due to many factors. It could be due to the profile curves not having the correct 'spring' leaving the form with a weak sagging quality. When the form changes direction the Staffordshire pots have a hard angle whereas the Chinese forms may have a subtle curve. Details such as the lips or edges are often out of scale or proportion with the weight of the form. Some of the feet are turned in a hard metallic manner quite unlike the softer natural qualities of the best Chinese vases. Often the Staffordshire pots are technically better made, they are thrown more thinly, they are more highly finished and yet they possess an impersonal industrial quality, whereas the Chinese seem to retain a gentle and personal sensitivity in their methods of production. Apart from the obvious cultural influences, the differences in qualities could, in some part, have been due to the nature of the pastes or bodies being used or more importantly, the method of throwing. The Chinese potters had not then experienced the effects of an industrial revolution and in consequence were still using methods of human propulsion for their wheels. At the other extreme, the Staffordshire craftsmen had mechanically operated equipment which equated with a more mechanical characteristic to their wheel thrown wares. This technical disparity would contribute strongly to the difference of 'feel' in the two comparative areas of work. In the process of copying, a form that is almost identical to a well known masterpiece takes on a worrying and



On the left, the St. George and the Dragon vase that was designed and decorated by R.R. Tomlinson for Bernard Moore in 1913 (see also page 212). This work is now housed in the library of the British Ceramic Research Association. The two K'ang Hsi baluster forms on the right are from the Victoria and Albert Museum's Salting Collection, bequeathed in 1910 (centre vase c1280-1910 and right-hand vase c1280-1910). They were selected from a number in the Collection and the influence of this type of baluster form on Tomlinson whilst drawing at the Museum is quite apparent. The three porcelain forms serve also to illustrate the difference in 'feel' between the English and Chinese profiles described on pages 128 and 129.

uneasy quality, almost like the eyes not being aligned in the drawing of a face. It only takes a very subtle change in form to make a major difference to the overall appearance.

The photographic illustrations on the preceding page (p.130) give a visual comparison between a Bernard Moore form and two Chinese baluster vases.

Moore recognised that some of the apparently simple Chinese forms held sculptural and majestic attributes and these were the vases he selected to copy. From the work seen, the Minton blanks in vases were by far the most sympathetic, well balanced and accomplished forms produced.

In considering the decoration, it could be stated that the excessively rich red glazes in themselves provided sufficient attraction and power for a finished statement without any other form of decoration. Moore uses his fine high temperature reds in this way. Only a few have been seen. This glaze has a rich variably textured surface with differing tones of red which seem to be layered at depths within the glaze. These glazes used in harmony with the mei-p'ing Minton porcelain blanks must rank among some of his finest work.

The lower temperature red glazes fired in the earthenware range are quite prolific. Geoffrey Bemrose describes these glazes very accurately by saying:

"a pleasant lacquer effect quite unlike the Chinese glazes which he sought to imitate." (187)

The welcome honesty of this critique, stands out from the more normal response of those who use the word 'flambé' and merely point to the superficial similarity of Moore's earthenware glazes and those of the Chinese tradition.

The standard method when decorating with the De Morgan type low temperature red was to apply the copper slurry with a brush, to wares that had already been fired with a white tin glaze.

"The pattern was sketched on the glost surface in Indian ink which eventually fired away and left no trace and then painted in light and dark red flambé and in silver lustre. No preliminary sketch was ever made. The grey ground occurred through the penetration of gases during reduction into the earthenware glaze." (188)

Alternatively, the pattern could be painted with a resist like wax or sugar and water, then the whole object would be covered with the copper slurry. Where the resist had been applied the white would remain, although, as John Adams says in the last quotation, the firing process of reduction often turned the white to a smoky grey or an even darker colour.

Gordon Forsyth, who used resist methods in painting his ceramics with lustres, describes his technique thus:

"Paint a design on the piece with a fairly thick mixture of ordinary vermilion water colour; this will act as an effective resist. Very thin lines may be scratched out with the point of a pocket knife or steel tool. The whole piece is then covered over with the lustre and fired." (189)

The painted designs, like many of the glazes, were of an individual

nature and as such are difficult to arrange into any formal groupings. Even so, the decoration using painting techniques can be divided into two main categories. Firstly, there were designs with romantic subjects like St. George and the Dragon, stately galleons, soaring birds with clouds or diving fish with flowing seaweed; the "Passing of Venus" painted by John Adams and described on page 157 is a good example of this type of approach. The naturalistic intention of the painters of these subjects were held within the conventionalised mode of the tradition, which they succeeded in demonstrating with varying degrees of success. In the second category, the designs were carried out with a very stylised technique. These formal images were derived either from nature or just pattern, using rehearsed mark making with the brush as the major ingredient. There are numerous instruction books on the arts and crafts in the Edwardian era which would have labelled this painting as 'decorative brush-work,' that is, a very skilful type of dexterity possessing a mechanical and impersonal quality. These two visual styles encompass all manner of work, from large vases to jardinières and different types of hollow-ware.

A totally different technique used by Moore was that of outlining parts of the design with 'cloisons' of trailed slip. These relief lines enabled different colours to be used within their boundaries giving an extremely rich effect. An example of this trailed style can be seen in the City Museum and Art Gallery, Stoke on Trent. (190)

A further example at the City Museum and Art Gallery, Plymouth entitled, "Waterfall" and sold initially by Bernard Moore for £7 in 1920, shows a slightly different method. The trailing is used three dimensionally to

give a 'trompe l'oeil' effect to the frothing water, as well as creating boundaries. In the background, Moore exhibits his technical skill by attempting to paint the water with coloured glazes. The purchaser of "Waterfall" was Cyril Andrade, an antique dealer and writer with a specialised knowledge of the 'Astbury Figures'. The technique of trailing porcelain slip or cloisonné style decoration stretches back to the Ming Dynasty c.1500. (191) Traditionally, the slip was trailed to form the design, although some of Moore's trailing has started to melt with a very glassy quality looking just like a trailed glaze that has been hardened for the purpose.

Different coloured glazes are manifold in Moore's work. These were applied singly or combined, forming many permutations to give complex new colours and a large range of textured surfaces. Finally, in connection with the range of Moore's repertoire, he used many types of metallic lustre, gilding, crackle and crystalline glazes to decorate his wares. In a small catalogue produced for Wolfe Street, his specialised glazes are listed in this way:

"Sang-de-Boeuf, Peach Blow, Haricot, Rouge Flambé, Transmutation Glazes, Lustre, Hispano Moresque, Gold Flambé and Collectors' Ware."

The extensive range of wares from Moore's art pottery is so diverse and of such an individual nature that it is difficult to categorise with any rational sense of order. Apart from the Staffordshire blanks which appeared with differing specialised glazes, wares could be as varied as a tiny frog with additional glass eyes at one end of the scale to decorated jardinières or presentation vases at the other,

with flambé dinner plates part way between.

Moore's total production of wares was comparatively small if it can be judged from the evidence that has survived in museums, auction rooms and documentary accounts (see documentation of wares in notes on page 226). The scale of his premises at Wolfe Street and the lack of storage space would reinforce this view, furthermore, the tiny yard at the back of the pottery could only have contained a very small kiln.

When Bernard Moore restarted in the business world at the age of fifty-five, his special wares made at Wolfe Street, fortunately, had a ready market. Like the consumers who had purchased the products from William Morris's firm, they were the select few. The specially glazed objects were undoubtably luxury articles and some would individually cost the equivalent of three to four weeks wages of the average working man. No business papers or business ledgers were available to work out the range of clientele but essentially they were people of means. Known purchasers from a small collection of his work have consisted of public bodies like museums, art galleries, universities and industrial societies. Whilst private patronage would obviously cover an enormously varied group of people, it may be helpful to mention some that have been identified, such as, connoisseurs, collectors, curators, aristocracy, clergy and antique dealers.

Bernard Moore's work was either sold directly from his showroom at Wolfe Street or through exhibitions. The individual nature of each piece would dictate a visual selection, akin to buying a painting or any work of fine art. The extremely sensitive methods of manufacture

would prevent repetitive orders being placed as in many other businesses.

Most records state that Moore's Art Pottery enterprise had finished by 1915, although absolutely no evidence has come to light to substantiate this date. It could be argued that with the combined talent of Tomlinson, Adams and Dora Billington, the most gifted decorators, a climax was achieved in their period of employment. Even so, it seems likely that some of the difficult high temperature glazes, Moore's finest achievement, came from a later date. In one respect, to say that the business closed in 1915 is really to misunderstand the nature and the functions of the business. The premises remained in the Moore family until the end of 1935, whether the pottery was active or not, so there would be no additional expensive overheads for buildings or equipment. The concept of buying in blanks meant a minimum outlay for labour, materials and equipment with no maintenance. The gas kiln, the ingredients for the special glazes and one person could achieve a steady production line. Both Bernard Moore and Annie Ollier were there until the 1930s with others.

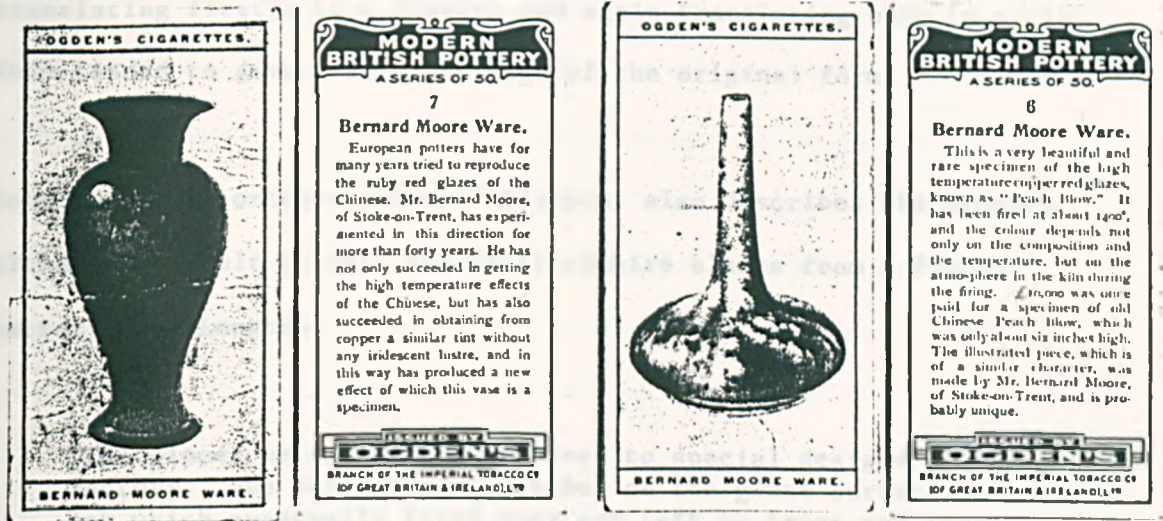
Miss Kay Moore said in conversation that the showroom, pottery and offices remained in use until about 1930. Nancie Webb, Annie Ollier's daughter, shared the same opinion, talking of the "second generation of painters," after the first world war. Major Moore, Bernard's son, also concurs saying that he assisted his father with the production of Sang de Boeuf, Crystalline glazes and Golden Flambé, "both before the late war and after." (p.119) Records in the Minton Archives show that Moore was buying Minton blanks from the firm in 1922. (192) The

receipts that remain from the purchase of the Andrade Collection at Plymouth record the sale of fifty four pieces between 1919 and 1920. The City Art Gallery at Manchester purchased at least fifteen examples of his work direct from Moore at Stoke on Trent in 1920. The British Institute of Industrial Art held an exhibition in 1924 at the Whitworth Institute Art Galleries, where nineteen pieces of his work were for sale. (193) All these examples and others could be cited to show that production did not cease in 1915. The cases quoted also help to corroborate the information from Kay Moore, Nancie Webb and Major Moore. The actual size of the premises at Wolfe Street was very small indeed, much smaller than the studios used by many single artist-potters of today. The scale of the building with the major volume taken up by the showroom, indicated virtually no storage space for the products which suggests that the output was always very limited, even in the early years of production. The size of much of Moore's work was understandably small and the 2,000 pieces produced for the Brussels Exhibition must have been a maximum output, presenting many basic problems of firing and storage. The production of the Art Pottery, from the present evidence, shown in the form of a graph, would have a rapid rise in 1905, to a peak say from 1908 to 1913, then a fall during the war followed by a rise in the years 1919 to 1920 and finishing with a rapid descent in the mid-twenties. Undoubtedly production was greatly reduced as Moore became very old, but it would be quite wrong in the face of the evidence that exists, to say that the Art Pottery finished in 1915. Where that date has come from is unknown although many museum curators have taken it from Godden's "Encyclopaedia of British Pottery and Porcelain marks." After some correspondence with Godden and having seen the fresh evidence, he now regards the date as 'an error.' (notes,

page 206).

As a footnote, and declaring quite a different notoriety, two cigarette cards from a set on 'Modern British Pottery' were devoted to 'Bernard Moore Ware'. (194) Apart from the obvious jocular connotations, these small pieces of decorative pasteboard would reach a large proportion of the general public, ensuring that Moore's name was even more publicised. They were issued by Ogden's Ltd. in the same year as the Paris Exhibition, 1925; the 'cigarette card knowledge' from the back of these cards is documented in the notes. (illustrated page 139).

The creative, technical and making processes which had been devised by Bernard Moore were different to those of most other production methods. R.R. Tomlinson gave a clear indication of these different stages of design development when he was interviewed by G.W. Elliot. Untroubled by any consciousness of the 'need to be original' Tomlinson was sent to the Victoria and Albert museum to draw Chinese vases with great accuracy. These drawings were then taken to a pottery in Longton and pots were made from them, which were then fired and glazed to Moore's instructions with a plain white glaze. These pots were called, "Staffordshire Blanks", made with great skill and dexterity but mostly lacking the degree of subtlety and rightness found in the ceramic wares of China. With virtually no knowledge of China and its cultural traditions perhaps it should be expected that the young painter Tomlinson working with a Staffordshire professional thrower would produce a strange English hybrid? The ceramic art forms of China were very removed from the largely functional forms of Staffordshire. The forms produced were reminiscent of Chinese forms but without the correct



Illustrations of the two cigarette cards from a set called "Modern British Pottery," which were issued by Ogden's in 1925 (see page 138). Other relevant picture-cards that were in this curious series included, the 'Rouge Flambé of the Aultcliff Pottery,' the 'flambé work of the Ruskin Pottery,' and Sung Ware 'the latest development in Flambé glaze effects from Messrs. Doulton & Co., Ltd., Royal Doulton Potteries, Burslem.'

proportion, the edges were possibly too thin for the volume, or the body lacked the poise and spring that was associated with the original form. The feet of the vases were without that fresh crispness that one connects with the genuine article. Quite probably the process of translating firstly to a drawing and again translating back to a clay form tended to give a diluted image of the original form.

John Adams, a contemporary of Tomlinson, also describes the process, although he would collect the Staffordshire blanks from a Fenton factory, not Longton.

"The pieces were thrown and turned to special designs by a Fenton factory. The pattern was sketched on the glost surface in Indian ink which eventually fired away and left no trace and then painted in light and dark red flambé and in silver lustre. No preliminary sketch was ever made. The grey ground occurred through the penetration of gases during reduction into the earthenware glaze." (195)

In these comments on the techniques used in Moore's studio, Adams also communicates the valuable information that this particular copper red was low fired, as low as the temperature used for silver lustre, about 750 degrees centigrade.

The majority of Bernard Moore's output, from 1905 on, was dependant wholly on the difficult and rare glazes for either the entire decoration or as a major component in the decorated wares. He had devised, after much experimentation, a palette of effects and interactions that were quite innovatory and mostly, quite unlike the Chinese glazes after which they were named. The catalogue of wares from Wolfe Street lists the following: "Sang-de-Boeuf, Peach Blow, Haricot, Rouge Flambé,

Transmutation Glazes, Lustre, Hispano Moresque, Gold Flambé." There would appear to be no chronological sequence to this range of glazes. Miss Kay Moore thought the fine and very Chinese looking high temperature glazes came later and this could well be true. There seems to be a total absence of dates on the high fired work of Bernard Moore. The recent exhibition of his wares at the Victoria and Albert Museum displayed eleven pieces fired with high temperature glazes and none of them were dated. One of these pieces was purchased from an exhibition organised by the British Institute in 1924-5, which also suggests a later date. All of the early red glazes around the turn of the last century were of a low temperature.

Kay Moore in conversation said her father had a collection of oriental porcelain but she could recall no details (she did add, in a spirited way, that her father was one of those people who didn't need to lift up a pot and look underneath to know what it was all about!). Moore was much travelled and this feeling for Chinese ceramics could have sprung geographically from anywhere, including the Potteries. It was easy to understand his total adoration of the mastery displayed by Chinese potters in their porcelain, the subtlety of both glaze and body must have delighted his trained eyes. His romantic nature and his extraordinary passion for glaze qualities would readily explain his identification with the refined Chinese monochromes, which included the copper-reds.

ARTISTS EMPLOYED BY BERNARD MOORE.

Following in the wake of his financial collapse and after the sale of the St. Mary's Works, Longton, Bernard Moore re-employed only three members of the original staff who were to operate in the new studio at Wolfe Street, Stoke on Trent. These were carefully selected for the particular talents and abilities which would be necessary for the new structure in this small experimental pottery. They were Annie Ollier, George Buttle and Edward Wilkes, all of them designers and all of them capable of repetitive painting on the Staffordshire blanks. (196) Other important artists and decorators joined the Art Pottery after it was established at Stoke. Designers of such calibre as Reginald Tomlinson, John Adams and Dora Billington are included in this section because not only do they add a dimension to the life of the Pottery but also because these talented individuals, each in their own way, contribute to the biography, either directly or indirectly, of Bernard Moore.

The most versatile of the original three was Edward Richard Wilkes, born in 1861, the son of a watchmaker. As an adult he was small in stature, a quiet unassuming person possessing a good all round knowledge of the ceramic processes. He could prepare colours and glazes, fire kilns including reduction firings, understood the practical side of flambé techniques as well as having a talent for painting. With these broad ranging abilities, not dissimilar to the artist potter of today, he had the obvious credentials as a candidate for Moore's new venture in the year 1905. He was still working for Bernard Moore a year later when Tomlinson was first employed at Wolfe Street. (197)



Two photographs of Edward Richard Wilkes lent by his grand-daughter Mrs. Florence Hall. Above, Wilkes the central figure of the trio, at the seaside; nothing is known of the location of this photograph. To the left, a posed study from a photographer's studio, confirming the descriptive words of his grand-daughter, "he was a dapper chap really, he used to wear spats and his moustache was waxed."

In a recorded interview, Tomlinson describes working with Wilkes in a room next to Moore's office upstairs. It was a room with a large table down the centre with windows overlooking the Spode works. He said that Wilkes claimed to have produced flambé using coal as a reducing agent and that Moore had copied this technique. (198) The earliest date this could have taken place would have been 1906, in which case this claim cannot be substantiated since Moore had been successfully reducing his firings for well over ten years. Tomlinson expressed the opinion that Wilkes deserved rather more credit than he was given for the production of flambé.

In 1910, Richard Howson (cousin of William Howson Taylor of the Ruskin Pottery), who was a director of a company making sanitary wares, succeeded in getting Wilkes to leave Moore and join the Howson factory to make flambé. He took with him the complete knowledge built up from earlier experiences at Wolfe Street of glazes, firing techniques and other procedures. This transference of secret information was generally regarded as disloyal by the members of Moore's establishment, in spite of Tomlinson's comments, and socially a split occurred between the various families and friends in this close knit community. (199)

Using two specially built kilns on the site of the sanitary works and using similar or the same shaped blanks as Moore, he successfully produced flambé for Richard Howson between the years 1911 and 1916. The characteristic qualities of these flambé wares were very like those made by Bernard Moore. By comparison, some of the red glazes are a little harder in tone with a fatty surface akin to a boiled sweet. Most of the wares depend upon glaze effects for decoration

with varying textures randomly placed on top of the reds, in ochre, green, occasionally blue or lustrous colours. These wares were normally signed, dated and sometimes numbered. Usually, the name Howson was printed on the base with wavy lines underneath divided in the middle by the date. Below the name and the date would be the Wilkes monogram using the letters ERW. Occasionally, after the name Howson, the words Hanley, England, appear. A rare mark was a rebus of a small house with ON above it to the right. (200) It would seem likely that other variations will come to light.

After 1916, the art pottery at the Howson factory was closed down and Edward Wilkes became a freelance designer. He was employed for a short while by A.G. Richardson and Co. of Cobridge c.1920-21. Shortly afterwards, he set up his own pottery and called it the "New Spectria", which presumably alluded to his ability to produce all the colours of the spectrum? His works, which must have been small, were sited behind the Tabernacle at Hanley. The grand-daughter of Edward Wilkes, Florence Hall has a good collection of his ceramics. Much of it is marked 'New Spectria'. These wares were varied but a typical piece would have had a flambé glaze at earthenware temperature, with coloured marks that look as though they were made by dabbing a natural sponge on to the surface. The colours were much the same as those produced for Howson. One variation is owned by the City Art Gallery at Manchester. This was a bowl by Wilkes, purchased from the British Institute of Industrial Art Exhibition 1924-25. Beside 'New Spectria' on the foot of the bowl is his name and the decoration consists of a marbled effect of several colours on an almost black background. His grand-daughter thought the pottery operated in the twenties and thirties but she was very vague

about dates.

Eventually, the pottery closed and he finished his working life as an employee of the Malkin Tile Works Company. Blessed with longevity, he worked to about the age of eighty-five and died at the age of ninety-one, in the year 1952. (201)

A native of the Potteries, Annie Ollier was born on June 5th, 1878, a frail child of delicate build. After her elementary education in the area, she had some experience as a part-time student at the local Art School, while she was earning her living as a 'china painter'. Her daughter was of the opinion that she was first employed by Moore Brothers at the St. Mary's Works in her early teens.

In adult life, she retained her slight build, weighing less than seven stone. Although small she was energetic and when Annie Ollier was selected by Bernard Moore in 1905, to work as part of a small team, she had already completed at least ten years in the porcelain factory at Longton. At Moore Brothers, she had gained a reputation as a highly skilled decorator and a well disciplined worker. With such qualities she was a natural choice for the new experimental enterprise. Her ability as a craftswoman is well illustrated by the manipulative precision demonstrated in scribing her neat monogram on the bases of the work she decorated. Her designs painted on vases look like the labours of a professional decorator, which she was, as opposed to the qualities achieved by the talented art students who sometimes worked for Moore. Her brushwork has a controlled, economic and direct feeling associated with talent and many years of experience. In subject matter,



Two photographs of Annie Ollier in later life, lent by her daughter, Mrs. Nancie Webb. It is interesting to note the proportion of the hands in the portrait on the right. They demonstrate a scale and strength indicative of much practical labour.

she drew inspiration generally from nature using such motifs as, leaves, flowers, birds and fishes. Her designs were faintly reminiscent of illustrators like Crane, Dulac and Rackham. This decorative style of her formative years remained with her for the rest of her career.

Predictably perhaps, the excitement generated by her experiences at Wolfe Street with the copper red glazes extended to Annie Ollier's private life:

"She was fond of red; she drove us mad with red, Bernard Moore red. We even had - do you remember our house at Shelton (speaking to her husband), we had the walls 'walloped' in this rich dark red. She was passionate about it, she loved it." (202)

This quotation came from part of a conversation with Annie Ollier's daughter, who well remembered as a child, the thrills and emotional involvement her mother felt over the red glazes. She recalled, in an animated way, the excitement her mother underwent on the days when the kiln was unpacked with the copper reds, saying that on Bernard Moore's insistence, the very best glazes always went straight into the showroom cases direct from the kiln.

Although known as a painter, Annie Ollier was often required to do other work; she played the role of general factotum within the organisation, assisting with the business side, the office affairs and she was frequently used by Moore to help with laboratory experiments for his consultancy work. Her daughter said that she often went to the Pottery School at the North Staffordshire Technical College, Stoke on Trent, to demonstrate the process of elutriation for Dr. Mellor's students.

Annie Ollier was the only employee to remain in the pottery for the total span of its existence. Her whole working life was devoted to the Moore family. Bernard Moore was reported as saying that the only fault he ever found with Annie was the fact that she was not a Roman Catholic. She remained loyally with Moore for the rest of his time at Wolfe Street, assisting him in a maternal way towards the end of his working life. Finally, when he was very ill before his death, she was still there helping to nurse and generally care for him.

Kay Moore remembered and spoke of Annie Ollier with great affection just as Annie Ollier in turn was an ardent admirer and a hero worshipper of Bernard Moore. Colloquially, Bernard Moore was known as 'Sir' by Annie, using the title as a friendly nickname. She lived for many years after the closure of Moore's Art Pottery. Annie Ollier was 73 years old when she died on July 4th, 1951.

George Allan Buttle was born, according to his daughter, in 1867, although two sources have recorded 1870. Mankovitz and Haggart in their book "The Concise Encyclopaedia of Pottery and Porcelain" and an Exhibition Catalogue of 1953 both give the later date. (203) The same catalogue says that at the age of twenty-six, he was a student at the Wedgwood Institute, Burslem, attending from 1893 to 1896. An accurate and basic biography of George Buttle has not been established but it seems likely he worked for the Moore Brothers prior to 1905. Whether he worked at Wolfe Street is disputed by his daughter (204), although he was listed as an artist there by Mankovitz and Haggart and more importantly, he was recorded as a painter by John Adams who worked with Moore, even to the extent of drawing his monogram GB.

The Centenary Exhibition 1853 - 1953, at the College of Art, Stoke on Trent; showed two vases 'made by Bernard Moore' and decorated by George Buttle, but unfortunately they are both undated. They were called "The Chinese Queen" and "Stars and Thistle", the titles suggestive of a painterly approach rather than that of a decorator. This was further endorsed by a competent landscape in oils named "The three bays, south coast of Anglesey", painted by Buttle and displayed in the same exhibition. (205) Perhaps Buttle experienced the new venture for a few months only with Moore at Wolfe Street in 1905 and Tomlinson, who possessed similar talents, was appointed to replace him later in 1906? Alternatively, he was just employed on a freelance basis after the closure of Moore Brothers? Desmond Eyles lists him as a 'figure painter on vases etc.' at Royal Doultons from 1905 to 1911, saying in parenthesis that he previously worked for Wedgwood and Moore Brothers. Whatever the case, it would appear that he was held in some esteem in the Potteries as an arbiter of taste and as an artist. He was chosen with Bernard Moore to act as an adjudicator in an 'Exhibition of Modern Pottery at Stoke 1920'. (206) While another reference to him mentions 'a tasteful menu card and toast-list' which Buttle had designed for the "British Pottery Manufacturer's Federation - First Annual Dinner". Bernard-Moore attended this meal when a presentation was made to C.J. Bailey for his services as 'Chairman of wages and conciliation committee.' (207) George Buttle died in 1925, at the age of fifty-eight.

Apart from office staff, many other painters and designers were employed on a short time basis. Moore possessed good judgement of an individual's potential and in consequence several of the young unknown

artists he employed, were, in later life, to hold significant positions in society. Reginald Robert Tomlinson O.B.E., was one such artist whose achievements listed in "Who's who", show diverse attainments in pottery, art and portrait painting, art education and writing. (208) In the whole history of the Art Pottery at Wolfe Street, Tomlinson was the most talented and probably the most dominant influence on the earlier designers in the studio.

He was born at Overton in Hampshire on October 10th, 1885 and educated at Farnham, Surrey, where he was a boarder at the Grammar School. Through the efforts of a lively art teacher, Tomlinson was able to experience the field of ceramics at an early age. He was introduced to clay through making and decorating pots at school and with the Farnham Pottery close by at Wrecclesham, the teacher was able to make good use of the kiln facilities there to fire the work of his pupils. He says of this period:

"By chance I happened to do some good pots, and as it was known that I was going to be an artist of some kind it was decided that pottery would be my outlet. Friends of the family got in touch with a Miss Hollins the owner of Minton Hollins where they had recently appointed Gordon Forsyth who was really one of the first outside designers to be brought into the potteries." (209)

This comment was made at the age of ninety-three, after giving a most lucid interview to Gordon Elliot.

After secondary education, he attended the Farnham School of Art and from there he was made a 'premium apprentice designer' to Minton Hollins and Company in Stoke on Trent. Gordon Forsyth was art director there from 1903 to 1905 before changing to Pilkingtons a year later.

They were contemporary for two years and Tomlinson has said that he admired the individuality that Forsyth managed to achieve in his decoration. Indeed, looking at the lustre painting by Forsyth in his later work at Pilkingtons, it is apparent that there was an influence on Tomlinson and his approach to design and decoration. Both artists used the pottery forms as three dimensional canvases and both were drawn towards heraldic and heroic imagery with painterly qualities. By comparison, through sustained work over a number of years, Forsyth managed to portray a more resolved feeling in his designs through the use of flat areas of lustred colour giving greater simplification. Tomlinson, on the other hand, remained essentially more of a painter than a ceramic decorator and his later success as a portrait painter serves to substantiate this assessment.

From 1906 to 1909 he was a pottery painter and designer for Bernard Moore and his journeys to London museums to draw Chinese pots for Staffordshire blanks were described earlier in the text on page 128. The Museum at Leicester has a bowl decorated by Tomlinson during this period which is representative of his style and shows a slight influence of Forsyth. On the inside he has painted in copper red a winged lion affronté filled in with dull olive green and a bluish purple within a border of the same colours. On the outside there was a scroll of Lombardic letters: "The gift is small goodwill is all". The bowl is signed on the foot, 'Bernard Moore' and underneath is Tomlinson's monogram followed by the date 1908. (210) A letter in the Leicester Museum archives exists from Tomlinson to Bemrose, in which this bowl was discussed. It adds little more knowledge in relation to the heraldic bowl but it was informative in different directions. In reply

to a query from Bemrose, Tomlinson writes:

"You are correct in concluding that Moore used china for his small pieces and earthenware for larger vases etc. I used to work with a well known thrower and design shapes for Moore at the wheel. The name of the thrower I have forgotten but I do remember that he was either Mayor or an Alderman of Longton at the time."
(211)

With Tomlinson's esoteric knowledge of ceramics, the word 'china' must refer to bone china. From the cross-section of work seen and handled, Moore has used most clays and bodies in his productions; porcelain, stoneware, bone-china and earthenware but it would seem to be basically true and corroborate Tomlinson's assertion that the majority of small wares seen have been made in bone-china.

Towards the end of his experience as Bernard Moore's principal designer, he was granted a Royal Exhibition Scholarship to the value of ninety pounds and tenable at the Royal College of Art. He was placed third in order of merit in the whole of the United Kingdom and he gained second place in order of merit in the National Painting Scholarship; all this was in 1909.

At the Royal College he studied etching under Sir Frank Short R.A., but during the vacations he travelled back to Stoke to design again individual pieces for Bernard Moore. This work was successfully exhibited at a number of International Exhibitions in Europe. A 'Grand Prix' was awarded at Brussels in 1910 although sadly many of the exhibits were destroyed by a disastrous fire. John Adams wrote about this incident:

"I remember seeing a fragment of flambé ware from the ruins which had been marvellously lusted by the flames. As most of the exhibition pieces had been sold, Tomlinson and I, having become students at the Royal College of Art, spent a month or so of the summer vacation of 1911 doing pieces to replace those which had been destroyed.....Reginald Tomlinson did a pot with an appropriate design commemorating the Brussels fire. (212)

Several other awards were presented in different countries and Tomlinson received two gold medals at international exhibitions in Turin and Paris. (213) At a later date the two talented students Adams and Tomlinson also painted special pieces for the Exhibition at Ghent in 1913. In the same year Tomlinson was commissioned to decorate a very large vase over two foot in height to commemorate the visit of King George and Queen Mary to Bernard Moore's art pottery on April 22nd, 1913. The royal event was reported in "The Illustrated London News" on April 26th with an illustration 'drawn by our special artist', S. Begg. It was titled:

"AT A MECCA OF COLLECTORS: THE KING AND QUEEN IN THE POTTERIES".

Then sub-titled:

"In the show-room of the western potter who discovered the secret of the flambé glazes of the ancient Chinese: Mr. Bernard Moore showing the King and Queen the vase made by him to commemorate their visit" (this was the vase designed by Tomlinson).

The short text under the sub-title, in spite of the journalistic approach, is worth quoting in full since it describes Moore's show-room and the work painted specially for the occasion. (see p.214)

"On April 22nd, a day on which they spent over eight hours among the workers of the Potteries, the King and Queen visited the showroom of Mr. Bernard Moore, which is a Mecca of collectors; for Mr. Moore of all western potters can claim to have been the most successful in reproducing the beautiful flambé glazes of the Chinese. Their majesties were especially interested in a vase made to commemorate their own visit. On the upper part of this are the Royal Arms and an inscription; below is St. George and the Dragon. In one of these cases were some very old Chinese pieces side by side with some examples of Mr. Moore's early work, which showed his first step towards obtaining the wonderful red effect and his progress until he discovered the secret sought in vain by generations of potters."

After qualifying at the Royal College of Art, Tomlinson was appointed Art Director to the Crown Staffordshire Porcelain Company Limited from 1913 to 1919. During this same period he was also employed as 'Master of Life Drawing and Painting' at the School of Art in Stoke on Trent. From this point on, Tomlinson's career moves away from ceramics and industry and veers towards fields of education. He travelled south to Cheltenham in 1919, to become Senior Assistant and Painting Specialist at the School of Arts and Crafts and in 1922 he was appointed Principal of the same School. From 1925 he was employed by the London County Council in various capacities. He was Senior Inspector of Art and the acting Principal of the Central School of Arts and Crafts from 1935-36 and 1939-46. He was a very active person holding numerous other positions that related particularly to art education or painting and for his commitment and contribution to education he was awarded the Order of the British Empire in 1959.

His painting talents were employed in 1912 to assist in the decoration of the Palace of Peace at the Hague in Holland working with his fellow artists, John Adams, Fred S. Harrop and Arthur Scott. Later, he collaborated on another architectural commission in assisting R. Anning Bell R.A. to paint a large frieze at Birmingham University.

Aside from his dedication to art education, Tomlinson was also remembered as a portrait painter. His student colleague John Adams, who worked with him at Bernard Moore's studio, had his portrait painted by Tomlinson when he was managing director of the Poole Potteries. This painting now hangs in the new City Museum and Art Gallery at Stoke on Trent. Other eminent sitters have included, Sir Aylmer Firebrace, Sir Arthur Middleton, Douglas Macmillan, Edwin Bayliss and a number of others. (214) At a lighter level, along with other notable artists like Sir William Nicholson, Edmund Dulac, Adrian Stokes R.A., and Sir Alfred Munningsⁿ R.A., Tomlinson was invited to contribute work to the Queen's Doll's House. A happy bit of fun and virtuosity, this impressive model was one of the most popular exhibits at the British Empire Exhibition held at Wembley in 1924-25. (215) Tomlinson's paintings have been exhibited in most of the major Art Galleries in this country, including Liverpool, Birmingham, Brighton, New English Art Club, Royal Institute, Royal Academy and many other galleries. (216)

The books he wrote were all related in one way or another to the field of art education. In public life Tomlinson held a number of responsible positions of authority, he was President of the Royal Drawing Society, President of the Artists Annuity and Benevolent Fund as well as Master of the Art Workers Guild in 1955. (217)

John Adams was another early protégé of Bernard Moore. Born in 1882, into the environment of the heavily industrialised Potteries, he began to demonstrate a particular strength and bias for the visual world. Deft with a decorator's brush, he possessed also the ability and potential to produce individual designs. A student of Hanley School of Art, he

was engaged by Moore after working from an early age in the design studio of a nearby tile manufacturer, Henry Richard & Son (218). In working for this tile firm, he was able to develop and further his education by attending evening classes at the local Art School. Unlike Tomlinson, he was only employed on a part-time basis, designing and decorating for just two days a week from 1909 to 1910. (219) In his written articles that describe this experience at Wolfe Street, it would seem that Adams found the atmosphere of kindred spirits both stimulating and rewarding. Similarly, he developed a deep respect and affection for Bernard Moore, his employer. Even later, when he was studying at the Royal College in Kensington, he spent many of his vacations in the Potteries decorating for Moore.

Adams's early decorative style possessed qualities reminiscent of both Walter Crane and Reginald Tomlinson although graphically the draughtsmanship was not of the same mature standard. An allegiance to The Arts and Crafts Movement was apparent in his designs carried out for Bernard Moore. Although this influence was to be found everywhere, it was particularly commonplace in Art Schools throughout the whole country.

In 1972, the Trustees of the Cecil Higgins Art Gallery in Bedford purchased part of the Handley-Read Collection. Amongst this rich assembly of Victorian and Edwardian decorative arts there was a jardinière by Bernard Moore. This large earthenware pot, a blank made at Mintons, stands seventeen inches high and it was decorated by John Adams using a painted flambé red on top of a white glaze. The carbon from the reduction firing has penetrated the glaze leaving a gentle smoked quality in places. The jardinière inscribed, "The Passing of

Venus" bears a Crane influenced decoration illustrating the title. The design whilst painted spontaneously holds some uneasy passages, particularly where the frieze-like scenes articulate the story from left to right. This large receptacle for plants was displayed at the Royal Academy in 1972, when it still belonged to the Handley-Read Collection and the accompanying catalogue from this exhibition has a harsh criticism to make of this decoration:

"The figures and decoration reflect the influence of Walter Crane but the drawing and execution typify the slipshod standards too often seen in the works of lesser artists in the orbit of the Arts and Crafts movement." (220)

Slipshod would seem to be an inappropriate word to describe the work of a relatively inexperienced artist. The design evoked a feeling of an immature standard of composition which was probably executed under commercial pressures of limited time by an artist of limited experience but it was certainly not slovenly or careless. It was designed before John Adams had studied at the Royal College of Art and as an example it possibly serves to endorse the previous comments made on his draughtsmanship. By comparison with Tomlinson and with hind-sight, it does seem that John Adams was more of a creative potter with a greater sensitivity and feeling for form, surface and glaze than for applied decoration. His designs for Carter, Stabler and Adams would reinforce this viewpoint, for in later years his work shows a sculptural concern for form and a Bernard Moore type approach to experimental work with colours and glazes. Jennifer Hawkins has written of his earlier days at Poole saying:

"John Adams' particular contribution, also begun in these early years, was in the field of glaze experiment. Adams was what has been described by several of his colleagues as an 'art school' intuitive potter." (221)

Adams was awarded one of the Ten National Scholarships to the Royal College of Art, where he joined the Design School. Amongst his contemporaries, and also from the Potteries, was Dora Billington. They had both attended the pottery class, as it was called. Adams writes with enthusiasm about living and studying in London, discovering the galleries, the theatre, Charlie Chaplin and 'even the river trying hard to look like a Whistler Nocturne.' (222) He was fond of writing and in 1911 he shouldered responsibility as editor of the first Royal College of Art magazine, which appeared in December, 1911. (223)

Apart from working with Moore and his student colleague Tomlinson in the holidays at Wolfe Street, as previously mentioned, Adams with three other students spent two months in 1912 designing and decorating the Palace of Peace at The Hague. Whilst Tomlinson was painting the dome, wall tiling and stained glass had to be designed. It was known that Adams worked on the gilded reliefs that were on the vaulting over the main entrance. (224)

After qualifying at the College, Adams, with his broad experience of the pottery industry, was invited to remain at Kensington and run the 'pottery class'. This he agreed to do and he was put in charge of the small studio working with just a handful of students. During this period, he met and married Gertrude (called Truda) Sharpe, a fellow student and qualified designer. He left the Royal College in 1914 after accepting the position of Head of the School of Art, at Durban Technical

College. At this College in South Africa, he and his wife were able to establish a pottery section before returning to England about six years later. In 1921, he joined the Poole Pottery, which was now to be called, "Carter, Stabler and Adams". He joined as managing director while his wife Truda was to be the resident designer. (225)

The glazes that Adams developed at Poole were to replace the lustres in the 1920s, the lustres being associated with Art Nouveau, and therefore considered dated. He introduced studio potter's glazes made from wood ash and other variable materials or simulated the quality that these glazes possessed.

"In contrast, those purely chemical or metal-based glazes included not only the brilliant uranium-based orange, which every pottery intent on sales and a progressive reputation was obliged to produce from the mid 1920s, but also a group of dazzling Chinese and Persian Blues, the latter with a crackled appearance controlled in the firing. These glazes demanded the development of a stoneware body and in time a very fine dense material of the highest quality was made..... Many of these pieces and the larger painted wares were sold with a black wood stand, carved in a Chinese manner." (226)

During his period as managing director, nearly thirty years, Adams designed much functional tableware of quality. A good example of his ability as a designer would be the slip faced ware called "Sherborne", which appeared just after the second world war, shortly before he retired. It was produced for both dinner and tea services, showing white glazed areas alongside a very soft celadon green colour. The forms were simple and clear-cut with a distinctive angle at the feet of the hollow wares. Aesthetically and commercially it was a very successful design.

John Adams retired completely from the firm in May 1950 and died three years later in 1953.

The third celebrated designer and decorator for Bernard Moore was Dora May Billington (1890-1968). She, like Adams, was a native of the Potteries and her total commitment to ceramics was following a long family tradition stretching across three generations. Both her father and grandfather and most of her relations were connected with the pottery industry, either as manufacturers, decorators or some other related occupation.

"I have always been interested in pottery and always been a potter because I was born to it." (227)

This declared interest in pottery and pattern making was evident at school and at the age of sixteen she went to the local Art School at Stoke on Trent. There she studied the necessary curriculum for the Board of Educations's examinations with a view to attending eventually the Royal College of Art.

It was whilst she was at the Art School that she joined Bernard Moore, working for him on a part-time basis. Tomlinson, as principal designer at Wolfe Street, describes appointing Dora Billington to work in the studio in a letter written to Geoffrey Bemrose, saying:

"I engaged her as my assistant when she was a young student of Burslem School of Art." (228)

In an interview with John Farleigh, one of her fellow lecturers at the Central School of Arts and Crafts, she recollects with some gratitude

her early experiences in decorating for Bernard Moore:

"Nearby there was a small studio pottery run by Bernard Moore, who was quite a famous pottery chemist and consultant, and he employed people from the School of Art to come to his pottery and paint his pots for a few days a week. There I got my first insight into studio pottery, and for that experience I have always been grateful to Bernard Moore. I was doing this for, I think, two years before I went to the College. The work was very limited in outlook, but we had to be able to paint a pot straight away, which meant using the brush quickly; and such a training in the rapid use of the brush was invaluable." (229)

Just like Moore's other two artists, Tomlinson and Adams, she won a scholarship to the Royal College of Art, where she was 'directed into the Design School, since it appeared that design was considered to be my future.'

At the Royal College of Art, she became aware of the possibilities of pottery as an art form, an exciting and important discovery for a young student in the days before Leach, Staite Murray and Cardew. She enjoyed both brush decoration and throwing, delighting in the aesthetic qualities of the clay and the overall potential of individuality.

"A pot is both a piece of sculpture - a form in the round - and a vessel made for a practical purpose. Starting from the simple need for hollow vessels, pottery has developed its own aesthetic significance, which has a surprising universal appeal." (230)

She said that the Principal, Mr. Augustus Spencer asked, with that inconsequential tone peculiar to Art Schools, if a few of the students from the Potteries were sufficiently interested to work in the 'Pottery Class', otherwise he would close it down.

"Two or three of us did so, including John Adams of Poole Pottery, who was put in charge of the class. In a short time, however, he went to South Africa, and I was left to take over. Thus we carried on in an unofficial kind of way until the Principal sent for me and asked if I would continue to take charge of the 'Pottery Class', adding that if I got my Diploma he would hand the class over to me officially." (231)

As a student, at her house in Kingston, I was shown her final piece of work for her Diploma at the College produced before the first world war. The assignment was to select and research a historic artefact of quality, and part of this study was the production of a facsimile of the object. She had chosen a large thrown and painted Italian maiolica dish made in Faenza c.1500. I believe the subject matter was a ceremonial procession, which Miss Billington had very skilfully copied in tone and colour. In the same spacious dining room stood a small Bernard Moore flambé vase about eight inches high that she had decorated in her younger days with swift brushstrokes depicting some birds. This visit to her private house was made in the late nineteen fifties.

After qualifying, Dora Billington lectured at the Royal College of Art for a number of years and during that same period she also attended, on a part-time basis, drawing classes at the Slade. A policy change, introduced by Professor Rothenstein, stated that young staff should not stay longer than a set number of years and this in time caused her to leave. Having previously been invited by F.C. Burrige to teach evening classes at the Central School of Arts and Crafts, when she eventually left the College she was offered full-time employment in the pottery department at the Central.

Her work in ceramics was exhibited at Turin, Paris, Berlin and at the Paris Exhibition of 1930, where she was awarded a Bronze Medal.

Through these professional successes linked with her sensitive talent and gifted ability as a teacher, she was in due course appointed as Head of the Pottery Department at the Central. A tea set made by her and exhibited at the Arts and Crafts Exhibition Society, Guildhall, 1947, was admired by and presented to Her Majesty Queen Elizabeth. She also wrote two books on pottery. "The Art of the Potter" in 1937, and after the second world war, "The technique of Pottery"; this title is somewhat misleading since the book is not just concerned with technique but is based upon her cultural knowledge and teaching experience during her fecund years at the Central and it is still used by many students as a standard work. Her first book gives a condensed history of ceramics seen from an artist potter's philosophical viewpoint. It is interesting historically to note that nowhere in this compact volume does Bernard Moore's name appear nor does she make any mention of her early experiences of working at Wolfe Street. Rather, Dora Billington has selected for praise, in the period contemporary with Moore, the work of the Martin brothers, William De Morgan, Jean Carries and Charles Vyse.

Under her unique leadership, the Central Pottery Department gained some eminence and prestige, particularly in the early 1950s, with students of the calibre of Ruth Duckworth, Gordon Baldwin, Ian Auld and many others who have established a reputation. She enjoyed teaching, possessing the very rare power to motivate her students. She was always efficient and thoroughly organised; even in her later years, she showed enthusiasm reinforced with boundless reserves of energy. Her set assignments to students invariably involved brush-work decoration or brush-work exercises, which, in some measure, must owe their origin to her formative years as a young art student painting for Bernard Moore.

This selected group of artists, apart from Annie Ollier, decorated at Wolfe Street during Moore's early period before the First World War. However, the wares continued to be produced into the twenties. The 'second generation of painters' mentioned earlier in the text, such as Cicely Jackson and Evelyn Hope Beardmore were not quite of the same stature as Tomlinson, Adams and Dora Billington. Although Miss Beardmore seems to have been one of the most prolific decorators employed by Moore. Her dates of employment are not known; Mrs. Webb thought she was engaged by Moore during the war and this fits the comment made by Miss Dawson in her book on Bernard Moore (page 63).

"It is thought that Hope Beardmore worked for Wedgwood before going to Wolfe Street during the First World War period."

If this is correct, it does help establish, yet again, that the pottery studio functioned after 1915. The business of employing decorators on a part-time basis, meant that there were many decorators and quite a number of the signatures or initials cannot be identified. Such ad hoc arrangements could well explain the confusion of George Buttle's employment; he may have just been engaged on a free-lance arrangement? Dora Billington contributes some understanding of Moore's approach to the casual employment of decorators on page 162, when she says:

"he employed people from the School of Art to come to his pottery and paint his pots for a few days a week."

The very flexible nature of the pottery organisation at Wolfe Street could mean, with the passage of time, that more unknown decorators are still likely to appear. The lists on pages 208 to 210 in the notes,

contain six such examples. The names or initials of Moore's decorators were mainly compiled from the wares from many museums and the catalogues of Sotheby's Belgravia.

BERNARD MOORE AS A CONSULTANT.

Bernard Moore's experience of working in the ceramic industry for thirty-five years, with his special practical aptitudes, had laid a sound foundation for his career as a consultant. Additionally, he had accomplished a number of research projects before 1905. His experiments for Doultons, for example, with copper red glazes at high temperature, were well recognised and rewarded (see pages 94 and 95). His professional associations with established scientists, known to the ceramic industry, gave him additional breadth and knowledge as well as a perspective of this new occupation as a consultant.

Moore was an open minded observer of natural phenomena. An early example of this was demonstrated by an incident that occurred while staying in New Zealand. He had travelled to Australia originally, to exhibit Moore Brothers wares at the Sydney and Melbourne Exhibitions. Between these Exhibitions, he had toured New Zealand and visited 'Rotorua'. At this spectacular site, he had observed that a geyser which projected hot water violently against a wall of granite, left a debris which was quite plastic (232). Geologically, he was witnessing the formation of small clay beds made up from the decomposing felspathic rocks. He felt that this white clay-like deposit possessed all the properties needed for work on the thrower's wheel. (233) Moore was so excited by the nature of his discovery that he wrote officially to the appropriate civil servants. He described it in his own words saying:

"I reported in writing, in 1879, to the New Zealand Government on the plasticity of the debris from the rock caused by the geyser near the white terraces. It seems to me that the great cohesion of the particles of water is an important factor in plasticity."
(234)

Moore's natural curiosity was backed by the instincts of a good detective. His close friend and colleague, Dr. Mellor, refers to this aspect of the work in some written reminiscences of Bernard Moore, in an article entitled 'Sherlock Holmes.'

"I allude to his ability in assessing the relevancy of facts, to his skill in drawing superfine distinctions, and to his power of subtle reasoning, as he applied these gifts, in his consulting practice, to the rectification of faults in manufacturing processes." (235)

Common sense and clear thinking can solve the majority of problems, says Mellor in the same article, for only a small proportion of the troubles in pottery require any special scientific knowledge. As an example of this he describes an early case that Bernard Moore experienced as a professional consultant. The proprietor of a pottery wanted him to investigate an epidemic of chipped edges on finished plates. When Moore was asked the price, he said three pounds.

"I suppose," said the proprietor, "that means no cure, no pay." Mr. Moore explained that he did not take on jobs with such a condition, but, in the present case he would do so. The proprietor said the matter was very urgent and asked him to start his investigations the next day. Mr. Moore - I can see the twinkle in his eye - replied that the investigations were finished, and added that if he were supplied with half a dozen plates he would demonstrate how the chipping occurred. When this was done, he banged a couple of plates together at the edges and produced identical chipping. "Stop the banging and the chipping will cease - £3, please." The dazed proprietor handed over the money and seemed to have the feeling that he had been cheated." (236)

A simple case, told in a jocular manner, where the problem presented was instantly identified through experience. The cure was so obvious to Moore because he had seen the same troubles before, possibly at the family manufactory at Longton. Unpacking hot plates from the

saggars at speed if carried out by unskilled hands could cause much damage to the edges of finished work. Since the kiln men were paid on piece rate schemes generally, speed was of the essence. Possibly the strangest part of the case was that the proprietor himself did not recognise the symptoms.

Nine cases are recorded by Mellor, selected probably because they make interesting and diverse stories. All of them are essentially non-scientific examples that require the services of a detective rather than a chemist to find the solution. Some of the problems presented to Moore by manufacturers were, in reality, very sophisticated and it is worth quoting one more to demonstrate Moore's uncanny ability to solve the most intricate of enigmas.

"A most mysterious specking of the body occasionally appeared. The specks sometimes had one colour, sometimes another. The body might be right for weeks, and suddenly the specking would appear once more. The fault was worse in the summer than in winter. The raw materials, the water, the walls, and ceiling were all carefully examined, so that it appeared as if every possible source of contamination had been exhausted. One plausible hypothesis was that every now and then a workman was maliciously scattering colour stains over the body.

Ultimately, it was noticed that the specking appeared only after a wind had been blowing down a passage outside and only when the weather was warm enough to have the windows of the clay-shop open. Farther up the passage, there was a discharge from the aerograph fans. The wind carried some of the spray down the passage and through the open windows of the clay-shop on to the clay itself." (237)

It is apparent, with the number of variable factors in the manufacture of ceramics, that one could work for years on such a problem and never produce a solution.

As a chemist, several contributions were made by Moore to the ceramic industry and a number of manufacturers had reason to be grateful to him as a consultant and as a researcher. Percy Shelley indicates both of these attributes when he writes of Moore:

"I was one of the first, if not the first of his clients - he had long before generously given me valuable advice on bone, etc. He saved some Longton potters from catastrophe when they were in difficulties arising from bad bone or added impurities, and it was a great disappointment to him when the Longton china manufacturers turned down the suggested investigation of bone with Moore as adviser or supervisor. He would gladly have given all his knowledge, because he fully appreciated the probable future difficulty of bone supplies." (238)

Some of his research work reached a slightly broader audience through the annals of "The Ceramic Society". Bernard Moore read his best known and most important paper to the Society in 1906. It was entitled, "Cause and Prevention of Brown Stain in Bone China Bodies in the Enamel Kiln". (239) In the paper, he suggested how the stain occurred and more important proposed a remedy. His solution would not only obviate the stain but additionally it would substantially reduce the amount of dangerous flint used for bedding or placing the wares. Twenty-six years later, he wrote a 'supplement' called "Placing Materials for bone China." (240) The paper followed the initial theme from 1906 and it was warmly applauded by Dr. Mellor, who was deeply concerned that the industrialists had failed to recognise the significance of this important research:

"The paper to-night is a fitting sequel to that Mr. Moore published in our TRANSACTIONS (5,37,1906). Here we have a likely proposal for almost eliminating the deadly silicosis from the bone china industry, and for escaping the severe tax on the industry by the ravages of the Silicosis Act. Although the proposal has been before the potters for quite a long time, yet, with such momentous issues at stake, what has been done?" (241)

Considerable argument and discussion had followed the paper, weighing up the merit of Moore's proposed bone ash mixed with alumina as a placing material. At the end of the debate, Bernard Moore replied to the comments made, saying this:

"I wish to make it perfectly clear that I have no axe to grind in this matter. These investigations have been carried through at considerable personal sacrifice, and I believe that, to a certain extent, a discovery has been made - one which will have a great influence upon the future of the china trade. For this, if for no other reason, therefore, I think that manufacturers might be expected to show some interest in a problem of this sort. I have gone to considerable trouble in trying to make it easier for manufacturers to try out the material for themselves; I have had, however, very little help from the majority of them..... In conclusion, I can say that, although I am naturally anxious that the quality of bone china shall improve, the thing that gives me the greatest satisfaction is the fact that, as far as silicosis is concerned, the new material will make the British bone china industry the safest in the world." (242)

At the beginning of the century, Moore had shown great concern with the use of free lead in the potteries. As a consultant, he had made a number of contributions at a practical level in official inquiries, to help both the workers and the employers. (pages 97 and 98)

Fortunately, by the 1930s, lead poisoning in the Staffordshire potteries had virtually disappeared but the scourge of silicosis, which had received less publicity, still remained. A few months after the death of Bernard Moore, the President of 'The Ceramic Society', had these words to say:

"During the last few years of his life, the late Bernard Moore spent most of his time, and a great deal of his private money, in experimenting with a bedding medium for china bodies. Some of his results have proved to be sound, but the commercial possibilities of his investigations have not yet been exploited, and I feel that a great deal more research work might be done to obtain a bedding medium that will do away with flint. I believe there are still only three of four factories that are using substitute materials." (243)

Moore's position in the pottery industry was unique, in that he was an industrialist, master potter and a chemist, equipped with a very specialised understanding of the ceramic processes. Bernard Moore's knowledge of high temperature atmospheres and firing reactions for example was universally respected and admired. His achievements with the copper red glazes, his work on firing bone china and the various experiments with placing materials, are unrelated examples in one sense but unified by Moore's fascination of their changing properties under intense heat with differing atmospheres. His practical experience of chemical reactions at temperature, linked to an inquisitive and active mind, gave him an esoteric vocabulary of behaviour patterns affecting ceramic materials, when fired within the kiln. Hetherington writes of Moore's early association with Swann, the inventor of an incandescent lamp, saying that it brought Moore into research on reducing atmospheres. (244) He said that this happened in the late sixties or early seventies when in fact Moore would have been about twenty years old. Whilst one may feel slight doubts about the accuracy of Hetherington's dating, it none the less seems evident that Moore's curiosity and research experience stemmed from contacts such as these.

His experimental work and to some extent the Art Pottery were operated on such a comparatively small scale that at times, they must have been underwritten or supported by his work as a consultant. That he was a successful consultant is quite apparent by the clients who employed him. Moore worked with most major potteries in this country and a few in Europe, assisting with a great variety of problems. Firms such as Wedgwood, Minton, Pilkington Tile and Pottery Co. Ltd., W.T. Copeland

and Sons had all found reason to use his technical abilities and specialist knowledge. Moore's grandson still possesses files containing the names of many firms that Bernard Moore had dealings with as a consultant.

The final experiments he made, were with placing materials. These were carried out when Moore was over eighty years old and at times quite unwell. His ceaseless labours signify a very dedicated and philosophical person, who still retained a sense of life and still possessed a young curiosity towards the properties of the world about him.

"To his last day he was in full harness in order to be possessed of the means to help others." (245)

This moral tone of the obituarist is understandable but it should not obviate the evidence that Moore had a quality, almost a flair, for analysis and clear thinking which combined with his intuitive feelings for process. He was both observant and rational, therefore eminently suited to the consultancy roles which he assumed in his maturity.

CONCLUSION.

The appreciations of Bernard Moore written shortly after his death were not notable for their clarity or objectivity. Together with the obituaries, they were composed of emotionally charged words which overtly carried affection and sympathy from close friends and colleagues. The empty sense of loss, the heavy sense of grief made it an inopportune time for any substantial assessment of a life's work. Professor Henry Armstrong's appreciation was typical. He wrote:

"Much of his Sang de Boeuf (as was mentioned in his obituary in "The Times") is equal to the best Chinese in tone: no other potter has been able to produce the same purity of glowing scarlet, even when working with his prescription..... A composer in copper especially he gloried in being able with its aid to call up almost any colour upon clay." (246)

The quotation comes from his appreciation printed in "The Times", the same letter that Major Moore sought to correct, which is mentioned on page 117. Coldly analysing this paragraph in the appreciation gives a perspective of the emotional commitment. In reality, much of Moore's sang de boeuf does not equal the best Chinese in tone. They are quite different both scientifically and aesthetically. The best Chinese glazes are high fired, whilst the majority of Moore's reds are low fired, affecting the surface, depth and tone of the glaze. The blood of an ox is a dark red, a very low keyed red, it would be quite incorrect to describe it as a 'glowing scarlet'. Again, the word 'tone' is ambiguous, does it mean the strength of a colour, the lightness or darkness; the implication is that he was referring to the purity of the hue? The sentence is so imprecise that it fails to communicate. The second sentence is factually wrong; how can copper contribute to 'almost

any colour'? A high proportion of the large range of colours that exist in ceramics do so because copper is not used! If the professor means the vast numbers of reds possible, the greens to turquoise or even copper lustre then this would be so.

Professor Armstrong, who personally knew Moore and avidly collected his work (247), was eighty seven years old when he wrote this appraisal. A distinguished chemist in his time, he was writing more emotionally than scientifically about his friend. When he writes 'even when working with his prescription', presumably he was alluding to the efforts of Edward Wilkes?

The obituaries, whilst filled with fascinating fragments of personal information, tend to follow the style of Professor Armstrong. One concise and objective account, written by Gordon Forsyth, was contained in the "Report on the Present Position and Tendencies of the Industrial Arts as indicated at the International Exhibition of Modern Decorative and Industrial Arts, Paris, 1925". In the writing contained in the Report was one paragraph that briefly paraphrased Moore's life up to the year 1925 and touched on the salient qualities that he possessed. When this appreciation was composed he was seventy five years old.

"Mr. Bernard Moore, Stoke on Trent."

"Mr. Bernard Moore is the greatest living English Potter. Although he now devotes most of his time to advisory work, as an expert potter his productions are rare in quality and are greatly appreciated by connoisseurs. At one time a manufacturer of utilitarian china, Mr. Moore has devoted a great deal of his life to solving the problem regarding the making and decorating of hard paste porcelain, his most notable achievements being a wonderful range of flambé glazes, a rare blue turquoise crackle glaze and many different lustres from many metals. Like all great potters, Mr. Bernard Moore has a great kinship with the

finest Chinese productions, and his happiest moments are spent in rediscovering their secrets. A few excellent characteristic examples of his work were shown in the British Pavilion, mostly flambé glazes. Their excellence consisted in the fullness of the glaze and rich brilliance of their colours. There is no trace of dullness or opacity in his effect - they are masterpieces of the Art of the Potter." (248)

Although much younger, Forsyth was a friend of Moore and had reason to be grateful for his assistance and goodwill early in his career. Lomax, the author of "Royal Lancastrian Pottery", describes in his book the reason for Forsyth's gratitude:

"Iridescent lustre was calling loudly for some talented artist to display her charms. He had but to step in, look around, then begin to play his role: fortunate man! William Burton consulted Bernard Moore, who introduced him to Gordon M. Forsyth (then with Minton Hollins & Co., Tile Manufacturers) whom he forthwith engaged to take charge of the existing staff of artists. It was both a great responsibility and a severe test for one only 25 years of age." (249)

When Forsyth wrote Moore's obituary, he recalled this same kindness and Bernard Moore's modesty with these words:

"To me personally he was a prime factor in influencing the whole course of my life and work, and I am grateful for the opportunity of acknowledging the great service I received from his hands, which was in all probability considered by him to be a matter of trifling importance; but he was like that." (250)

Returning to Forsyth's report, which was an artist's viewpoint, it was not making sweeping generalised claims. To say, for example, 'Mr. Bernard Moore has a great kinship with the finest Chinese productions' seems to be a thoughtful, descriptive and accurate assessment of the situation. Bernard Moore was clearly regarded as an important potter when Forsyth wrote this appraisal. He was, after all, one of the few

individuals to emerge as a named personality with a potential for new directions in the pottery industry. His insatiable curiosity, his natural ability as a researcher together with his experience as a large manufacturer of commercial porcelain had all contributed to his unique understanding of glazes. This becomes wholly apparent when looking at a large and varied collection of his work. Unquestionably, his dominant contribution and strength lies in the field of his research and experiments with the rare and often difficult coloured glazes. His practical experience with sustained application over a great many years gave him an esoteric knowledge of materials at high temperatures. This comprehension, combined with his exceptional talent for controlling the delicate kiln atmospheres, helped to produce the range of copper red glazes and their variants that established him as a leading potter of his day. Moore had pioneered the production of these sanguine glazes, possibly as early as 1893, working at first in the lower temperatures. This early work would appear to relate to the methods used by William De Morgan and other lustre techniques. His success followed well in the wake of achievement by potters on the continent; for men like Salvetat, Deck, Seger, Chaplet, Doat and others had all made earlier contributions at the more difficult high temperatures. Yet Moore's contribution had produced a great range of glaze colours and surfaces, perhaps not all successful. Critically, it should be said that some of the red glazes are aggressively sharp and industrial in purity, quite removed from the natural and traditional red glazes of the Chinese. Charles Binns uses the words "indescribably rich" for some of the Doulton glazes which Moore had helped to produce, while Bemrose writes of the "lacquer effect" in describing the quality of some of Moore's glazes. However, when some of Moore's exciting high temperature

glazes are combined with equally fine and resolved forms, very high degrees of excellence are achieved. The work with these glazes is usually undecorated and unfortunately seems to be comparatively rare. Good examples are to be seen in the City Museum and Art Galley, Stoke on Trent.

Moore's multifarious activities and his ceramics are difficult to assess and put into perspective. In some ways with glazes he was like an artist potter, while in other respects he was imbued with the quest of the alchemist. Some work is timeless, reflecting the achievement of the Emperor's potters; while much of his decorated wares reflect an age and hint at an industrial type of production. All these properties exist in his work either singly or combined in differing proportions.

Moore's investigatory powers and perception as a consultant, his innate enthusiasm for experimentation, his shared labours with men of scientific stature, like Joseph and Sir William Burton, Dr. Mellor and others mentioned in the text, are all indicative of his major talent as a natural chemist. Moore's time, energy and commitments at Wolfe Street must necessarily have been consumed largely by his versatile scientific activities. It is apparent that his working existence was split into a number of different spheres of employment. Beyond being a consultant and a very individual potter, Moore had also lectured at the 'Pottery School' with his close friend Joseph Mellor. (251) He was a member of the Stoke on Trent Education Committee, as well as being a Governor of the North Staffordshire Technical College. (252) For all of these social and industrial contributions, Moore was fully honoured when the Pottery Manufactures' Federation presented him with his portrait,

painted by Oswald Birley. The presentation was made at a dinner given in his honour at the North Stafford Hotel in 1924. The speeches made that evening had particularly applauded his qualities as a chemist, paying tribute to his assistance in helping to develop the scientific aspects of the ceramic industry in the Potteries. This type of event and Moore's material life-style were more suggestive of and related to being a good consultant, than that of an art potter producing on a small scale such precarious and specialised wares. It also implies that the burden of responsibility in the pottery must have fallen squarely on the shoulders of the chief designer. Tomlinson, for instance, would have played a major role in the day to day running of the studio, apart from Moore's involvement with the glazes and the firings. His role could almost be compared to that of Mr. Hackney, the manager of Moore Brothers at the end of the century.

Throughout his life Moore's consultancies were his major occupation, providing the financial stability to support his family. For Moore other spheres of activity, through necessity, were subordinate to this more lucrative area, over which he exercised complete control. For unlike the controls of a major manufactory which depend upon a chain of influence, Moore could deal in his own expertise which was widely recognised from early on in his career. The art pottery had been supportive, providing a favourable ambiance and a good advertisement for Moore's consultancies. The showroom particularly, displaying the rare and specialised glazes was, to some extent, a confidence building experience, to assure potential clients of the exceptional talents available to deal with their problems. The best work in the showroom was not for sale, hence the Rhead brothers

felt cheated because they could not purchase the pots they wanted. (253) The showroom was by far the largest room in the building. The ergonomics of this important space was twofold, it provided a selling area for the highly individual work of the art pottery as well as being an impressive and visually persuasive environment for all visitors. Moore was a good salesman. The concept of his showroom was indicative, in many respects, of his feeling for theatre. From his earliest days at school he had been on stage. Mellor in his reminiscences of Moore devotes a whole chapter to what he calls, "The Dramatic Sense", and the showroom was provided with quite a dramatic décor.

In 1902, Moore had presented a gift of three red glazed vases to the British Museum. (254) There is no evidence that he was invited to submit this work and we must assume that it was an unsolicited gift on his part. After all, many influential people would then see the rare glazes of this man of the Potteries and at this time Moore was well aware of the need to advertise his wares in the most advantageous way.

Many sources agree that Moore was a kindly absent-minded man, an image that was conjured up from his later years. In his younger days the situation was quite the reverse. He was an extremely lively and alert personality with a natural aptitude for sport, always with a very strong desire to win. (255) There are many humorous tales of Moore's forgetfulness relating to his appearance but again these mostly describe him towards the end of his life. As a young man, Mellor tells us, "Mr. Moore was one of the best dressed men in Stoke on Trent." This healthy,

smart and well-heeled personality was the Bernard Moore who travelled to Australia, Europe and America to attend exhibitions and to sell porcelain. This zest for life remained with the man who presented work to the British Museum and established the consultancy and pottery at Wolfe Street.

Whilst the pottery played an integral role in the organisation devised by Moore, it could be that he established the pottery initially with the thought of his son inheriting it, thus following the family tradition. Although equally opposed to that supposition, the control and production of copper red glazes is liable to be an addictive, dramatic pursuit and cannot therefore be compared with that of any form of manufactory, in which commercial gain and production schedules are the prime reason for an individual's employment.

In many respects, Bernard Moore's overall role or sense of role was ambiguous. Neither by virtue of his education nor his professional training was he obviously equipped to fit into the artistic or industrial organisations of late Victorian and Edwardian life. In many ways, he was an entrepreneur and a pioneer, possessing many wide ranging talents. He was essentially a practical person, performing the 'doing' function of a scientist or craftsman, from a different class of society. The evidence makes it clear that Bernard Moore was first and foremost a natural chemist and a man of some culture, who enjoyed considerable success with his art pottery and glaze research in his own age. Since then, the knowledge of both his reputation and his notable contributions to ceramics has diminished and is now worthy of re-appraisal.

FOOTNOTES TO THE TEXT.

- Page 2 1. The "Minton Archives", London Road, Stoke on Trent, has many examples of prices paid for purchasing glaze recipes in the past. These are to be seen in a number of the pottery recipe books housed in the collection. Usually they occur at the beginning of the recipe. 'Purchased from Mr..... for £25, the transparent glaze used byPorcelain Company.'
- Page 3 2. BUSHELL, S., "Chinese Pottery and Porcelain", Kuala Lumpur, publ. Oxford University Press, 1977, page 28 - the number of kilns at Ch'ing-tê-chên.
Other descriptions of kilns at Ching-tê-chên.
- a. BUSHELL, S., "Oriental Ceramic Art", London, Frederick Muller, Reprint, 1981, page 151, from D'Entrecolle's first letter, written in 1712:
- "The sight with which one is greeted on entering through one of the gorges consists of volumes of smoke and flame rising in different places, so as to define all the outlines of the town; approaching at nightfall, the scene reminds one of a burning city in flames, or of a huge furnace with many vent holes."
- "In ancient times, according to the history of Feou-lean, there were only three hundred porcelain furnaces at King-te-tching - now there are at least three thousand."
- b. STAUNTON, G.B., "An historical account of the Embassy to the Emperor of China", London, publ. John Stockdale, 1797. Description of Ch'ing-tê-chên in 1792:
- "A village in the neighbourhood contained three thousand furnaces for baking porcelain....."
- c. GULLAND, W.G., "Chinese Porcelain", London, publ. Chapman and Hall, 1898, page 6.
- "Writing in 1837, Gutzlaff tells us: Five hundred ovens are constantly burning, and emit during the night a flame which gives the region surrounding the appearance of a lake of fire."
3. SAYER, G.R., "T'AO-LU", London, publ. Routledge & Kegan Paul, 1951, page 79, note 25, from the writings of T'ang Ping-chün, under a section headed, "A summing up on Ming porcelain".

- Page 4 4. NEEDHAM, J., "Science and Civilisation in China, Vol I. Introductory Orientations", Cambridge, publ. Cambridge University Press, 1954. Four other volumes have been published since, under the same broad title.
- Page 5 5. Op. Cit., no.2, page 28.
6. Dora Billington was Head of the Ceramic Department at the Central School of Arts and Crafts when I was a student there from 1954 to 1958.
- Page 6 7. READ, R., "Eighteen Books Of the SECRETS OF NATURE", London, publ. Simon Miller at the Starre in St. Paul's Church-yard, 1660, page 233.
- Page 7 8. Op. Cit., no.2c, page 141.
- Page 8 9. Ibid., first page of preface.
- Page 10 10. Op. Cit., no.2a, page 148.
11. VAN OORT, H.A., "The Porcelain of Hung-Hsien", N.V. Uitgeversmaatschappij De Tijdstroom Lochem, 1970, page 72. (There seems to be some variation about the date of the founding of the Imperial factory, Van Oort gives 1370, whilst Bushell proposes 1369 - BRANKSTON in "Early Ming Wares of Ch'ing-té-chên", writes of 'Pearl Hill' and not 'Jewel Hill'.
- Page 12 12. BURTON, W., "Porcelain, its Art and Manufacture", London, publ. B.T. Batsford, 1906, page 95.
13. Ibid., page 115.
- Page 13 14. Op. Cit., no.3, page 111, number 10.
- Page 14 15. Ibid., page 44.
16. Ibid., page 45.
- Page 15 17. Op. Cit., no.2, page 67, first footnote.
18. COLLIE, J.N., "Notes on the "Sang de Boeuf" and the Copper Red Chinese Glazes" from "Transactions of the Ceramic Society", Vol. 17, 1917-18, page 380.
- Page 16 19. Op. Cit., no.8, page 64.
20. BUSHELL, S.W., "Chinese Art", Vol. 2, V & A Museum 1909, page 29. Writing on the sixteenth century.
- Page 17 21. MARRYAT, J., "A History of Pottery and Porcelain", London, publ. John Murray, 1868, third edition, page 243.
22. Op. Cit., no.2, pages 194 and 195.

23. Op. Cit., no.2a, page 251.
24. BRANKSTON, A.D., "Early Ming Wares of Ch'ing-tê-chên", Hong Kong, publ. Vetch and Lee, 1970, page 25. Also Bushell "Oriental Ceramic Art", page 251.
- Page 18 25. Op. Cit., no.2a, page 142.
- Page 19 26. Catalogue, "The Untermeyer Collection", The Metropolitan Museum of Art, 1977, page 13, no.4.
27. WATSON, F., "Chinese Porcelains in European Mounts", China Institute in America, 1980, page 25.
28. Op. Cit., no.3, page 23.
- Page 20 29. Ibid., page 55.
30. Op. Cit., no.2, pages 49 and 50.
- Page 21 31. Op. Cit., no.2a, page 189.
- Page 22 32. Ibid., page 160.
33. FRANKS, A.W., "Collection of Oriental Porcelain and Pottery", publ. for the 'Bethnal Green Branch Museum' by the 'Science and Art Department of the Committee of Council on Education', 1876, page 6.
34. Op. Cit., no.2, page 5, second footnote.
- Page 24 35. Op. Cit., no.3, page 49.
36. Op. Cit., no.2a, page 207.
- Page 25 37. MELLOR, J., "Transactions of the Ceramic Society", January 1937, page 46.
38. DOAT, T., "Grand Feu Ceramics", Syracuse, N.Y., Ceramic Studio Publishing Company, 1905, page 172.
39. BURTY, P., "Industrial Arts", edited by Chaffers, publ. by Chapman and Hall, 1869, page 137.
- Page 26 40. Ibid.
41. HOBSON, R.L., "Handbook of the Pottery and Porcelain of the Far East", publ. for British Museum, 1937, page 85.
42. Catalogue, "Sotheby's Belgravia, Decorative Arts 1870-1940", April 19th, 20th and 21st, 1978, page 94, no.423.
43. Catalogue, "Bernard Moore, Master Potter 1850-1935", publ. for the V & A Museum, 15th December 1982, page 10.

- Page 27 44. BINNS, C.F., "Lessons from the St. Louis Exhibition, 1904", in "The American Ceramic Society Transactions", Vol.7, Part I, 1905, page 47.
45. Op. Cit., no.12, page 116.
46. HANNOVER, E., "Pottery and Porcelain, Vol.II The Far East", London, publ. E. Benn Ltd., 1925, page 14.
- Page 28 47. Op. Cit., no.3, page 111.
48. "Catalogue of Porcelain Monochromes", in the "National Palace Museum", Taiwan, Republic of China, page 29.
49. List of names see page 242.
50. MEDLEY, M., "The Chinese Potter", Oxford, publ. Phaidon, 1976, page 251.
51. Op. Cit., no.12, page 87.
52. Ibid, page 99.
- Page 29 53. "Porcelaines de Sèvres au XIX^e siècle", publ. by "Musée National de Céramique, Sèvres", for an exhibition at Sèvres from May 24th to November 3rd, 1975, page 23.
- Page 31 54. Op. Cit., no.38, page 11.
55. D'ALBIS, J., "Chaplet, Master Potter" in "Connoisseur", June 1976, page 134.
- Page 33 56. Author studied at Sèvres in September, 1983.
57. BRONGNIART, A., "Coloring and Decoration of Ceramic Ware", Chicago: publ. by Windsor and Kenfield, 1898, page 49.
58. Op. Cit., no.39, page 116.
- Page 34 59. JACQUEMART, A., "History of the Ceramic Art", (translated by Mrs. Bury Palliser), London, publ. S.Low, Marston, Low and Searle, 1873, pages 49, 50 and 51.
60. Ibid., page 49.
- Page 35 61. SOLON, L.M.E., "Ceramic Literature", London, publ. C. Griffin, 1910, page 223.
62. Op. Cit., no.61, page 223.

- Page 36 63. GARNIER, E., "Manufacture of Sèvres Porcelain", in "Journal of the Society of Art", no.37, 1888-89, page 275.
64. Op. Cit., no.38, page 54.
- Page 37 65. Op. Cit., no.57, page 49.
66. Ibid., page 51.
- Page 41 67. HECHT H. & CRAMER E., "The Collected Writings of Hermann August Seger", Easton PA: publ. The Chemical Publishing Company, 1902, (two vols.) vol.2, page 1044.
68. Notes for the Ceramic Industries in "Staffordshire Weekly Sentinel", July 8th, 1905, no.41. The firing, last paragraph.
69. Op. Cit., no.67, page 1042.
70. Ibid.
71. Ibid.
- Page 42 72. Ibid., page 1043.
73. Ibid., page 1046.
- Page 43 74. Ibid., page 1047.
75. Op. Cit., no.53, pages 31 and 32.
- Page 46 76. VOGT, M.G., The Scherzer Report in "Bulletin Société d'Encouragement pour l'Industrie Nationale", Paris, April, 1900. (Translated by J.Campbell) page 530.
77. Ibid., page 532.
- Page 47 78. Ibid., page 534.
79. Op. Cit., no.67, page 963.
- Page 48 80. Ibid., page 1046.
81. LOMAX, A., "Royal Lancastrian Pottery 1900-1938", Bolton, publ. by the author, 1957, page 67.
82. Op. Cit., no.76, page 586, diagram of saggar.
- Page 49 83. Op. Cit., no.55, page 129.
84. Ibid., page 135.
- Page 50 85. Ibid.
- Page 51 86. Op. Cit., no.38, page 173.

- Page 51 87. Op. Cit., no.55, page 135.
88. Ibid., page 136.
89. Ibid.
90. Ibid., page 135.
- Page 52 91. Ibid.
92. Ibid.
93. RUSTON, J.H., "Ruskin Pottery", West Bromwich, publ. by the Metropolitan Borough of Sandwell, 1975, page 26.
- Page 53 94. ARMSTRONG, H.E., Obituary in "Transactions of the Ceramic Society", May 1935, page 40A.
- Page 54 95. LAUTH & DUTAILLY, "Recherches sur la porcelaine", Paris, publ. by 'Publications Du Journal Le Gene Civil', 1888, containing the paper, "Sur les rouges de cuivre les flammés et les céladon", page 37.
96. MELLOR, J.W., "Notes for the Ceramic Industries" in "Staffordshire Weekly Sentinel", July 1st, 1905, first paragraph.
- Page 55 97. Op. Cit., no.38, page 11.
- Page 58 98. Op. Cit., no.67, page 735.
99. DAWSON & OPIE, "Bernard Moore Master Potter 1850-1935", London, publ., by V & A Museum, 1982, page 9, No. 1.
- Page 60 100. Op. Cit., no.94, page 42A by G.M. FORSYTH.
- Page 61 101. Op. Cit., no.12, page 170.
102. Ibid., page 261.
- Page 62 103. RHEAD, G.W., and RHEAD, F.A., "Staffordshire Pots and Potters" (reprint) EP Publishing Limited 1977 (original 1906), page 370.
104. Date documented in Miss K. Moore's transcript 14.4.81. (also photographed).
- Page 64 105. MELLOR, J., "The absent-minded beggar" in "Transactions of the Ceramic Society", October 1937, page 409.
- Page 65 106. Op. Cit., no.94, page 44A by P. SHELLY.
107. Op. Cit., no.104.

- Page 65 108. Documented in a letter from the Rev. Keegan, a member of staff at Mount St. Mary's College - 21.6.81.
- Page 66 109. Ibid.
110. JEWITT, L., "Ceramic Art of Great Britain", publ. J.S. Virtue and Co. Ltd., 1st Edition 1878, pages 394-5.
111. Death certificate pasted into family scrapbook.
- Page 67 112. Op. Cit., no.110, pages 394-5.
- Page 69 113. Op. Cit., no.12, page 21.
114. PHILLIPS BEVAN, G., "British Manufacturing Industries", published by Stanford, page 71. From a section by Arnoux.
115. GODDEN, G., "An Illustrated Encyclopaedia of British Pottery and Porcelain", London, publ. Barry & Jenkins, 1964, page 241.
An example of a Moore Brothers pâte-sur-pâte.
- Page 70 116. Op. Cit., no.110, pages 394-5.
- Page 71 117. Ibid.
118. Ibid.
- Page 72 119. Op. Cit., no.114, page 44.
- Page 73 120. Miss Kay Moore thought the drawings in her father's wallet were by an artist called, "Villier, Charles Villier, I think", she explained, they had met in Sydney and they had become friends. The three drawings (one was painted with water colours), were all figures drawn possibly at the exhibition; one of the men drawn was a military officer. Bernard Moore obviously valued these sketches as he had kept them for the rest of his life. His daughter thought the artist worked for a newspaper or magazine.

HOUF, S., "The Dictionary of British Book Illustration and Caricaturists 1800-1914"

Fred Villiers 1851-1922

Artist and illustrator of military subjects. Studied at the British Museum and at South Kensington. Artist for "The Graphic". Left England in 1878 for world tour collecting drawings for "The Graphic".

"The Graphic", magazine for 1879 (a bound volume for the last six months of 1879), shows an engraving on page 584 after a drawing by Villier entitled, 'Fijians performing a war dance' (this was at the Sydney Exhibition).

120. More drawings were found by Villier transcribed into engravings in several magazines of 1880.

P.484. Villier illustration of 'The Ladies Gallery, Parliament House, Wellington, New Zealand (making allowance for travel, they were both in New Zealand about the same time)'.

P.493 another illustration, 'Interior of the Reading Room' (Melbourne).

The evidence would suggest that Fred Villier was Bernard Moore's friend in Australia.

121. A letter written by Bernard Moore and now owned by Miss Kay Moore:

P.S. Aug 30th. We have a very good space in the Exhibition. Sydney Aug 20th 1879

My dearest Mother,

This looks rather a formidable piece of paper for me to tackle and you scarcely deserve a long letter for not writing to me by the last mail which left London July 4th via Brindisi. I expect it will turn out that the letters were posted a day late or were addressed wrongly. I am sure you intended to write so it is all right - I am getting on very well and I like Sydney very much, it is a lovely place and the climate is lovely, I shall be glad however when I get something to do. The space is not yet allotted to the English Exhibitors but I believe it will be tomorrow and then I shall set to work to get the case put up and all the things unpacked. I have very little news, I wrote to Sam yesterday and you will no doubt see that letter. I told him when the Exhibition was to open. You must not expect to hear how it goes on, whether it is a success or not, till Xmas at soonest - I went to a dance on Monday last, I enjoyed it very much, very nice people - I am still staying at Petty's Hotel.

(other side of page)

Write always by this San Fransico mail and by the Brindisi mail via Melbourne and any other way you can - Now dear old lady I must say goodbye you don't know how sorry I was to hear that you had been so unwell I hope you are all right again now. You must take care of yourself. You will hear what news I have not sent you from Sam I have written to him and to Alice.

Your loving son
Bernard

(cont.)

- Page 73 121. P.S. Thank Dr. Rollie and Katie for their letters I was so pleased to get them. I will send a line to them by this mail but I am so busy with this case I have very little time.
- Page 75 122. From the 'Official Record of the Sydney International Exhibition 1879', page 204.
123. RENWICK, A., 'Melbourne International Exhibition, 1880-81. Report of Executive Commissioner, New South Wales', page 28.
- WHITWORTH, R.P., 'Massina's Popular Guide to the Melbourne International Exhibition of 1880-81', says on page 39, "The exhibit of chinaware and crockery of Messrs. Moore will attract attention".
- Page 76 124. Op. Cit., no.120.
- Page 78 125. ADAMS, J., An article called "Potters' Parade" in 'Pottery and Glass', November 1949, page 31.
126. MELLOR, J., 'Staffordshire Weekly Sentinel', July 1st, 1905. An article headed 'Notes for the Ceramic Industry'.
127. Op. Cit., no.125, page 31.
- Page 79 128. Op. Cit., no.104, page 32.
- Page 80 129. A letter from the curator of "The Wedgwood Museum" dated 9.10.81., confirming that Audrey Wedgwood sought the advice and friendship of Bernard Moore. The 'crayfish bowl' is in fact a 'Lobster Salad Bowl' and the design was registered on July 11th, 1883.
- The bowl is illustrated in a book by BATKIN, M., 'Wedgwood Ceramics 1846-1959', London, publ. Richard Dennis, 1982, plate no.233. It is called a 'lobster bowl' and has the date stamp for 1885.
- A similar red glazed bowl "with lobster legs" marked Bernard Moore and impressed Wedgwood was auctioned by Louis Taylor & Sons of Hanley on 16th June, 1972. It was part of the Leighton Collection, no.21 in the catalogue.
130. WEDGWOOD, J.C., 'Staffordshire Pottery and it's History', London, publ. Sampson Low, Marston & Co. Ltd., 1913, page 207.

- Page 81 131. "Sotheby's Belgravia Catalogue", July 12th, 1973, page 13, no.21.
- "It would seem to have been an accepted practice at Wedgwood for decorators to drop in and paint a vase on a standard blank, see Bernard Moore/Wedgwood bowl sold in these rooms on March 22nd, 1973, lot 21." This refers to the 1893 red glazed bowl supported by three crayfish feet. The same type of bowl was also auctioned from the Leighton Collection, by Louis Taylor and Sons, Hanley, June 16th, 1972. (mentioned on page 80).
- Page 82 132. Op. Cit., no. 81, page 93.
- Page 83. 133. DAWSON, A., "Bernard Moore, Master Potter 1850-1935", London, publ. Richard Dennis 1982, page 77.
134. BURTON, W., Lecture entitled "Lustre Pottery" printed in "Journal of the Society of Arts", June 7th 1907, pages 764 and 765.
135. Op. Cit., no.125, page 31.
- Page 84. 136. Op. Cit., no.134, page 764.
- Page 89 137. Lustres were used right through the nineteenth century their origins going back many centuries. In the 2nd half of the nineteenth century, it is said, two Italians gave instructions on how to produce lustres if the raw materials were bought from them. A copy of these instructions resides in the 'Minton Archives' and their content was well known in the Potteries. A further copy is included in the technical notes on reduction. (p.284)
- Page 90 138. Op. cit., no.57, pages 49 to 51.
- LAUTH C., & VOGT., "Notes techniques sur la fabrication de la porcelaine nouvelle", Paris, Unsinger, 1885, pages 28 to 38.
- VOGT, G., "Recherches sur les porcelaines chinoises", Paris, 1900. This contains the 'Scherzer Report' sent to Sevres in 1882, it is a study of porcelain produced in 'King-te-tchen', including information on the copper red glazes, pages 585 to 590.
- Page 91 139. "The Pottery Gazette", June 1st, 1905, page 674.
140. Op. Cit., no.94, page 44A.
- Page 93 141. ANON., "Pottery Recipes", London, publ. Smith, Greenwood & Co., 1884, page 54, recipe 108 called 'Peach Blossom'.

- Page 93 142. Op. Cit., no.81, page 67.
143. Ibid., pages 22-23.
- Technical information of practical interest from Lomax.

Page 67

"Almost all the glazes used in these early experiments were leadless. (writing about the red glazes)
The pieces were usually fired in saggars in an ordinary glost oven and sometimes in a muffle kiln. The saggars were double walled with the intervening space filled with a mixture of rice carbon and granular flint to produce a reducing atmosphere and their tops were covered with lids. Later, carbon impregnated saggars, produced by saturating the walls and base with concentrated sugar solution, were used."

Page 68

"To correct a misapprehension that is abroad it should be stated that all Royal Lancastrian Rouge Flambé had low temperature glaze."

- Page 94 144. Op. Cit., no.81, page 88.
145. EYLES, D., "Royal Doulton 1815-1965", London, publ. Hutchinson, 1965, page 153.
146. EYLES, D., "The Doulton Burslem Wares", London, publ. Barrie and Jenkins/Royal Doulton, 1980, page 52.
- Page 95 147. RIX, W.P., "Art Journal", 1905, page 113.
- Page 96 148. Op. Cit., no.145, page 156.
149. Ibid.
- Page 97 150. From an unsigned obituary in "The Pottery Gazette and Glass Trade Review", May 1st, 1935, page 655.
- Page 98 151. FURNIVAL, W.J., "Leadless decorative tiles, faience and mosaic", Stone, publ. by the author, 1904, page 7.
152. Op. Cit., no.104.
153. Ibid.
- Page 99 154. Op. Cit., no.150.
155. Op. Cit., no.104, page 31.
- Page 100 156. Ibid., pages 31 and 32.
157. Op. Cit., no.94, page 42A.

- Page 100 158. Op. Cit., no.139, page 674.
- Page 104 159. FORSYTH, G.M., an article entitled "Bernard Moore, Potter", in "The Furnishing Trades Organiser", August 1929.
160. Conversation with Mrs. Nancie Webb on the 9.6.82. in the building that was Bernard Moore's Pottery in Wolfe Street.
161. Observations from an illustration by S. Begg for "The Illustrated London News", April 26th, 1913. The monochrome painting records the Royal Visit, showing the King and Queen with Bernard Moore in his showroom.
162. Op. Cit., no.103, page 371.
163. ELLIOT, G.W., "Harrison Mayer, Newsletter No.21", interview with R.R. Tomlinson at the age of ninety-three, no date and no page number.
- Page 106 164. Op. Cit., no.125, page 31.
165. Op. Cit., no.163.
- Page 108. 166. CARLYLE, T., "Signs of the Times", 1829.
- Page 110 167. Op. cit., no.105, page 412.
168. Ibid.
- Page 111 169. "The Manchester Guardian", Thursday, September 2nd, 1909.
- Page 112 170. Op. Cit., no. 94, 41A by HETHERINGTON.
171. Ibid., page 42A.
- Page 113 172. HETHERINGTON, A.L., "Chinese Ceramic Glazes", Cambridge, publ. Cambridge University Press 1937, pages 108 and 109.
- Page 118 173. Magazine from Mount St. Mary's College, Spinkhill, "The Mountaineer" under 'Varia', Summer, 1935.
- Page 119 174. Ibid.
- Page 122 175. Op. Cit., no.105, page 405.
176. Op. Cit., no.105, page 407.
- Page 123 177. Op. Cit., no.94, page 41A.
- Page 124 178. Ibid., page 39A.
179. Op. Cit., no.105, page 409.

- Page 124 180. Op. Cit., no.94, page 43 by PLANT.
181. For example, the Andrade Collection at Plymouth contains:
- Mouse and pumpkin.
Gondola or canoe with eastern figures linked to a vase in the form of a tree attached to one end.
Duck on rock.
Crouching toad.
Kylin.
- Page 126 182. Op. Cit., no.38, page 11.
- Page 127 183. Ibid., page 25.
184. Op. Cit., no.81, page 67.
- Page 128 185. Op. Cit., no.163, no page number.
186. MEDLEY, M., "A Handbook of Chinese Art", London, publ., Bell & Hyman, 1979, page 59.
- Page 131 187. BEMROSE, G., "19th Century English Pottery and Porcelain", London, publ. Faber and Faber, 1925, page 43.
- Page 132 188. Op. Cit., no.125, page 31.
189. FORSYTH, G.M., "Art and Craft of the Potter", London, publ. Chapman and Hall, 1934, page 79.
- Page 133 190. City Museum and Art Gallery, Stoke-on-Trent, examples of trailed effects:
3725 Copper red vase with trailed slip and 2708 a trailed plaque of St. George and the Dragon.
- Page 134 191. Op. Cit., no.50, page 207. Known to Chinese as, 'fa-hua'.
- Page 136 192. Op. Cit., no.133, page 86.
- Page 137 193. Ibid.

- Page 138 194. OGDEN'S, Ltd., "Modern British Pottery" (cigarette cards)
 Series of 50, Cards no.6 and no.7.
 Number 6, titled 'Bernard Moore Ware'
 "This is a very beautiful and rare specimen of the high temperature copper red glazes known as "Peach Blow". It has been fired at about 1400 deg., and the colour depends not only on the composition and temperature, but on the atmosphere in the kiln during the firing. £10,000 was once paid for a specimen of old Chinese Peach Blow, which was only about six inches high. The illustrated piece, which is of similar character, was made by Mr. Bernard Moore, of Stoke-on-Trent, and is probably unique."
- Number 7, titled 'Bernard Moore Ware'.
 "European potters have for many years tried to reproduce the ruby red glazes of the Chinese. Mr. Bernard Moore of Stoke-on-Trent, has experimented in this direction for more than forty years. He has not only succeeded in getting the high temperature effects of the Chinese, but has also succeeded in obtaining from the copper a similar tint without any iridescent lustre, and in this way has produced a new effect of which this vase is a specimen.
- Page 140 195. Op. Cit., no.125, page 31.
- Page 142 196. Ibid.
197. Op. Cit., no.163.
- Page 144 198. ELLIOT, G.W., a tape recorded interview with Tomlinson, from the "City Museum and Art Gallery", Stoke-on-Trent.
199. From a conversation with Mrs. Nancie Webb (daughter of Annie Ollier) and Mrs. Florence Hall (grand-daughter of E.R. Wilkes) on 9.6.82. Recorded on tape.
- Page 145 200. ATTERBURY, P., "A forgotten art pottery" in "Country Life", May 6th, 1976, page 1200.
- Page 146 201. Op. Cit., no.199.
- Page 148 202. Ibid.
- Page 149 203. Catalogue for "Centenary Exhibition 1853-1953", at Stoke-on-Trent, College of Art, 1953.
 Entry for George Buttle;
 Buttle, George Allan (1870-1925), a student at the Wedgwood Institute, Burslem (1893-96).
 These dates could well have come from Reginald Haggard as he served on the exhibition committee.
204. Op. Cit., no.133, page 54.

- Page 150 205. Entries in the catalogue for Buttle's painting and vases are as follows:
16. The three bays, south coast of Anglesey. Oil, 24½ in x 27 in.
146. Vase in porcelain made by Bernard Moore with decoration "The Chinese Queen", painted in colours. Ht. 7 in. Lent by Major B.J. Moore, M.C.
147. Vase in porcelain made by Bernard Moore, with decoration "Stars and Thistle", painted in colours. Ht. 5½ in. Lent by Major B.J. Moore, M.C.
206. "Pottery Gazette", February 2nd, 1920, page 201.
207. "Pottery Gazette", August 2nd, 1920, page 1050.
- Page 151 208. Entry for Tomlinson R.R., in "Who's who", 1969, page 3100.
209. Op. Cit., no.163.
- Page 152 210. Leicester Museum bowl - 94 A 1963 - at New Walk.
- Page 153 211. Letter included in notes, page 204 and 205.
- Page 154 212. Op. Cit., no.125, page 31.
213. Op. Cit., no.163.
- Page 156 214. Op. Cit., no.208.
215. Entry for TOMLINSON, R.R., in "A Dictionary of Contemporary British Artists 1929", (edited by Bernard Dolman), Woodbridge, publ. by the Antique Collectors Club, page 457.
216. Entry for TOMLINSON, R.R., in "Who's who", 1934.
217. Op. Cit., no.208.
- Page 157 218. Conversation with Mrs. Nancie Webb, 9.6.82.
219. Op. Cit., no.125, page 31.
- Page 158 220. Catalogue of Handley-Read Collection, "Victorian and Edwardian Decorative Art", an exhibition at the Royal Academy of Arts, 1972, page 89.
- Page 159 221. HAWKINS, J., "The Poole Potteries", London, publ. Barrie and Jenkins, 1980, page 82.
222. Ibid., page 73.
223. "The Studio", 1912, February, page 74.

- Page 159 224. Op. Cit., no.221, page 75.
- Page 160 225. Ibid., page 77.
226. Ibid., page 82.
- Page 161 227. FARLEIGH, J., "The Creative Craftsman", London, publ. G. Bell and Sons, 1950, page 189.
228. Letter from Tomlinson, see notes pages 204 and 205.
- Page 162 229. Op. Cit., no.227, page 190.
230. Ibid., page 191.
- Page 163 231. Ibid., page 190.
- Page 167 232. MELLOR, J.W., "Clay and Pottery Industries", London, publ. by Charles Griffin and Co. Ltd., Vol.I, page 67.
233. Ibid.
234. Ibid., page 69.
- Page 168 235. MELLOR, J.W., "Transactions of the Ceramic Society", Vol.36, June 1937, page 255.
236. Ibid., page 257.
- Page 169 237. Ibid., page 260.
- Page 170 238. Op. Cit., no.94, page 44A by SHELLY.
239. MOORE, B., "Transactions of the Ceramic Society", Vol.5, 1906, page 37.
240. MOORE, B., "Transactions of the Ceramic Society", Vol.31, April 1932, page 153.
241. Ibid., page 159.
- Page 171 242. Ibid., page 163.
243. HEWITT, A.E., "Transactions of the Ceramic Society", Vol.34., July 1935, page 9P.
- Page 172 244. Op. Cit., no.94, page 41A by HETHERINGTON.
- Page 173 245. Op. Cit., no.94, page 41A by HETHERINGTON.
- Page 174 246. A letter of appreciation by Sir Henry Armstrong printed in, "The Times", April 8th, 1935.

- Page 175 247. Op. Cit., no.173, page 48.
- Page 176 248. FORSYTH, G.M., "Report on British Ceramics", in "Reports on the Present Position and Tendencies of the INDUSTRIAL ARTS as indicated at the International Exhibition of Modern Decorative and Industrial Arts, Paris, 1925", London, publ. by the Department of Overseas Trade, 1925, page 132.
249. Op. Cit., no.81, page 32.
250. Op. Cit., no.94, page 42A by FORSYTH.
- Page 178 251. "Staffordshire Weekly Sentinel", October 1st, 1927, mounted in Bernard Moore's scrapbook.
252. Op. Cit., no.173, page 48.
- Page 180 253. Op. Cit., no.103, page 371.
254. Op. Cit., no.133, page 37.
255. Op. Cit., no.105, page 409.

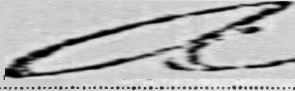
APPENDIX I.

INVOICES AND LETTERS THAT RELATE TO THE TEXT.

1. Invoice, 'bought of Bernard Moore, potter', dated March 12th, 1919, ceramics totalling £30.0.0..... p.200
2. Invoice, 'bought of Bernard Moore, potter', dated June 2nd, 1919, ceramics totalling £14.16.6..... p.201
3. Invoice, 'bought of Bernard Moore, potter', dated August 26th, 1919, ceramics totalling £8.1.6..... p.202
4. Invoice, 'bought of Bernard Moore, potter', dated June 18th, 1920, ceramics totalling £25.19.6..... p.203
5. Undated letter from R.R. Tomlinson to G. Bemrose (information on Miss Billington suggests c.1965)..... p.204
6. Letter from G. Godden agreeing that the closing date of the Pottery at Wolfe Street was not 1915..... p.206
7. Photograph of the Moore's family garden party..... p.207

Telephone (3 words) - Bernard Moore, Stoke-on-Trent.
 Telephone 692

Stoke-on-Trent,

C.  Esq.

Tuesday 2nd - 1914

Bought of BERNARD MOORE,
 POTTER.

| | | | | |
|---|----------------------|----|----|---|
| 1 | Yellow jay | 1 | 1 | |
| 1 | Yellow do | 1 | 1 | |
| 1 | Green do | 1 | 1 | |
| 1 | Redjade - | | 7 | 6 |
| 1 | Red do | 1 | 1 | |
| 1 | Redjade tortoise | | 15 | |
| 1 | Wobber | | 15 | |
| 1 | Bylin | 1 | 15 | |
| 1 | Swan ornament | | 10 | 6 |
| 1 | Chick | 1 | 1 | |
| 1 | do | 1 | 1 | |
| 1 | Redjade fish | | 15 | |
| 1 | do jay | | 7 | 6 |
| 2 | do cat 5/6 | | 11 | |
| 1 | - Wobber | | 7 | 6 |
| 1 | - Bear | | 15 | |
| 1 | Purple jay (damaged) | | 10 | 6 |
| 1 | Blue & purple Wobber | 1 | 10 | |
| | | 15 | 5 | 6 |
| | Postpacking | | 5 | 6 |
| | less 1/2 | 15 | 11 | |
| | | | 15 | 6 |
| | | 14 | 16 | 6 |

Awards (GRAND PRIX, SYDNEY, 1879. GRAND PRIX & GOLD MEDAL, MELBOURNE, 1880. GRAND PRIX, CHICAGO, 1893.
 (GRAND PRIX, IMPERIAL INTERNATIONAL EXHIBITION, LONDON, 1909. GRAND PRIX, BRUSSELS EXHIBITION, 1910.
 Trade:— (3 words)— "Bernard Moore, Stoke-on-Trent."
 Telephone 892.

Stoke-on-Trent,

Cyril Andriette, Esq., 18th June, 1920.

5, All Souls Place,

Portland Place, London, W.

Bought of BERNARD MOORE,
POTTER.

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|---|-------------------|----------------------|-------|----|----|------|
| 1 | Vase, ✓ | Water Fall. | 140/- | 7 | 0 | 0 |
| 1 | Elephant, ✓ | Rouge Flambe | 63/- | 3 | 3 | 0 |
| 1 | Gondola, ✓ | | 20/- | 1 | 0 | 0 |
| 1 | Kylin, ✓ | Rouge Flambe | 60/- | 3 | 0 | 0 |
| 1 | Swimming Fish ✓ | | 10/6 | 2 | 2 | 0 |
| 1 | Rabbit ✓ | | 10/6 | 10 | 6 | |
| 1 | Ink Well, ✓ | Mice | 15/- | 15 | 0 | |
| 1 | Monkey on Stump ✓ | | 20/- | 1 | 0 | 0 |
| 1 | Chinese Salt ✓ | | 40/- | 2 | 0 | 0 |
| 1 | Duck, ✓ | Gold Flambe | 20/- | 1 | 0 | 0 |
| 1 | Special ✓ | | 10/6 | 10 | 6 | |
| 1 | Dog, ✓ | | 20/- | 1 | 0 | 0 |
| 1 | Small Kylin ✓ | | 20/- | 1 | 0 | 0 |
| 1 | Teapot, ✓ | Bird shape ✓ | 20/- | 1 | 0 | 0 |
| | | | | | 25 | 1 0 |
| | | Cask & Packing, etc. | | | 18 | |
| | | | | | 25 | 19 0 |



THE ROYAL DRAWING SOCIETY

INCORPORATED 1902

6 QUEEN SQUARE, BLOOMSBURY, LONDON, W.C.1

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All communications should be addressed to the Secretary

As from / 9. Woodstock Road. Bedford Park. W.4.

Dear Mr. Benrose

I am glad to hear that you are advising on Ceramic purchases which will prove most helpful to Museums in view of your specialised knowledge & long experience. Please let me know the wording on the scroll round my bowl. I may recall the purpose for which it was intended. You are correct in concluding that Moore used china for his small pieces & earthenware for larger vases etc. I used to work with a well known thrower & design shaper for Moore at the wheel. The name of the thrower I have forgotten but I do remember that he was either the Mayor or an Alderman of Longton at the time. Moore's son Major, who died recently, had the large Vase I designed & painted for the visit of King George the 5th to the skeroom. He told me that he intended to leave it to the V & A Museum. Do you know of its whereabouts? as this Vase was in a hard, paste porcelain.

Geoffrey Godden

Yes, Yvra Billington is still alive I am glad to say.
She retired from teaching some years ago, after having
a stroke from which she has partially recovered.
I engaged her as my assistant when she was a young
student of Burslem School of Art.

Her address is:— 13. Uxbridge Rd.
Kingston-on-Thames.

By the way I have some interesting Moore & Pilkington
-Forsyth-pots that really ought to be in a Museum.
When you are next in Town, come & see them & us
My wife joins me in sending kind regards

Yours Sincerely,

R.R. Tomlinson

Yours sincerely,

Geoffrey Godden
Chinaman

*Buys & Sells all kinds of antique and curious Porcelains, Pottery & Stoneware
at ye Registered Office
19, Crescent Road, Worthing, Sussex.*

31st August 1982.

Donald Hall, Esq.,
44, Painswick Road,
CHELTENHAM,
Glos.,

Dear Mr. Hall,

-I really cannot see how I came to make the silly error over Bernard Moore's closing date.

It certainly was not the Pottery Gazette Diaries where he is listed up to and including the 1929 issue (compiled in 1928) at Wolfe Street. From 1930 to 1936 he is listed at 3 (or 48) Kingsway, Stoke and in 1937 at 82, Liverpool Road. He is not in the 1938 issue.

I would be grateful to hear your view on when production stopped and he became a consultant only.

I am most grateful to you for drawing my attention to this error - nobody else has spotted it or written!

Yours sincerely,

Geoffrey A. Godden.

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Bernard Moore, second from the right in the seated front row, with his wife on his left, surrounded by family and friends at one of their garden parties held at the Grange. The photograph was taken in the early 1930's and given by the post-mistress, Mrs. Robinson of Draycott. At that time, Moore was a little over eighty years old.

APPENDIX II.

LIST OF BERNARD MOORE'S DECORATORS.

1. ADAMS, John, page 156.

A

2. BEARDMORE, Evelyn Hope. Her name was established from the initials by Mrs. Nancie Webb. She also gave a brief background of Miss Beardmore. She stemmed from a monied family in Stoke that had fallen on hard times. A cultured lady and a confirmed spinster, Miss Beardmore had a great talent for painting and 'many other branches of the arts'. Apart from working for Moore, she was employed as an artist at Wedgwood, working specifically on the decoration of the powder-blue wares (Mrs. Maureen Batkin in "Wedgwood Ceramics 1846-1959, London 1981, pages 120-121). No dates have been confirmed to give any order to her working life.

B





Her designs on Moore's wares fall into three main categories.





a. A romantic approach with spontaneous painting, often using rhythmical calligraphic brushstrokes with qualities reminiscent of Tomlinson's painting on the St. George and the Dragon vase. The flowing lines from her brush have a gentle flavour of art nouveau. Subject matter in this style includes scaly fish and dragons, willowing reeds and grasses, dappled and wavy water, birds in flight and splashing seas.

b. Patterns and decorative stylised symbols of flowers, leaves, plants, grapevines and ornate trees; similar to some of the work of Wilkes.

c. Formal illustrative designs having the qualities of linocuts or intaglio printing methods because the design has been scratched through the red glaze to reveal the white surface. Subjects such as: galleons, sea, clouds, setting suns and birds in flight were used. These designs show a stiff traced quality, as though a ruler or some geometric aid has been used to assist in execution. (A good example of this style was displayed at the V & A Exhibition of Bernard Moore's work in 1982, catalogued as number 109). Apart from Tomlinson, Billington and Adams, these three categories summarise the typical output of styles from the other decorators.

3. E.N.B. (Sotheby's Belgravia, Studio Ceramics, 8.9.77. No.480) Not known. Could be a badly drawn 'H' so that it looks like an 'N' for Evelyn Hope Beardmore?

4. BEARDMORE, Hilda. Nothing known. Mrs. Webb was very convinced there was no such person. The initials HB could well be the monogram of Hilda Bonaud, the married name of Hilda Lindop. Mrs. Webb added that Hilda was much older than Evelyn.
5. BILLINGTON, Dora May, page 161.

6. BUTTLE, George Allan, page 149.

7. CARTER, Hilda. Remembered by Mrs. Webb but no information. Miss Dawson in her book on 'Bernard Moore' says she was born 1895, and after attending Hanley Art School, she joined Moore at the age of sixteen or seventeen. "She was much under the wing of Reginald Tomlinson, who guided her early efforts at design and painting until she was able to work without supervision." This is most unlikely since Tomlinson was at the Royal College in 1911 and 1912. They may have met briefly in the holidays but that would hardly be an apprenticeship. Otherwise the dates are not correct. Only one piece of work decorated by her has been seen, the standard or style was very like some of the formal painting by Cicely Jackson.

8. J.C. Not known. Mentioned in several Sotheby's Auction Catalogues (e.g. 28.2.80 No.119a).
9. C.C.H. Not known (Sotheby's Belgravia 31.7.74 No.35).
10. C.H. Could be same artist as C.C.H.? (Sotheby's Belgravia 8.9.77 No.482).
11. HENKS, John, modelled for Mintons, did not work for Moore but his name appears on Minton blanks used by Moore, particularly a model of a hen. (Catalogue of the Leighton Collection, auctioned by Louis Taylor & Sons in Hanley, June 16th, 1972).
12. C.H.J. Mrs Webb knew Cicely Jackson, she confirmed these initials as hers (see galleon dish owned by Maureen Batkin).
13. C.J. Cicely Jackson again - Mrs. Webb referred to her as one of the 'second generation of painters'. A bowl, purchased by the City Art Gallery, Manchester in 1920, was decorated by her. Her dates are not known.

14. JACKSON, Gertrude, not known, although mentioned by Adams, Godden, Haggard and Mankowitz. It could be a relative of C.J.? Or just confusion with C.J. Not known by the people in Stoke and no work has been seen with her monogram.

15. LINDOP, Hilda, little known, Mrs. Webb remembered her - said her
 married name was Bonaud - which would give the initials HB.
Ginger jar with dragons in the V & A Exhibition 1982, no.122.
16. OLLIER, Annie, page 146.

17. S.P. nothing known, an example in the V & A Exhibition 1982,
no.140.
18. S.R. Initials beside B.M. on a bowl with an unusual yellow glaze -
in the Blackburn Museum. Nothing else known.
19. S.S. Sotheby's Belgravia 31.3.77. No.623. A vase nearly a foot
tall with yellow flowers beneath a red glaze.
20. TOMLINSON, Reginald Robert, OBE., page 150.

21. WILKES, Edward Richard, page 142.


APPENDIX III.

DOCUMENTATION OF THE ROYAL VISIT, APRIL 22nd, 1913.

Notes from Bernard Moore's scrap books, seen at the British Museum in May, 1982.

| | | |
|-------------------------------|-------------------------|---------------------|
| Manchester Dispatch | Daily News and Leader | Daily Express |
| Yorkshire Observer | Sheffield Telegraph | Manchester Guardian |
| Morning Post | Modern Society | The Scotsman |
| Birmingham Post | Daily Mirror | Daily Chronicle |
| Staffordshire Weekly Sentinel | Illustrated London News | |

All of the above reported the Royal Visit: with the exception of the last two, the other reports are virtually word for word which suggests one correspondent sold the story to them all as it would be in the days before there was a Royal Press Secretary who issued press releases officially. The story could have been telegraphed rapidly or telephoned from Stoke by a locally accredited correspondent. Coverage does, however, reflect interest in the event from the Midlands to the North-West i.e. where there was production and a market for art pottery from Howson Taylor to Pilkington and the rich merchant classes living between them in Yorkshire, as well as their counterparts in London and the Home Counties and in Edinburgh and possibly more likely, Glasgow. Greatest coverage was given to Minton's, whose wares were much more showy and expensive. The following quotations emphasise that Moore's wares were regarded as important and known to specialist collectors and connoisseurs from Queen Mary downwards; they also reflect the ways in which they were described at the time using words which could only have been understood by the initiated.

MANCHESTER DISPATCH: 12.3.1913
(preparing for visit on 22.4.13) "Mr. Moore's rouge flambé ware".

THE TIMES: 21.4.1913
"who is a consultant potter rather than a manufacturer"
"an almost bewildering exhibition of splendid colour".

MANCHESTER DISPATCH: 21.4.1913
"special attention will be drawn to eight pieces, the last will be a large vase designed to commemorate the Royal Visit. 'St. George and the Dragon'. Latin inscription 'Deus Judicium Tuum Regi Da' (roughly 'May God give his justice to the King')."

THE TIMES: 22.4.1913
"All the splendour of colour in Mr. Bernard Moore's show-rooms has to be absorbed in fifteen minutes"
(elsewhere it is recorded the visit lasted 12 minutes!)

DAILY MAIL: 23.4.1913

The Queen asked if he was exhibiting at Ghent and when he told her "Yes", her Majesty said "I do hope the strike in Belgium will not affect the exhibition".

DAILY EXPRESS: 23.4.1913

"Where do you send most of your work?" Her Majesty asked. "Abroad" Mr. Moore replied. "I hope you did not lose anything at Brussels?" the Queen rejoined. "Indeed I did" said Mr. Moore, "I lost all my exhibit".

DAILY CHRONICLE: 23.4.1913

(About Bernard Moore's works) "These, which are now directed by Mr. Bernard Moore's nephew, produce the wonderful flambe glazes which are now as greatly cherished by collectors as the finest Chinese and Japanese pottery".

"beautifully streaked, blotched and spotted effects of red, purple and grey were produced for his (the King's) inspection".

(it was noted elsewhere that the King was particularly interested in these wares).

MANCHESTER DISPATCH: 23.4.1913

"The veteran experimental potter of Stoke".

SHEFFIELD TELEGRAPH: 23.4.1913

"the famous potter's chemist".

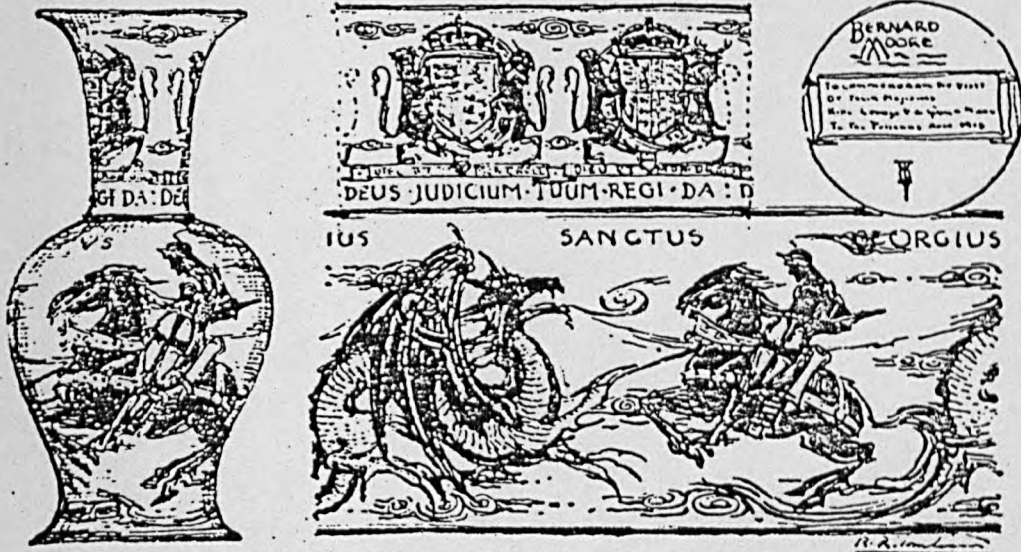
STAFFORDSHIRE WEEKLY SENTINEL: 26.4.1913

".....and shown almost every case, a piece of gold flambé, gorgeously iridescent, and several examples of crystalline ware attracted her Majesty's special attention. A beautiful Sang-de-boeuf vase which Mr. Moore has made specially for the occasion, was also much admired."

Part of the article on the Royal Visit from the "Pottery Gazette" 1.5.13

"The king was particularly impressed with the rouge flambé and sang-de-boeuf, lingering for the greater part of the time in the neighbourhood of the centre case in which this was shown, and engaging in an interesting conversation with regard to this particular ware. The Queen, on the other hand, was more inclined to be impressed with the gold lustre, the crystalline effects and a small piece of beautiful Persian blue. To the last mentioned piece she was particularly attracted, picking it up and inquiring just how the effect was produced. Another beautiful piece on show in the room took the form of a vase (as illustrated) representing round the body in a brilliant red, characteristic of the Moore productions, on a grey background, St. George and the Dragon, with the Royal Arms at the top and the inscription, "Deus judicium tuum regia da" (O God give to the King your judgment). Underneath was inscribed, "Bernard Moore. To commemorate the visit of their Majesties, King George V, and Queen Mary to the Potteries, April, 1913." The Queen mentioned in passing through the room that she already possessed a number of pieces of Mr. Moore's rouge flambé. She was particularly interested to know if Mr. Moore was exhibiting at Ghent, and on learning that he was replied, "I trust the Belgian strike will not interfere with the Exhibition."

This conversation was probably inspired by the fact that there was on show in the room the only unbroken vase rescued from the Brussels Exhibition fire of 2,000 of Mr. Moore's pieces which were exhibited. The vase is, of course, spoiled altogether so far as the decoration is concerned, but it is interesting, inasmuch as it shows how the molten glass from the showcase in which it was placed has run down the sides and, in cooling, has formed globules. Much more time could have been spent in Mr. Moore's room to advantage, but, as previously remarked, the programme necessarily restricted the allocation of time to the respective factories visited, and the Royal party consequently passed on, after spending twelve minutes in Mr. Moore's room, to the King's Hall, where they were received by the Mayor and Corporation, and the National Anthem was sung by local choirs. Their Majesties here inspected a marvellous collection of specimens of ancient and modern pottery collected from the works of the district generally, including those factories which did not come within the scope of the visit."



MR. BERNARD MOORE'S "GEORGE AND DRAGON" VASE.



S. Begg's monochrome painting for "The Illustrated London News", April 26th, 1913; Bernard Moore showing their Majesties the St. George and the Dragon vase, that had been made to commemorate the occasion.

ADDRESSES OF THE MOORE FAMILY AND OTHERS CONNECTED WITH THE POTTERY AT
WOLFE STREET.

- 1847 Furnace Cottage, Trentham.
(from B. Moore's father's marriage certificate, from a copy held by Hugh Vavasour).
- 1861 Stone Parish, Trentham District, District No.3, Blurton & c.

Furnace, Tresa Moore, wife, married, 40, born Brancote, Staffs.; Joseph Moore, son, 20, China Mfrs., son, born Longton.
(from census records - same spelling used).
- 1871 Stone Parish, Trentham District, District No.4, Blurton & c.

Furnace Cottage, Normacot, Teresa Moore, Head (of household), widow, 49, china mfr., born Brancott, Staffs; L. Moore, son, unmarried, 19, china mfr., born Longton; 2 servants; Arthur Vansittart, visitor, unmarried 21, student, born Berkshire, (query Waltham).
(from census records - only people actually resident on that date are recorded).
- 1884 Meir Road, Normacott, Longton.
(from B. Moore's marriage certificate, copy held by Hugh Vavasour).
- 1885 Draycot R.S.D.
(address given on Teresa Moore's death certificate - possibly where she was being nursed - certificate held by Hugh Vavasour).
- 1888 Park Avenue, Blurton, Trentham.
(from birth certificate of Mary Dorothy Moore, held by Hugh Vavasour).
- c.1889 The Grange, Draycott.
(address on death certificate of B. Moore's wife, Mary Francis Moore, held by grandson).
- 1905 Showroom, office and pottery, 9 Wolfe Street, Stoke on Trent.
- 1930 Wolfe Street was changed to Kingsway.
- 1937 Major Moore owned office at, 82, Liverpool Road, Stoke on Trent.
- 1980 John Moore (great nephew), 2 Moor Lane, Amen Corner, Binfield, Berkshire. (Plymouth City Museum and Art Gallery).
- 1981 Miss Kathleen Moore (youngest daughter of B. Moore) 61, Lime Avenue, Lillington, Leamington Spa. CV32 7DE.

- 1981 Mrs. Nancie Webb (daughter of Annie Ollier), 59, Clumber Avenue, Newcastle, Staffs. ST5 3AY.
- 1981 Mrs. Florence M. Hall (grand-daughter of Edward Wilkes), 27, Queensway, Westlands, Newcastle, Staffs.
- 1983 Bernard Moore (grandson), Avenue Lorette 4, 1328 Ohain, Belgium.
- 1983 Hugh Vavasour (grandson), The Blakely, Draycott, Staffs.

APPENDIX IV.

MOORE'S CERAMIC MARKS.

The following comments and observations are based specifically on an estimated sample of a hundred and fifty pieces of Bernard Moore's wares.

Predictably, the individual nature of the product to some extent is reflected by the individual nature of the marks. No exact commercial consistency is to be found in the execution, the letter forms, the scale or the layout. The most frequently seen mark was painted by brush in capital letters using just the name, Bernard Moore. An extra large 'B', with an exaggerated lower loop was designed to start the word Bernard. This christian name was then placed above MOORE and the whole name underlined or embellished with wavy lines to form a block; at times the year of manufacture was incorporated within the design. William De Morgan used similar decorative lines on some of the Merton Abbey marks. The letter forms painted in the mark are reminiscent of a character or spirit associated with certain alphabets around the turn of the century. Display faces, fashionable in typography, such as 'Richmond' or 'Windsor' produced by the typefounders Stephenson Blake and Co. Ltd., in the Edwardian era, have similar characteristics. Architects' lettering of that period also has a resemblance to the kind chosen by Moore, particularly so when the ligature joining the two o's together was employed. Moore appears to have had an interest in this graphic field; his advertisements in the "Pottery Gazette" displayed a similar simplicity to his marks, they show a reverence for space that makes them modern in concept for typographical design of that period.

A broad range of marks exist in the work that was made at Wolfe Street with a few pieces bearing no marks at all, whilst some isolated pots have had their marks obliterated in the firing. An example of the unmarked wares are the flambé tiles, which just bear the manufacturer's name dust-pressed on the back of the blank tile. At different times, the name was painted or otherwise marked as B. Moore and infrequently his initials B.M. were the only marks applied. Another variation commonly found were the white labels printed in green, with the words 'Bernard Moore Ware' followed by a reference number and a space for the price. These gummed labels were often applied to wares that already possessed the painted mark. (p.221)

Resist stamps were utilised by Moore giving a negative image, in that they printed the background around his name, leaving a distinctive, well defined rectangle on the base of the ware. Positive stamps were used as well, particularly on the very small pieces of modelling that were the same scale as the Japanese 'netsuke'. One tiny pot at Plymouth, in the Andrade Collection, has several Bernard Moore marks stamped on to the same area of its foot. This was mentioned in conversation to Kay Moore, who eagerly explained that as a young girl she would 'help to stamp the work and sometimes we played post offices; it was great fun' and this was the reason for the stutter of signatures. (p.220)

This 'home-spun' nature of making, suggests that other varieties of marks will turn up from time to time.

Dr. Mellor in reminiscing on the life of his friend tells a tale of Moore as a young man, giving evidence in a court-case on the genuineness of a Sèvres vase. He was asked by the opposing counsel at one point, how he was so sure of the precise age of the vase. Moore replied:

"I made the vase myself. When I was a young man I wondered if I could make a good imitation of a Sèvres vase, and the vase in question was the result. It disappeared unaccountably from the show-room - presumably it was stolen. You will find scratched on the bottom of the vase a private reference to my note-book, which, amongst other things, tells me the date I made this very vase." (see footnote 176).

This must have occurred in the early days of Moore Brothers at Longton and whilst it was quite common then for painters and manufacturers to leave informative marks, the story prompted investigation and greater scrutiny of unusual marks on Moore's Art Pottery. Undoubtedly, some work seen has incongruous marks, for instance, a colon following the letter 'd' in Bernard, a full stop drifting in space or a small bowler hat shape in the wavy lines. Part of the explanation could be they are filling awkward spaces to complete the unit, like the device of the wavy lines which are very variable. Generally, the marks are without any obvious order and if there is a dating system hidden there, a key to the code would be essential to form any comprehension. However, there is a system and a significance to the colour that is employed in the marks. All of the high temperature glazes seen so far have been signed in blue using a cobalt oxide. There are strong practical reasons for this oxide to be an obvious choice. If copper were used, its volatile nature at high temperature could cause it to burn out, to disappear. The only common oxides that can remain stable at such heat are iron or cobalt, and of these cobalt is by far the stronger. This is a helpful factor in determining a high fired glaze which is a rarity in Moore's work. In the case of the lower temperatures, the last colour to be used in decoration is normally the one used for the signature. For example, if a gold lustre or gilt is in the decoration, it would be the last colour to be applied as it requires a low temperature and therefore the mark would be expected to be in gilt. When a red glaze has been painted over a white, then the signature would be red. A variation on this theme would occur should the white glazed ware be completely covered with the red glaze, the mark would be obtained by scratching through the red before firing. This would make the name white on a red background or in certain reduced firings the sgraffitoed mark would become stained red, leaving two differing sanguine tones.

Occasionally, the individual artist's initials or monograms were in different colours to the name or initials of Bernard Moore.

It is apparent that different artists executed the name or initials of Bernard Moore on the base of his wares. A specific comparison of two painted Bernard Moore marks, one found on a jardiniere, 'The Passing of Venus' by John Adams and the other on a personally owned high fired bottle, leaves no doubt they are the work of different beings. The

two separate marks have quite distinctive characteristics of their own, not only are the letter forms from different stylistic alphabets but the overall feeling or personal ethos suggests another hand. (A different example is illustrated on p.222).

In conjunction with the painted or stamped signatures, impressed marks are commonly found; marks which have been applied by the factory that supplied the blanks. These are mostly coded numbers put there for the purposes of identification, probably to assist in ordering fresh batches. For instance, pots with 1075 impressed in the base are all porcelain bodies possessing a globular form and a height of three inches. Moore, as an influential personality, was able to obtain blanks from such renowned firms as Wedgwoods and Mintons. This was not normal practice from important manufactories and it indicates, in some measure, the great respect felt by the directors of these eminent industrial potteries towards Bernard Moore and his glazes. A typical example of such work is the jardinière, mentioned in the previous paragraph, decorated by John Adams. This has Mintons impressed in the base and underneath the coded numerals 3311.

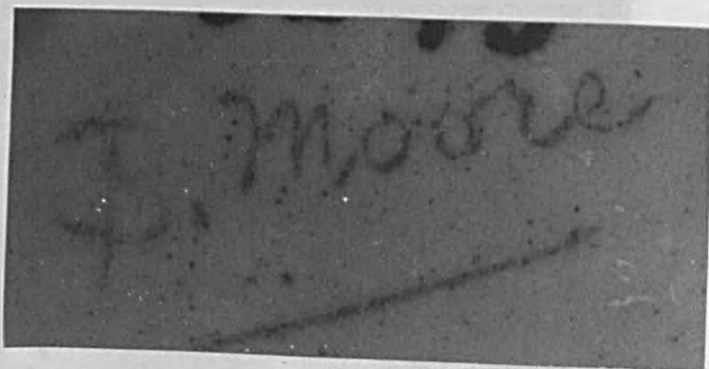
Other variants exist where the mark was accompanied either by a personal communication or a dedication in the form of words. In the collection at the Victoria and Albert Museum, there is a vase especially produced for his friend William Burton. The base was inscribed, "W.B. from B.M., amicus amico." Another example of this group would be the vase decorated by Tomlinson to mark the Royal Visit to the Potteries. The base of the work bears the standard painted Bernard Moore together with the monogram of R.R.T., while the space between the name and initials was emblazoned with "To commemorate the visit of their majesties King George V and Queen Mary to the Potteries, April 1913."



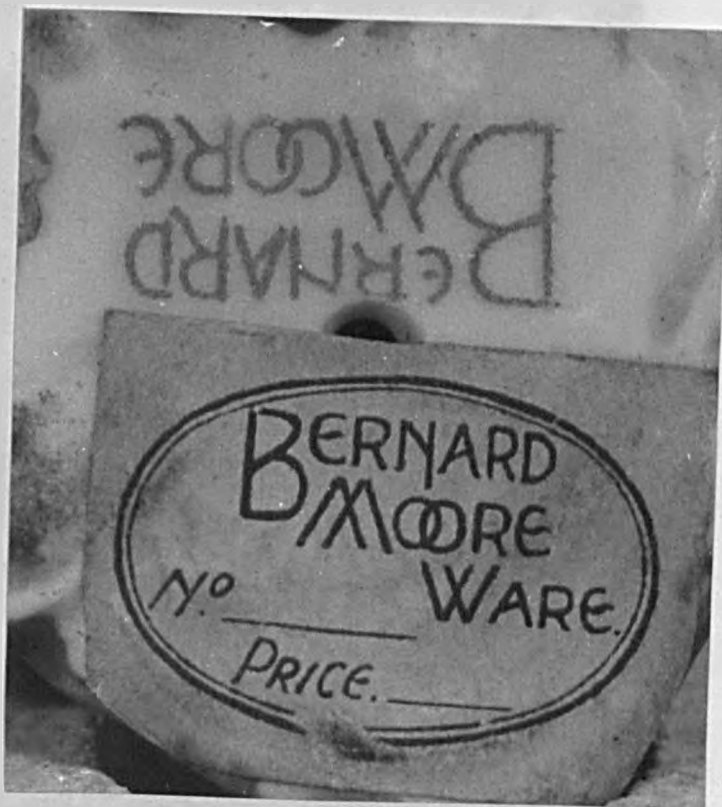
"I would help to stamp the work and sometimes we played post offices, it was great fun (Miss Kay Moore was describing her childhood activities in the pottery at Wolfe Street and explaining how the stuttered signatures appeared on the pots)." The illustration is the base of a small kylin from the Andrade Collection in the Plymouth City Museum and Art Gallery, accession no. 1952.66.

All the marks on this page
are from the Plymouth City
Museum and Art Gallery.

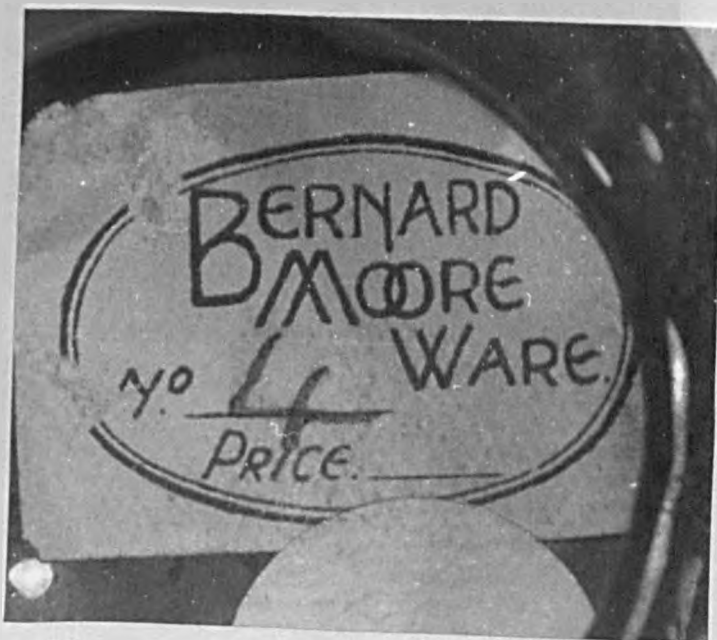
A rare written mark on a cup.
1952.45.



A red printed mark beside a
white label with green
printing. 1952.42.



A white and green label
marked 4. 1952.71.

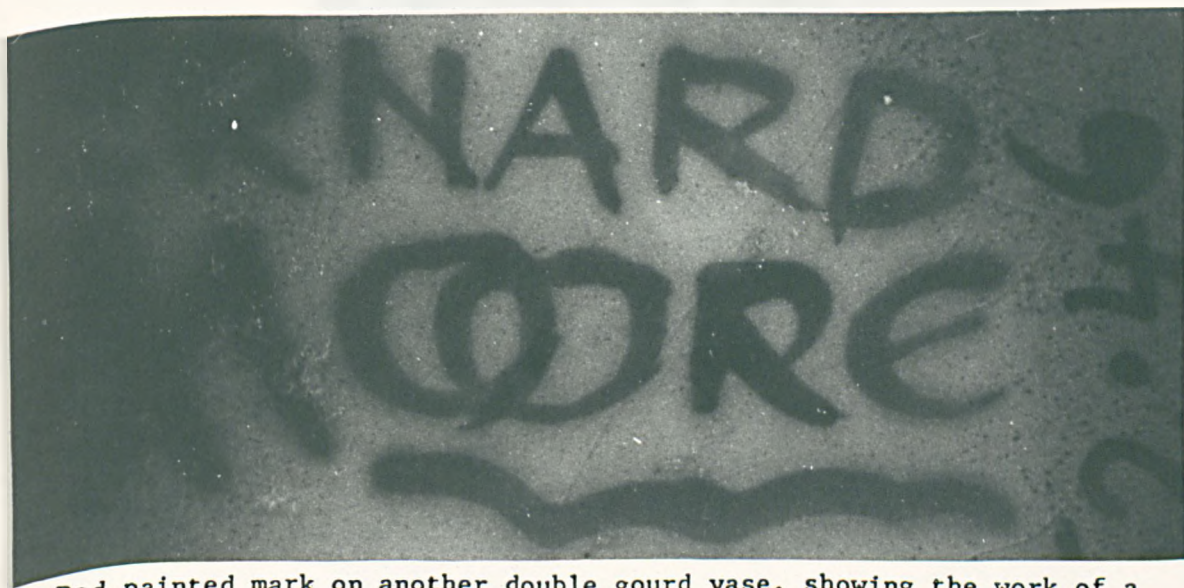




Blue painted mark on a grogged stoneware body. Personal collection.



Red painted mark on a resist panel. Base of a double gourd vase from the Plymouth City Museum and Art Gallery. 1952.47.



Red painted mark on another double gourd vase, showing the work of a different hand. Plymouth City Museum and Art Gallery 1952.47.

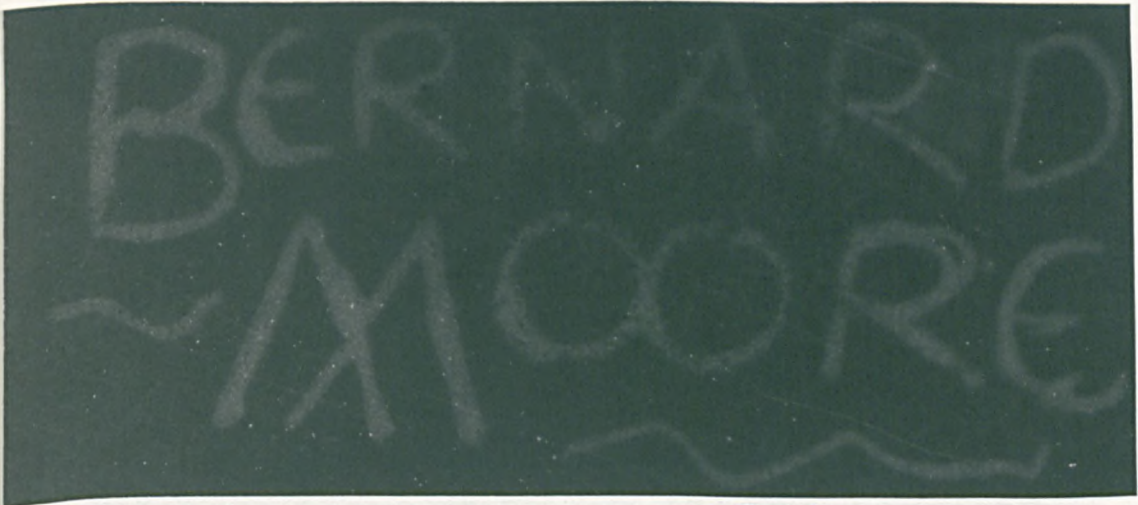


Brownish coloured initials - the glaze and the mark are over reduced whilst the top of the pot is changing between a green and red. Personal collection.



Red painted initials on the base of a small pot. Plymouth City Museum and Art Gallery. 1952.69.

A selection of marks that have been scratched through the red glaze in its unfired state to reveal the white glaze underneath. All work on this page from the Plymouth City Museum and Art Gallery.



On the base of a hexagonal vase with cover. 1961.60.



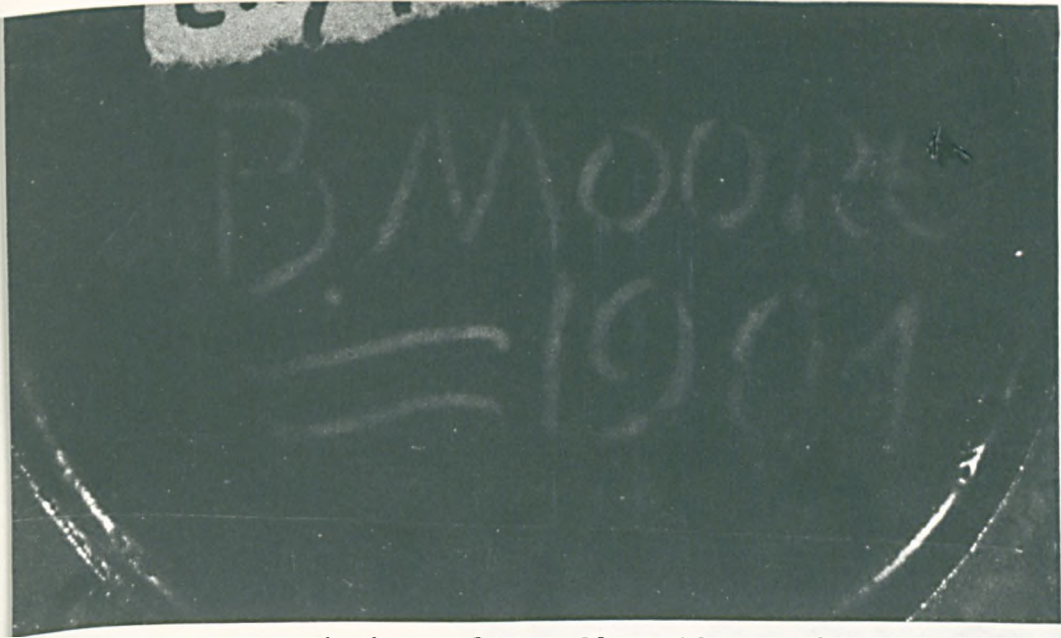
Base of a Minton's gondola - apart from the scratched mark, 1923 Minton W is impressed into the base. 1952.40.



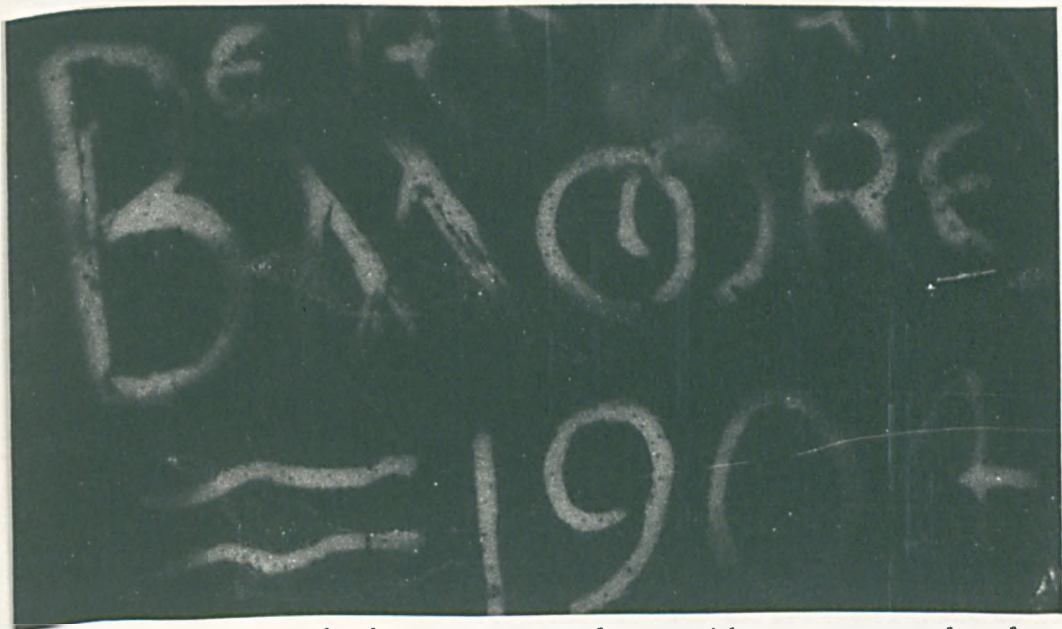
Underneath body of small frog. 1952.70



Duck on rock, mark within base. 1952.56.



Scratched mark on the base of a small ovoid vase which is documented on the accession card with the early date of 1901. It seems more likely to be 1904, as the one below, with the movement of the colloidal copper partially obscuring the scratched numeral, particularly as the first numeral one of 190? has no serif. Plymouth City Museum and Art Gallery. 1952.53.



Scratched mark on the base of a similar ovoid vase, more clearly dated as 1904. Plymouth City Museum and Art Gallery. 1952.51.

DOCUMENTATION OF BERNARD MOORE'S WARES.

Notes

In the following documentation, 'white body' is a generalised term used to describe material that is not readily identifiable into the accepted categories. The same clay body may be used at earthenware, stoneware or even porcelain temperatures depending on whether it has been fired to its vitrification point or not. The nature of the process, particularly with the low temperature reds, makes a porous body more desirable since the glaze application is much easier; it adheres more readily, so that a porcelain or a bone china body may be low fired to retain a porous quality. One other influencing factor in favour of having a low fired body was that Moore frequently used glaze on glaze techniques and to have both glazes with the same temperature range would make the process less complicated. The first glaze applied will soften at the correct temperature in the firing to accept the melting of the second glaze if they are both similar.

On occasions Moore uses a stoneware clay for his high temperature reds. In the mechanics of throwing and turning, this body leaves a textured surface due to sand, grog or some additional refractory material which has been kneaded or mixed into the plastic clay. This can be recognised by the curving lines seen on the foot after the gritty parts have been dragged in the clay during the turning process.

The complex nature of the copper red colours and their uneven distribution on pottery forms make brief descriptions very inaccurate. Historically, attempts to be concise by attributing poetic but subjective names to aid identification of specific colours from the vast spectrum possible, have only served to cause much confusion. The Munsell and British Standard colour systems are no help where the hue is affected by veined, mottled and variegated surfaces made more infinite and difficult by crazing, together with varying depths of colour. In practical terms, every kiln fired with the copper glazes will produce a multitude of reds; very dark tones, almost black, at one end of the scale, through to bright pure reds, pale pinks such as the 'liquid dawn', numerous greens and even white at the other extreme. The colour could be red on one side of the pot with white opposite, depending on the behaviour patterns of the gases in the firing. One constructive characteristic to assist recognition is that of the temperature at which the glaze has been fired. The varied surface, depth and colour of high fired work, using stoneware and porcelain levels of heat are quite distinctive, while at the lower earthenware temperatures most of the glazes are more shiny or 'fatty' and in a sense more predictable, often lacking subtlety. Chaplet stresses this same point in his writings, equating the 'grand feu' with the 'real copper reds'.

The notes will then mention whether the work has been high fired, with Moore's wares this is a minority class; if no mention is made of temperature then it is assumed the work is in the earthenware range. Where the sanguine colours are used they will be described as simply as possible, mostly just using the word 'red'.

VICTORIA AND ALBERT MUSEUM.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks | Other Marks | Body & Glaze |
|-----|------------------|---|-------------------|-----------|-----------|--|----------------------------|--|
| 1 | 505-1905 | Bottle Double Gourd | 7 $\frac{7}{8}$ " | | 1905 | Bernard Moore (black) | English Longton | White body Red & Lustre |
| 2 | 506-1905 | Vase Globular | 7 $\frac{7}{8}$ " | 1903 | 1905 | Bernard Moore Scratched in glaze | English Longton 1903 | Red, brown and purple white body |
| 3 | 507-1905 | Bottle Double Gourd | | 1904 | 1905 | Bernard Moore Scratched in glaze | 1904 | White body, Mottled in crimson |
| 4 | 508-1905 | Bottle | 7 $\frac{5}{8}$ " | 1904 | 1905 | Bernard Moore Scratched in glaze | 1904 | White body, Crimson & purple |
| 5 | 509-1905 | Bottle | 5 $\frac{5}{8}$ " | 1904 | 1905 | Bernard Moore | 1904 | White body, Purple & brown |
| 6 | 510-1905 | Bottle (like Plymouth Waterfall) | 9 $\frac{3}{8}$ " | 1904 | 1905 | Bernard Moore Scratched in glaze | 1904 | White body, Red and gilt with enamels |
| 7 | 511-1905 | Vase Globular | 2 $\frac{1}{2}$ " | 1904 | 1905 | Bernard Moore. Scratched in glaze | 1904 | White body, Red & brown |
| 8 | 512-1905 | Vase Beaker shape | 2 $\frac{3}{8}$ " | 1905 | 1905 | B. Moore Scratched in glaze | 1905 | White body, Red and brown |
| 9 | 513-1905 | Vase | 2 $\frac{5}{8}$ " | 1903 | 1905 | B. Moore Scratched in glaze | 1903 | White body, Mottled red |
| 10 | 514-1905 | Vase | 1 $\frac{3}{4}$ " | 1905 | 1905 | Bernard Moore Scratched in glaze | 1905 | White body, Crystalline reds and enamels |
| 11 | 515-1905 | Vase | 1 $\frac{7}{8}$ " | 1904 | 1905 | B. Moore. Scratched in glaze | 1904 | White body, Red mottled with brown |
| 12 | 516-1905 | Vase | 1" | 1905 | 1905 | Bernard Moore. Scratched in glaze. | 1905 | White body, Red, purple and brown |

Numbers 505 - 516 were purchased for £10 from Messrs. Moore Bros., St. Mary's Works, Longton, Staffs. The transaction was negotiated by Mr. A.J. Caddie, Chief Librarian and Curator, Public Library, Stoke on Trent.

| | | | | | | | | |
|----|----------|--------|--|-------|------|-------------------------|--------------------|--|
| 13 | C15-1948 | Bottle | | c1900 | 1948 | Bernard Moore in red | English Longton | Earthenware, red & black glaze |
| 14 | C16-1948 | Vase | | C1905 | 1948 | | | Earthenware, pink, peach and purple glaze picked out with gold |

VICTORIA AND ALBERT MUSEUM (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks | Other Marks | Body & Glaze |
|---|------------------|--|-------------------|-----------|-----------|---|--------------|--|
| 15 | C67-1972 | Tall vase with domed lid | c14" | c1910 | 1972 | Bernard Moore | 1178 on base | Earthenware, red inside, crystalline leaf pattern on green blue and purple glaze |
| (from the Hanley-Read Collection, E.47, in the Royal Academy 1972). | | | | | | | | |
| 16 | C305-1953 | Vase | 9 $\frac{1}{4}$ " | 1906 | 1953 | Inscribed on base W.B. from B.M. "amicus amico" W.B. = Will. Burton | | White body, with red figured glaze |
| 17 | C379-1918 | Snuff bottle attributed to Moore - not signed - not like a Moore pot | | | | | | |
| 18 | C441-1934 | Vase | 6" | 1921 | 1934 | Bernard Moore, given by Sec, British Institute of Industrial Art, 12.2.35 | | White body, with 'peach blow' glaze, not like real peach blow |
| 19 | C442-1934 | Vase with lid | | 1921 | 1934 | Bernard Moore Donated by B.M. | | A white body, alkaline glaze |

CITY MUSEUM AND ART GALLERY, PLYMOUTH - THE ANDRADE COLLECTION

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks | Other Marks | Body & Glaze |
|-----|------------------|------------------------------|-------------------|-----------|-----------|---|------------------------------------|--|
| 20 | 1952.37 | Ovoid jar | 9 $\frac{1}{4}$ " | | 1952 | Bernard Moore and label | 1086 Impressed | White body, red inside, honey and yellow-green veining with glit |
| 21 | 1952.38 | Ovoid jar | 9 $\frac{1}{4}$ " | | 1952 | Bernard Moore and label | 1086 Impressed | White body, pairs with 37 above, called 'Waterfall'. Price £7 |
| 22 | 1952.39 | Kylin | 5 $\frac{1}{2}$ " | | 1952 | Bernard Moore, black stamp | Slip cast hole | White body, red glaze, price £3, listed on 1920 invoice |
| 23 | 1952.40 | Boat, figures and tree | 6" | | 1952 | Bernard Moore scratched in the glaze | Impressed on base 1923, Mintons W. | White body, red yellow and purple glazes. See invoice |
| 24 | | | | | | | | |
| 25 | | | | | | | | |
| 26 | 1952.43 | Ovoid jar | 5 $\frac{1}{4}$ " | | 1952 | Bernard Moore black stamp | Impressed on base 1145? | White body, red inside, decorated with fish and weeds |
| 27 | 1952.44 | Goblet | 3 $\frac{3}{4}$ " | | 1952 | Bernard Moore black stamp | Impressed Wedgwood on base | White body, red glaze with vine leaves and grapes in white. Discoloured by reduction |
| 28 | 1952.45 | Teacup | 2 $\frac{3}{4}$ " | | 1952 | B. Moore, black stamp | | White body, decorated with ferns scratched thro' glaze, celadon colour |
| 29 | 1952.46 | Double gourd vase | 4 $\frac{3}{4}$ " | | 1952 | Bernard Moore painted in red on white | J.C.? Monogram | White body, decorated with roses |
| 30 | 1952.47 | Tall double gourd vase | 5" | | 1952 | Bernard Moore resist stamp leaving white background | | White body, decorated with roses, smoky ground |
| 31 | 1952.48 | Globular vase with long neck | 6" | | 1952 | Bernard Moore very faint | | White body, red and ochre colours |



PLYMOUTH (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks | Other Marks | Body & Glaze |
|-----|------------------|--------------------------------|-------------------|-----------|-----------|---|----------------|---|
| 32 | | | | | | | | |
| 33 | | | | | | | | |
| 34 | 1952.51 | Jar | 4" | 1904 | 1952 | Bernard Moore | 1904 | White body, various reds |
| 35 | 1952.52 | Vase | 3" | | 1952 | B.M. | 1075 | White body, yellow with veins of lustre, red inside |
| 36 | 1952.53 | Jar | 3 $\frac{1}{4}$ " | 1901 | 1952 | B. Moore | 1901 | White body, variety of reds in the glaze |
| 37 | 1952.54 | Jar | 2 $\frac{3}{4}$ " | | 1952 | Bernard Moore in blue | | Porcelain, crazed blue glazes, dark red. High fired |
| 38 | | | | | | | | |
| 39 | 1952.56 | Duck on a rock | 9 $\frac{1}{4}$ " | | 1952 | B.M. | | White body, slip-cast, with red glaze |
| 40 | | | | | | | | |
| 41 | | | | | | | | |
| 42 | 1952.59 | Toad with glass eyes | 3" | | 1952 | Moore, Impressed on under side of belly | | White body, with red glaze |
| 43 | 1961.60 | Hexagonal vase with lid | 6 $\frac{1}{4}$ " | | 1960 | Bernard Moore in red | | White body, with purple lustre on red |
| 44 | | | | | | | | |
| 45 | | | | | | | | |
| 46 | | | | | | | | |
| 47 | 1952.64 | Sitting monkey with glass eyes | 2 $\frac{3}{4}$ " | | 1952 | Label with Bernard Moore Ware | No.2 Impressed | White body, mauve to pink colour. See Invoice 26.8.19, f3 |
| 48 | | | | | | | | |

PLYMOUTH (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks | Other Marks | Body & Glaze |
|-----|------------------|------------------------|-------------------|-----------|-----------|--|-------------|--|
| 49 | 1952.66 | Kyllin | 3 $\frac{1}{4}$ " | | 1952 | Bernard Moore stamped three times on base on top of each other, in black | | White body, with mixture of dark glazes slight marbled effect |
| 50 | 1952.67 | Fish on base | 2 $\frac{1}{2}$ " | | 1952 | Bernard Moore stamped on base in black | | White body, lustrated blue on top of red. See Invoice 2.6.19, 15. Od. |
| 51 | | | | | | | | |
| 52 | | | | | | | | |
| 53 | | | | | | | | |
| 54 | 1952.71 | Owl on base | 3 $\frac{1}{2}$ " | | 1952 | Bernard Moore in red with label: Bernard Moore Ware No.4. Price.... | No.4. Imp. | White body, pink opalescent glaze |
| 55 | 1952.72 | Bear on log base | 3" | | 1952 | Bernard Moore, black stamp | | White body, dark red glaze. Red glass eyes. As 73. Invoice 2.6.19. 15.0d |
| 56 | 1952.73 | Bear on log base | 3" | | 1952 | No mark | | As 72, deep red glaze |
| 57 | | | | | | | | |
| 58 | 1952.75 | Parrot on pierced base | 9 $\frac{1}{4}$ " | | 1952 | Moore stamped on base | | White body, with dark red glaze |
| 59 | 1952.76 | as above | 9 $\frac{1}{4}$ " | | 1952 | Moore stamped on base B.M. overpainted in black | | White body, dark red glaze |
| 60 | | | | | | | | |
| 61 | 1952.78 | Frog with glass eyes | 1" | | 1952 | B.M. stamped on base. Moore impressed on rear right leg | | White body, red mottled glaze. Invoice 2.6.19. 7/6d |
| 62 | 1952.79 | Mouse and pumpkin | 3" | | 1952 | Bernard Moore Ware label covering other possible marks | | White body, dark red with marbled effect |

CITY ART GALLERY, MANCHESTER.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|-------------------------|----------------|--------------------|-----------|-----------|--|--|
| 63 | 1910.3A | Vase | 3" | 1910 | 1910 | Bernard Moore No.1075 | White body, pink and grey decoration Bought from B.Moore |
| 64 | 1910.3B | Bowl | 4 $\frac{1}{4}$ " | 1910 | 1910 | Bernard Moore No.10 | White body, red and grey decoration Bought from B.Moore |
| 65 | 1910.3C | Ginger Jar | 7 $\frac{1}{4}$ " | 1910 | 1910 | Bernard Moore No.3 | White body, jar with lid, decorated in purple and green with fishes and seaweed. Bought from B.Moore |
| 66 | 1910.3D 63,64,65,66, | Vase | 9" | 1910 | 1910 | B.M. No.1122 part of five pieces bought for £14.5s. | White body, red and brown decoration. Bought from B.Moore |
| 67 | 1917.366 | Jar with cover | | | 1917 | Bernard Moore (of Longton) | Earthenware, red glaze |
| 68 | 1920.38 | Vase | 11" | 1920 | 1920 | Bernard Moore  monogram, No.1070 | Red and grey from reduction decoration. Bought from B.M. £6.6s |
| 69 | 1920.39 | Bowl | 4" | 1920 | 1920 | Bernard Moore  monogram No.10 | Red and grey decoration. Bought from B.M. £4.4s |
| 70 | 1920.40 | Vase | 10 $\frac{1}{4}$ " | 1920 | 1920 | Bernard Moore No.1070 | Earthenware, red glaze. Bought from B.M. £4.4s |
| 71 | 1920.41 | Vase | 3" | 1920 | 1920 | | Bought from B.M. 15s/6d |
| 72 | 1920.42 | Vase | 7 $\frac{3}{4}$ " | 1920 | 1920 | Bernard Moore No.147 | Green jade glaze. Bought from B.M. £5.5s |
| 73 | 1920.43 | Vase | 4" | 1920 | 1920 | Bernard Moore No.1074 | Lustre. From B.M. £3.3s |
| 74 | 1920.44 | Bowl | 2 $\frac{1}{4}$ " | 1920 | 1920 | Bernard Moore No.8 | Earthenware, red and grey decoration. From B.M. £3.3s |
| 75 | 1920.45 | Vase | 5 $\frac{5}{8}$ " | 1920 | 1920 | Bernard Moore No.6 | Red glaze. From B.M. £1.1s |
| 76 | 1920.46 | Vase | 5 $\frac{3}{8}$ " | 1920 | 1920 | Bernard Moore | Globular form, yellow glaze. From B.M. £5.5s |
| 77 | 1920.47 | Vase | 2 $\frac{7}{8}$ " | 1920 | 1920 | B.M. No.1075 | Persian blue glaze. From B.M. £5.5s |
| 78 | 1920.48 | Vase | 5 $\frac{1}{2}$ " | 1920 | 1920 | Bernard Moore No.1072 | Gold on purple lustre. From B.M. £5.5s |
| 79 | 1920.49 | Vase | 4 $\frac{1}{2}$ " | 1920 | 1920 | Bernard Moore No.140 | Red to pink. From B.M. £3.3s |

MANCHESTER (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|--------|-------------------|-----------|-----------|---------------------|--|
| 80 | 1920.50 | Vase | 2 $\frac{1}{2}$ " | 1920 | 1920 | B.M. | Red, jade and grey decoration. From B.M. 15s/6d |
| 81 | 1920.51 | Vase | 6" | 1920 | 1920 | Bernard Moore | Lustre, from B.M. £3.3s |
| 82 | 1920.52 | Vase | 4 $\frac{3}{4}$ " | 1920 | 1920 | B.M. | From B.M. £1.1s |
| 83 | 1925.17 | Vase | 5 $\frac{3}{4}$ " | 1924 | 1925 | | Red glaze, purchased from British Institute of Industrial Art Exh. 1924-25 £10.0 |



CITY MUSEUM AND ART GALLERY, STOKE ON TRENT.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|---------------|--------------------|-----------|-----------|--|--|
| 84 | 171P66 | Vase | 10 $\frac{3}{4}$ " | 1903 | | Bernard Moore | White body, pinky grey with orange, green and blue glazes |
| 85 | 456P35 | Vase | | | | Bernard Moore In blue | Porcelain, Meip'ling form, high fired, red and white merging, ground foot, fine crazing, thought to be a Minton blank (Hagger) |
| 86 | 503P36 | Bottle | 6 $\frac{1}{2}$ " | | | Base obscured with 'Scherzer' like furniture | Porcelain, high fired, red and white glaze, the long neck starting to melt (a distressed pot) |
| 87 | 511P36 | Bottle | 10 $\frac{1}{4}$ " | | 1936 | Bernard Moore In blue, bits of support stuck to foot | Stoneware body, high fired. From B.M.'s studio after his death. Same as mine! |
| 88 | 512P36 | Bottle | 8 $\frac{1}{2}$ " | | | Bernard Moore In blue | Porcelain, high fired, glaze has run, split base. Red and white |
| 89 | 513P36 | | 8 $\frac{1}{2}$ " | | | Bernard Moore In blue | Porcelain, high fired |
| 90 | 514P36 | Vase | | | | No mark (possibly fired out) | Porcelain, high fired. Intense red and white, still caught in foot |
| 91 | 887 | Jar and cover | 11 $\frac{1}{2}$ " | | | Bernard Moore | Earthenware, deep red, square sided |
| 92 | 1003 | Vase | 1 $\frac{3}{4}$ " | 1904 | | Bernard Moore 1904 | White body, red mottled glaze. Low temp. Square sectioned miniature |
| 93 | 1012 | Vase | 1 $\frac{7}{8}$ " | 1905 | | Bernard Moore 1905 | White body, low temp., red with dragon scratched thro', additional gold |
| 94 | 1136 | Vase | 5 $\frac{1}{2}$ " | | | Bernard Moore | White body, low temp., red bottle form with additional glaze having greenish texture |
| 95 | 2595 | Vase | 6 $\frac{3}{8}$ " | 1903 | | Bernard Moore 1903 | White body, light lustre, mauve to pink colour. Carbon in glaze |
| 96 | 2678 | Vase | 8" | | | Bernard Moore scratched leaving white | White body, low temp., red textured surface |

STOKE ON TRENT (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|---------------------|-------------------|-----------|-----------|---------------------|---|
| 97 | 2690 | Bottle | 3" | 1904 | | Bernard Moore 1904 | White body, low temp., red mottled colours |
| 98 | 2708 | Plaque | | 1904 | | Bernard Moore 1904 | Earthenware, red body, 'St. George and the Dragon' Reds plus enamels and cloisonné decoration |
| 99 | 3725 | Tall vase and cover | 9 $\frac{1}{2}$ " | | | Bernard Moore | White body, low temp., red glaze, enamel and gold decoration with white cloisonné effect for water. Wave design |
| 100 | 3728 | Vase | 7 $\frac{1}{8}$ " | | | Bernard Moore | White body, low temp., yellow, mottled green and enamel with gold painting. Wave design |
| 101 | 3730 | Vase | 2 $\frac{3}{4}$ " | 1904 | | Moore 1904 | White body, mel-p'ing form, red glaze |
| 102 | 4091 | Vase | 2 $\frac{3}{4}$ " | | | Bernard Moore | White body, low temp., cast form - straight sides - red with additional glaze having greenish texture |
| 103 | 4108 | Frog | 2 $\frac{1}{8}$ " | | | Bernard Moore | Earthenware, low temp., glass eyes, red and other mottled colours |

LEICESTER MUSEUMS.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|----------------------------|---------------------|-----------|-----------|--|---|
| 104 | 90A1963 | Vase | | c1910 | 1963 | Monogram of Dora Billington on base | White body, low temp., red glaze with green, yellow and grey lustres. From Major Moore collection 8.10.63. £16.0 |
| 105 | 91A1963/1-2 | Plates | D.10" | 1910 | 1963 | Bernard Moore | Bone china, two plates with red glazes, one showing spots of green. From B.M.s son £40 |
| 106 | 92A1963 | Jardiniere | 11 $\frac{3}{4}$ " | 1912 | 1963 | Bernard Moore with monogram on base.  H. Beardmore | Coarse stoneware, crudely made. Red glaze but not like copper. Painted palmettes and fleur de lys on body with iron. From B.Ms son, £10.10s |
| 107 | 93A1963 | Ginger jar and cover | 10" | | 1963 | Bernard Moore | Low temp., red glaze with jade green glaze on top |
| 108 | 94A1963 | Bowl | D.7 $\frac{1}{2}$ " | 1908 | 1963 | Bernard Moore decor. by R.R. Tomlinson with  on the base | White body, low temp., red, green and blue, winged lion inside. Outside a scroll in Lombardic letters, "The gift is small goodwill is all" From B.M.s son £10 |
| 109 | 95A1963 | Plate | D.9 $\frac{1}{4}$ " | 1902 | 1963 | B. Moore 1902 in the painting on the plate? Impressed T on base | Low temp., red and other colours. Painting of a 'heroic head' of young man. Ibid. 104. £4 |
| 110 | 96A1963 | Globular pot and flush lid | 3 $\frac{1}{2}$ " | | 1963 | Bernard Moore with impressed 'Patent' on base and No.2. | Low temp., red glaze with stylised clouds and birds. Ibid., 104, £9 |
| 111 | 97A1963 | Jar and lid | 14 $\frac{1}{2}$ " | | 1963 | Bernard Moore | Red copper glaze on jar with a dented copper lid. Ibid. 104 £9 |
| 112 | | Vase | 12" | | 1963 | Bernard Moore with a 'Bernard Moore Ware' label, saying No.51, 45/- | White body, red glaze with green slightly lustrous. Ibid. 104, £9 |
| 113 | 32A1971 | Vase | 6" | | 1971 | Large initials B.M. Impressed by footrim 1181 | White body, red glaze |
| 114 | 4341L1979 | Vase Double Gourd | 4 $\frac{3}{4}$ " | | | Bernard Moore in blue Impressed $\frac{F6}{6}$ | Porcelain, high fired, dark red to white |

LEICESTER (cont.)

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|--------|-------------------|-----------|-----------|---|---|
| 115 | 4341L1979 | Vase | 5 $\frac{3}{4}$ " | | 1979 | Bernard Moore in blue Impressed 1170 | Porcelain, high temp., Red and purple glaze |
| 116 | 4361L1979 | Vase | 4" | | 1979 | Bernard Moore in blue | Porcelain, high temp., with shiny flecks |
| 117 | 4361L1979 | Vase | 6 $\frac{3}{4}$ " | | 1979 | Bernard Moore Impressed in base 80 | White body, low temp., Mei-p'ing form,, red glaze |

BLACKBURN MUSEUM, LANCS.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|--------------|-------------------|-----------|-----------|---|---|
| 118 | 345 | Vase | 5 $\frac{3}{4}$ " | | | Bernard Moore in blue, Impressed 1170 | Porcelain, high temp., red and purple colour with a fur texture. Nine stilt marks show at least three glaze firings |
| 119 | 360 | Bowl | | | | B.M. and S.R. | Porcelain, unusual yellow-brown glaze |
| 120 | | Double gourd | | | | B.M. Impressed mark 140 (could be faint 09 after initials B.M.) Painted in blue | Porcelain, high fired, red and purple glaze |


CECIL HIGGINS ART GALLERY, BEDFORD

| | | | | | | | |
|-----|-------|------------------|---------------------|--|--|--|---|
| 121 | C1163 | Jardin- lière | D.17" | | | Bernard Moore in red Ⓐ John Adam's monogram also in red. All painted by brush. Mintons 3311 Impressed in base | Earthenware, red on white. Entitled 'The passing of Venus'. Frieze type decoration travelling from left to right. Inside - torch with foliage |
| 122 | C111 | Two Plates | D.8 $\frac{3}{4}$ " | | | Bernard Moore. Plates Impressed Mintons | Two plates from a set of six. Low temp., underside red, top with a glaze effect going from yellow umber to green. All plates different |

MUSEUMS DEPARTMENT, CITY OF SHEFFIELD.

| | | | | | | | |
|-----|----------|------------------------|-------------------|--|------|---|---|
| 123 | 1975.245 | Pot- pourri vase | 8" | | | Bernard Moore on base with J.C. Lid has B.M. monogram | Vase with inner lid and pierced cover (ginger jar form). White body, low temp. red glaze & dec. with flowers. |
| 124 | K1931.36 | Vase | 5 $\frac{1}{2}$ " | | 1936 | Bernard Moore in glit on base | White body, low temp., red, dec. with tree and pheasant in glit and grey-blue |
| 125 | K1930.29 | Vase | 21" | | 1930 | Bernard Moore 3 on base | White body, low temp., varying reds and a touch of yellow |

CITY MUSEUMS AND ART GALLERY, CITY OF BIRMINGHAM.

| No. | Accession Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|--------|--------------------|-----------|-----------|--|--|
| 126 | M144.72 | Vase | 6 $\frac{1}{4}$ " | | 1972 | Bernard Moore, Impressed 1084 | White body, low temp., red plus various colours, ship with two figures in prow. Cloisonne form. From Handley-Read collection |
| 127 | M149.72 | Vase | 17 $\frac{3}{4}$ " | | 1972 | Bernard Moore, Impressed 162 and monogram of R.R. Tomlinson  | White body, low temp., Mallet form, red scaly dragon on blue ground, some lustres. 'Handley-Read'. |
| 128 | M197.72 | Vase | 4" | | 1972 | Bernard Moore, finest English China, England. Printed in black. Impressed 1074 | White body, low temp., globular form with red glaze, green at neck plus purple and yellow |

SOTHEBY'S BELGRAVIA. July 31st, 1974

| No. | Catalogue Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|----------------|-----------------------|-----------|-----------|--|---|
| 129 | 33 | Vase | 8" | | | Bernard Moore painted, monogram J.C. | Earthenware, low temp., red glaze with grey. Decor. flowers and scrolling on each side of a raised band of spear heads |
| 130 | 34 | Two Vases | 8 $\frac{1}{2}$ " | | | Bernard Moore painted, H. Beardmore monogram | White body, low temp., waisted hexagonal vases. Red glaze, alternate facets of grasses on one, the other with diapers, scales and vermiculation |
| 131 | 35 | Vase and cover | 10 $\frac{1}{4}$ " | | | Bernard Moore painted, C.C.H. monogram | White body, low temp., red ovoid form, decor. spiky prunus blossoms. Copper cover |
| 132 | 36 | Vase | 5 $\frac{3}{4}$ " | | | Bernard Moore painted in blue | Stoneware, high temp., ovoid form, mottled dark red and off white |
| 133 | 37 | Vase | 6" | | | Bernard Moore painted in blue | Stoneware, high temp., red flecked with mauve colour |
| 134 | 38 | Bowl | D. 10 $\frac{1}{4}$ " | | | Bernard Moore painted | White body, low temp., red, scrolling flowers and foliage, inside and out |
| 135 | 39 | Vase | 8" | | | Bernard Moore painted | White body, low temp., pear form, spiky crystalline glaze in green iridescent dark ground |
| 136 | 40 | Vase | 5 $\frac{3}{4}$ " | | | Bernard Moore printed | White body, low temp., ovoid form, red with variegated colours some lustres |

| No. | Catalogue Number | Object | Height | Date Made | Date Acq. | Artist's Marks etc. | Body & Glaze |
|-----|------------------|-------------------|-------------------------------------|-----------|-----------|--|--|
| 137 | 409 | Vase, box & cover | 4" & 2" | | | Bernard Moore on vase, B.M. on box | White body, low temp., and red glaze on both, vase dec. with flowers |
| 138 | 410 | Bowl | D.10" | | | Bernard Moore painted dec. by Hilda Lindop, her monogram. Minton impressed mark for 1907 - 7 | White body, low temp., red, dec. with flying fish and sea, white background |
| 139 | 411 | Bowl | D.9 $\frac{1}{4}$ " | | | Bernard Moore painted, & Made in England | White body, low temp., red and white, galleon in full sail |
| 140 | 412 | Vase | 9 $\frac{1}{2}$ " | c1920? | | Bernard Moore painted, H. Beardmore's signature | White body, low temp., onion form, red and white, scrolling and flowers on speckled ground |
| 141 | 413 | Two Vases | 5 $\frac{3}{4}$ " | | | Painted B.M. | White body, low temp., mottled red on ovoid form |
| 142 | 414 | Vase | 6" | | | Bernard Moore painted, plus E.H.B. monogram | White body, low temp., red and white, onion form, dec. with dragon |
| 143 | 415 | Two Vases | 7 $\frac{1}{4}$ " 6 $\frac{1}{2}$ " | | | Both signed | White body, low temp., for both, one ovoid the other baluster, dark red |
| 144 | 416 | Bowl | D.10" | | | Bernard Moore painted, monogram for Hilda Lindop | White body, low temp., red and white, three ships sailing with inscription "Let the wind blow as it will, we'll keep our Christmas merry still." |

APPENDIX V.

INDEX OF COLLECTED NAMES OF COPPER RED GLAZES FROM MAJOR LITERARY SOURCES.

| | | |
|-----|---|-------|
| 1. | Pere d'Entrecolle's letters, 1712 and 1722 (Burton)..... | p.243 |
| 2. | "T'ao-Shuo", 1774 (Bushell)..... | p.244 |
| 3. | "T'ao-Lu", 1815 (Julien, partial translation from 1856). | p.245 |
| 4. | "Chefs-d'oeuvre of the Industrial Arts", 1869 (Burty)... | p.246 |
| 5. | "Collection of Oriental Porcelain and Pottery", 1876 (Franks)..... | p.247 |
| 6. | "Oriental Ceramic Art", 1896 (Bushell)..... | p.248 |
| 7. | "Chinese Porcelain", 1927 (Honey)..... | p.250 |
| 8. | "Handbook of the Pottery and Porcelain of the Far East, 1937 (Hobson)..... | p.251 |
| 9. | "T'ao-Lu", (Sayer, full translation 1951)..... | p.252 |
| 10. | "A Glossary of Chinese Art and Archaeology", 1954 (Howard Hansford)..... | p.253 |
| 11. | "Catalogue of Porcelain Monochromes", 1981 (Taiwan)..... | p.254 |
| | General listing of names from the above sources..... | p.255 |

NAMES OF DIFFERENT COPPER RED GLAZES.

From the two letters of Père d'Entrecolle, translated by Burton and included in his book "Porcelain, its Art and Manufacture" 1906.

Red in the glaze

Soufflé red

Transmutation

On-glaze red

NAMES OF DIFFERENT COPPER RED GLAZES.

From the "T'ao-Shuo", translated by Bushell, Oxford University Press.

| | |
|--|------------------|
| "...red as fresh blood" | page XXIV No.9. |
| 'deep red' | page XXVI No.12. |
| Pig's liver (Chün) | page 49. |
| Flaming red " | page 50. |
| Sacrificial Red | page 58. |
| Bright Red | page 66. |
| Red as the sun | page 67. |
| Red colour fan hung, from iron sulphate | page 70. |
| ('Red as the clouds of dawn scattered by fishes' tails' and 'Rich as pear-blossom watered by the early rain'). page 123. | |

Cinnabar-red hsien hung, footnote says "This cinnabar or vermilion red must be what is usually called hsien hung, the bright monochrome red due to silicate of copper. page 137.

Dawn-red or Dawn coloured Wine Cups - Liu hsia chan. page 167.
("I known you, Sir, as the maker of the dawn-red wine-cups, which might be started from the orchid arbour to float down the nine bend river")
Footnote says, "The Orchid Pavilion (Lan T'ing) was a celebrated place at Kuei-chi in the province of Ch'ekiang, where a party of scholars used to meet to drink wine and compose verses in the fourth century. The scene with the cups floating down the river has been a favourite subject for Chinese artists ever since. page 168.

("A hermit in the wilderness is unable to feast his eyes with the sight of sacrificial vessels and ritual utensils of former sovereigns,) page 171.

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Histoire et Fabrication de la Porcelaine Chinoise",
by Stanislas Julien, printed in Paris by 'Mallet - Bachelier,
Imprimeur' 1856.

Book III Pyrus japonica red, rouge de Pyrus japonica - Hai-tang-hong.

Pig's liver, Foie de porce - Tchou-kan

Mule's lung, Poumon de mulet - Lou-fei

All on page 75.

Book IV Blood of an eel, sang d'anguille

Fresh red, rouge vif - Sien-hong

Red of the precious stone or ruby red, rouge de pierre
précieuse - P'ao-chi-hong, all on page 92.

Book VI Red of the blossom of a Japanese pear-tree, émail rouge
couleur de la fleur du poirer du Japan - Hai-thang-hong-yeou.

From page 194.

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Chefs-d'oeuvre of the Industrial Arts", by Philippe Burty and edited by W. Chaffers. Publ., Chapman and Hall, 1869.

Scarlet-runner's red

Flambé

Page 137

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Collection of Oriental Porcelain and Pottery", by A. W. Franks,
1876.

Sang-de-boeuf

Page 6.

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Oriental Ceramic Art", by Bushell, published by F. Muller, London.

Flambés

Mule's liver

Horse's lung

Apple green

Lang yao

Sang de boeuf

Peach bloom

Peach blow ('only applicable to the flower' so a limited name writes
Bushell)

Apple red

Variegated bean (pink spotted with brown) All on page 4.

Coral red page 5.

Dawn-red wine cups (from a Chinese poem) page 51.

Sacrificial red

Lü Lang yao (apple green) page 161.

Soufflé red page 162.

Crushed strawberry (peach bloom or apple red)

Haricot red (pink with brown spots - like variegated bean above - a
native name for peach bloom) page 163.

Ruby red page 173.

(cont.)

Chün glazes

Rose crimson

Pyrus japonica pink

Plum coloured blue

Furnace transmutations

Clear red

Bright red

Chicken-red M. Grandidier seems to base his term 'sang de poulet'
Bushell feels there was confusion in translation of
chi hung

All on page 196.

Red inside the glaze - underglaze red (yu-li-hung) page 203.

Rouge red (possibly from gold)

Red of the jujube calcined peroxide of iron used in an enamel flux
(the fruit of the Zizyphus communis page 214

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Chinese Porcelain" by W. B. Honey, for 'The Victoria and Albert Museum Department of Ceramics', 1927.

Lang yao

Sang-de-boeuf

Precious stone red - pao shih hung (same as sang-de-boeuf)

Soufflé red - ch'ui hung

Under-glaze red - hsien hung (fresh red)

Sacrificial red - chi hung (a note mentioning massed red and sky clearing red)

Red in the glaze - yu li hung

Liver coloured

Liver coloured spots with points of bright crimson

Ashes of roses

Peach bloom - a name from American collectors

Apple red - p'in-kuo hung - Chinese name for peach bloom, red predominates

Apple green - p'in-kuo ch'ing - as above but green predominates

Bean red - a particular type of peach bloom - Chiang-tou hung - pink and brown colour, like a Chinese kidney-bean

Flambé - a glaze of mingled red, lavender, grey and blue

Transmutation glaze - yao pien

Tiger skin or peacocks eye - sometimes appears in a flambé

All these names from pages 20 to 23.

Liquid dawn - red colour applied by blowing, covering part of the surface of the piece and fading gradually into a nearly white ground. This name came from the wine cups made by Hao Shih-chiu, a late Ming potter, whose porcelain was copied in the eighteenth century.
from page 40.

NAMES OF DIFFERENT COPPER RED GLAZES.

From "Handbook of the Pottery and Porcelain of the Far East" by R. L. Hobson, C.B., British Museum 1937.

Rose purple - Chün

Cherry apple red - Chün

Plum bloom - Chün

Page 27.

Fresh or vivid red - hsien hung

The red of precious stones - pao shih hung

Sacrificial red - chi hung (sky-clearing red and massed red mentioned)

All Ming names from page 49.

Lang yao - says it is copy of chi hung

Soufflé

Cherry red

Furnace transmutations - yao pien

Flambé

Peach bloom

Liver colour

Pages 84 to 86 under K'ang Hsi period

Sang de boeuf

Page 85

NAMES OF DIFFERENT COPPER RED GLAZES.

From the "T'ao-Lu", translated by Sayer, published Routledge & Kegan Paul, 1951

- Book II Sky clearing red - Chi-Hung, page 17.
- Book III Rose purple (Chün)
Sea pear red (Chün)
Mule's liver (Chün)
Horse's lungs (Chün) page 23.
- Bright red
Ruby red
Orange peel skin and coir eyes.
Blown red glaze page 23.
- In the glaze red - yu-li-hung page 24.
- Book V Fresh red - hsien-hung page 43.
Eel's blood markings (ice crack) page 43.
Alum red (iron red) page 45.
Sacrificial red page 45.
Floating dawn (not sure this is copper based) page 47.
- Book VI Pig's liver
Camel's lung page 55.
- Book VIII Vermilion red page 76.
- Book X Relieving red page 111.

NAMES OF DIFFERENT COPPER RED GLAZES.

From "A Glossary of Chinese Art and Archaeology" by S. Howard Hansford published by The China Society, London 1954.

Red - Hung

Sacrificial Red - Chi hung

Blood Red - Chi hung "Chi hung has sometimes been incorrectly written with the character chi, "sky-clearing" and also with the character chi, "chicken".

Fresh Red

Blood Red

Bright Red - All three translated as hsien hung

Ruby Red - pao-shih a darker colour than hsien hung

Bean Red - chiang-tou hung, glazes with patches of brown or green; "peachbloom" glazes.

Red within the glaze - yu-li hung, an under-glaze red; a term used to distinguish the copper reds from the over-glaze reds from iron.

Red from iron oxide - fan hung - unlike the reds from copper it is applied to the surface of the glaze to produce a coral-red monochrome.

Oil Red - yu hung, another term for fan hung applied when used as an enamel.

Spread Red - mo hung, fan hung applied to the whole surface i.e. used as a monochrome.

Jujube Red - tsao-êrh hung, date red; a dark and lustrous variety of fan hung.

Rouge Red - yen-chih hung, rich crimson from gold.

Soft Red - fên hung, a pink diluted with white enamel.

All these names on pages 70 and 71.

NAMES OF DIFFERENT COPPER RED GLAZES.

From the "Catalogue of Porcelain Monochromes", in the 'National Palace Museum', Taiwan, Republic of China, 1981.

Ruby red
Coral red
Flambé red
Iron red
Sacrificial red
Bright ruby red
Bean red (less bright than ruby red) (a light pink colour)
Vermilion red (imitation lacquer)
Rose pink red (from gold)
Peach blossom red
Goat liver red
Drunken beauty red (a pinkish red)
Baby rat red (a greyish colour with tints of red)
Chūn red
Flambé blue (a streaky blue and red)
Purple rose (Chūn)
Begonia red (Chūn)
Donkey liver (Chūn)
Horse lung (Chūn)

DOCUMENTATION OF RED GLAZES MENTIONED IN THE PREVIOUS TEXTS.

| | D'Entrecolle | T'ao-Shuo 1774 | T'ao-Lu 1856 | Burty 1869 | Franks 1876 | Eushell 1896 | Honey 1927 | Hobson 1937 | T'ao Lu 1951 | Mansford 1954 | Taiwan 1981 |
|-----------------------|--------------|----------------|--------------|------------|-------------|--------------|------------|-------------|--------------|---------------|-------------|
| Alum red. | | | | | | | | | | | |
| Apple green. | | | | | | / | / | | | | |
| Apple red. | | | | | | / | / | | | | |
| Ashes of roses. | | | | | | / | / | | | | |
| Baby rat red. | | | | | | | | | | | / |
| Bean red. | | | | | | | / | | | / | / |
| Begonia red. | | | | | | | / | | | / | / |
| Blood of an eel. | | | / | | | | | | | | / |
| Blood of the chicken. | | | | | | / | | | | | |
| Blood of the ox. | | | | | | / | | | | | |
| Blood red. | | | | | | / | | | | / | |
| Blown red glaze. | | | | | | | | | / | / | |
| Bright red. | | / | | | | / | | | / | / | |
| Bright ruby red. | | | | | | / | | | / | / | / |
| Camel's lung. | | | | | | | | | / | / | / |
| Cherry apple red. | | | | | | | | | / | / | / |
| Cherry red. | | | | | | | | | / | / | / |
| •Chün red. | | | | | | | | | / | / | / |
| Cinnabar red. | | / | | | | | | | | | / |
| Clear red. | | | | | | / | | | | | |
| Coir eyes. | | | | | | | | | / | | |

| | D'Entrecolle | T'ao-Shuo 1774 | T'ao-Lu 1856 | Burty 1869 | Franks 1876 | Bushell 1896 | Honey 1927 | Hobson 1937 | T'ao Lu 1951 | Hansford 1954 | Taiwan 1981 |
|-----------------------------|--------------|----------------|--------------|------------|-------------|--------------|------------|-------------|--------------|---------------|-------------|
| Coral red. | | | | | | / | | | | | / |
| Crushed strawberry. | | | | | | / | | | | | / |
| Dawn coloured. | | | | | | / | | | | | / |
| Dawn red. | | / | | | | / | | | | | / |
| Deep red. | | / | | | | / | | | | | / |
| Donkey liver. | | | | | | | | | | | / |
| Drunken beauty red. | | | | | | | | | | | / |
| Eel's blood markings. | | | | | | | | | / | | / |
| Flambé. | | | | / | | / | / | / | | | / |
| Flambé blue (blue and red). | | | | | | | | | | | / |
| Flambé red. | | | | | | | | | | | / |
| Flaming red. | | / | | | | | | | | | / |
| Floating dawn. | | | | | | | | | / | | / |
| Fresh red. | | | / | | | | | / | / | | / |
| Furnace transmutations. | | | | | | / | | / | / | | / |
| Goat liver red. | | | | | | | | | | | / |
| Haricot red. | | | | | | / | | | | | / |
| Horse's lung. | | | | | | | | | / | | / |
| Iron red. | | | | | | / | | | | | / |
| Jujube red. | | | | | | / | | | | | / |
| Lang yao. | | | | | | / | / | / | | | / |
| Liquid dawn. | | | | | | | / | / | | | / |
| Liver coloured. | | | | | | | / | / | | | / |

| | D'Entrecolle | T'ao-Shuo 1774 | T'ao-Lu 1856 | Burty 1869 | Franks 1876 | Bushell 1896 | Honey 1927 | Hobson 1937 | T'ao Lu 1951 | Hansford 1954 | Taiwan 1981 |
|---|--------------|----------------|--------------|------------|-------------|--------------|------------|-------------|--------------|---------------|-------------|
| Liver coloured spots with points of crimson. | | | | | | | / | | | | |
| Lü Lang yao. | | | | | | / | | | | | |
| Massed red. | | | | | | / | | / | | | |
| Mule's liver. | | | | | | / | | / | | | |
| Mule's lung. | | | / | | | / | | / | | | |
| On glaze red. | / | | | | | | | | | | |
| Orange peel skin. | | | | | | | | | | | |
| Oil red. | | | | | | | | / | | | |
| Peach bloom. | | | | | | / | / | / | | | |
| Peach blossom red. | | | | | | / | / | / | | | |
| Peach blow. | | | | | | / | | | | / | |
| Peacock's eye. | | | | | | / | / | | | | |
| Pig's liver. | | / | / | | | / | | | | | |
| Plum bloom. | | | | | | | / | / | | | |
| Plum coloured blue. | | | | | | / | / | | | | |
| Precious stone red. | | | | | | / | / | | | | |
| Purple rose. | | | | | | / | / | | | | |
| Pyrus japonica red. | | | / | | | / | | | | / | |
| Red as fresh blood. | | / | / | | | / | | | | | |
| Red as the clouds of dawn scattered by fishes' tails. | | / | | | | | | | | | |
| Red as the sun. | | / | | | | | | | | | |

| | D'Entrecolle | T'ao-Shuo 1774 | T'ao-Lu 1856 | Burty 1869 | Franks 1876 | Bushell 1896 | Honey 1927 | Hobson 1937 | T'ao Lu 1951 | Hansford 1954 | Taiwan 1981 |
|--|--------------|----------------|--------------|------------|-------------|--------------|------------|-------------|--------------|---------------|-------------|
| Red from iron oxide. | | | | | | | | | | | |
| Red inside the glaze. | | | | | | / | | | | / | |
| Red in the glaze. | / | | | | | | / | | / | | |
| Red of precious stones. | | | / | | | | / | | / | | |
| Red of the blossom of a Japanese pear-tree. | | | / | | | | | / | | | |
| Red of the jujube. | | | | | | / | | | | | |
| Red within the glaze. | | | | | | | | | / | | |
| Relieving red. | | | | | | | | | / | | |
| Rose crimson. | | | | | | / | | | / | | |
| Rose pink red. | | | | | | | | | / | | / |
| Rose purple. | | | | | | | | / | / | | / |
| Rouge red. | | | | | | / | | / | / | | / |
| Ruby red. | | | / | | | / | | / | / | | / |
| Sacrificial red. | | / | | | | / | / | / | / | / | / |
| Sang de boeuf. | | | | | / | / | / | / | / | / | / |
| Scarlet-runner's red. | | | | / | | / | / | / | / | / | / |
| Sky clearing red. | | | | | | | / | / | / | | |
| Soft red. | | | | | | | / | / | / | / | |
| Soufflé red. | / | | | | | / | / | / | / | / | |
| Spread red. | | | | | | / | / | / | / | / | |
| Transmutation glaze. | / | | | | | / | | | / | | |
| Tiger skin. | | | | | | / | | | | | |

| | | | | | |
|------------------|--|--|--|--|----------------|
| | | | | | |
| | | | | | D'Entrecolle |
| | | | | | T'ao-Shuo 1774 |
| | | | | | T'ao-Lu 1856 |
| | | | | | Burty 1869 |
| | | | | | Franks 1876 |
| | | | | | Bushell 1896 |
| | | | | | Honey 1927 |
| | | | | | Hobson 1937 |
| | | | | | T'ao Lu 1951 |
| | | | | | Hansford 1954 |
| | | | | | Taiwan 1981 |
| Underglaze red. | | | | | |
| Variegated bean. | | | | | |
| Vermillion red. | | | | | |
| Vivid red. | | | | | |

APPENDIX VI.

THE SCHERZER REPORT.

From an article by M. G. Vogt called, "Recherches sur les porcelaines Chinoises", printed in "Chimie", April, 1900.
(translated by James Campbell)

"I have the honour, wrote Scherzer on the 23rd December, 1882, to announce to you my return from King-te-tchen, where I endeavoured to collect information about the production of porcelain necessary to reply to your questionnaire which you have sent me."

"I embarked at Kin-Kiang on the 14th of November 1881; thanks to a favourable wind and the current of the Yang-tze, I arrived the same day at Hou-Keou, a small town of picturesque appearance which guards the entrance of the Lake Po-yang. It was not until the end of five days that I arrived at Yao-tcheou, a district situated on the east bank of the Po-yang lake and at the mouth of the river that leads to King-te-tchen."

"The 120 lis (one lis is approx. 500 metres), which separate Yao-tcheou from a village called Ouang-Kan, were covered in a day, but on leaving this place, navigation was hindered by the accumulation of debris of porcelain, bricks and saggars which clutter the bed of the river and form veritable rapids succeeding one another over a length of 60 lis which I took two days to cover (30 kilometres or nearly 19 miles)."

"The day after my arrival (23rd November) at King-te-tchen, I made my official visits to the local authorities who received me very courteously and accompanied me to the Yu-Yao-chang or Imperial factory."

"Great was my disappointment at the time of this visit: the very elderly manager was seriously ill and the factory was concerned about his death, the workshops were going to close in three days time and people were finishing off the decoration of some bowls and saucers by the application of fusible enamels on biscuit and on white glaze."

"No porcelain kilns strictly speaking exist at Yu-Yao-tchang, the raw vases are fired outside in kilns built by private industry."

"I was shown the enamel kilns which are used to harden the vitrifiable colours in the decoration. I examined them with care and took the dimensions."

"Since the Tae-ping rebels have been chased out of the province of Kiang-si, different Tao tai, or superintendants have succeeded the customs authority of Kin-Kiang and are in charge of the administration of the Imperial Factory, they are little concerned to re-establish things in the flourishing state which they previously enjoyed,

particularly under the enlightened direction of their predecessor Thang-Yug (1742)."

"Today the Imperial buildings are falling into ruins, the workshops are badly kept up, the workers although recruited from the most skilful, receive payment hardly better than that which they would obtain in private factories. In a word, the products of the Imperial Factory still present at this time a real superiority, they owe it to the fineness of the porcelain body obtained by a method of levigation repeated seven or eight times of the purest kaolins, tun (china stone), and flint; and to the use of colours of the first quality; it is important further more to observe that the time of the painter - decorators paid for the job is not highly valued and objects showing the least fault are pitiless rejected. All the pieces coming out of the Imperial Factory are after all copied on a model not allowed to vary as the work goes on, the commands coming from the Palace of the Emperor and I believe it would be difficult for the most experienced expert to find the slightest difference between two pieces (both having for example, yellow backgrounds with green and violet dragons enamelled on the reserves), one made two hundred years ago and one coming straight from the kiln, if the six characters indicating the dynasty did not come to his help."

"The delivery of the year's order was almost finished and in the absence of the manager of Yu-Yao-tchang, I had to give up the idea of obtaining the details that I was looking for, in fact, pieces with coloured glazes from the high temperature firing had been sent to Peking a long time ago and the workshop supervisors had gone home; however the absence of a proper porcelain kiln lead me to suppose, as I was able to verify later, that the porcelain wares whatever the glazes on them might be, were fired indiscriminately in the same kiln without any perceptible modification of the firing cycle."

"The copper red Tsi-houng (chi-hung), or Sang de Boeuf, so much appreciated by the connoisseurs, is no longer made since the death of the last man who possessed the secret of it's making. Over twenty years ago, the management of the Imperial Factory excused itself in a statement to the throne, for not being able to execute an order for vases covered with the Tsi-houng glaze for his Majesty."

"King-te-tchen is situated in a valley completely surrounded by hills and mountains whence are extracted the clays and decomposed granites necessary for the manufacture of porcelain. The town extends itself along the left bank of the river for a distance of ten lis, the opposite bank is uninhabited and presents to one's glance a succession of small hillocks covered with tombs. The population of King-te-tchen is evaluated by the local authorities at over one million souls; in the absence of any census one may doubt the exactitude of this figure, however I believe I can confirm that the population is at least over 500,000 inhabitants, of which three quarters are menial labourers, employed in the workshops and potteries, receiving as well as food a salary varying from 5 to 10 sapeques per day, which would be 2 to 4 centimes in our money."

"The Tche-hien or magistrate of Fou-leang (a walled city situated 25 lis from King-te-tchen), exercises his jurisdiction over this latter locality, where resides the permanent Eur-fou (a sort of sub-prefect), who is directly responsible to the administrator at Yao-tcheou."

"The Tche-hien and the Eur-fou have in their pay a certain number of soldiers, as well as the guardians of peace (Paougan-Kun), charged with keeping order; all of these forces grouped together present an effective total, which would not exceed 250 men. If one relates this last figure to that of the population one will not be surprised at the solicitude with which the authorities watched over even the least of my movements. Also, since the aim of my journey was explicitly mentioned on the passport which M. Bouree, Minister of the Republic in Peking, had kindly demanded for me at Tsang-li-Yamen, the authorities were not able to do otherwise than facilitate the means of my visiting a working porcelain kiln."

"My first visit to the porcelain kilns took place at two o'clock in the morning. A chair with porters and an escort came to take me on board my boat, where I enjoyed a situation incomparably more comfortable than that which I would have found ashore, and I was received at the porcelain kilns by the Tche-hien, the Eur-fou and the officer commanding the troops of which I had spoken about."

"In similar nocturnal expeditions, I examined an empty kiln and a kiln filled with saggars before being closed up and then I observed the manner in which the firing is conducted. I took down completely the dimensions of the most important parts of the construction, and subsequently I was able to take precisely all the different measurements needed for a sketch of an elevation, which I have been asked for by the potters at Sèvres."

"But I quickly tired of these unusual visits and despite the representations of the Tche-hien, who wanted to see me limit my sorties to the small hours of the night thus simplifying the task of protection which fell upon him. I declared positively that I had decided to stay at King-te-tchen until I had seen with my own eyes and in full daylight the various stages of manufacture which I had come to study."

"This excellent magistrate appeared to fear for me some insult from the direction of the working population or at least some uproar provoked by a wild curiosity, causing damage which he would have had to repair at his own expense; however, faced with the firmness of my attitude, he decided to accompany me during the day of the 27th November and we visited together several different workshops but once again I did not manage to penetrate into any proper factory."

"The duties of his mission took him back to Fou-leang, the Tche-hien len, on leaving he put me under the care of Lieutenant Yuen, commander of the troops of King-te-tchen. It was with this officer that I visited, in daylight, several porcelain factories, one of them producing crackled glazes on porcelain."

"I was now able to review the procedures for making the high fired coloured and crackle glazes. The latter is obtained by employing a particular type of decomposed granite extracted from the mountains near the San-pao-pong gorge situated 15 lis north of the town. I resolved then to visit the stone yard where the material is ground, washed and made into small bricks. It was necessary for me to threaten the Eur-fou that if necessary I would go on foot if he would not get me a horse: Lieutenant Yuen, followed with a party of his men, he felt obliged to accompany me on this venture, the journey was new to him and without my indiscreet zeal he would never have embarked upon it. The route meandered through one of the most picturesque parts of the country, leading at last to a gorge where I stopped as soon as I came across a stone yard in full activity."

"I obtained some fragments of the china stone, ground by a water powered crusher, after grinding it was washed twice and made into bricks. I was keen to bring back some of these bricks which I only obtained with great difficulty and I was obliged to pay fifty times their value."

"Later on, with some help in the right places, I succeeded in gathering fresh information and I also brought back an unfired vase painted with a cobalt blue design and covered with a crackle glaze together with tests of other diverse glazes which showed small and large crackled surfaces."

"I also had the opportunity of visiting the only unique factory at the present time, whence come vases with the copper red glaze called, Kun-houng."

"The director of the establishment refused categorically to tell me the recipe which is used to prepare this high temperature glaze. I managed all the same to get some for myself, without his knowledge, and during the second visit, I was able to ascertain for myself the identity of the elements, which had been shown to me with those used in the vases with the red Kun-houng glaze. I noticed that the body destined to receive this glaze is harder than is normally used, it has in effect to stand up to several successive high temperature firings."

"The Kun-houng glaze is applied on the biscuit, firstly by dipping and then by spraying. I have in my possession, vases with glaze applied before being fired in the gloss firing and I have also brought back samples of the body used with the materials which go into its composition."

"As for the copper red, Yeou-li-houng, it is applied on unfired porcelain and receives the ordinary glaze; it is only rarely used and it is generally associated with cobalt blue in the decoration of certain vases; the dregs of the wine colour which it gives is rarely successful, and then only on very small pieces; I have brought back the sample of this colour from the high temperature firing and the recipe which is used to prepare it."

"In the end I had them apply in my presence various glazes on different unfired vases, on the foot of which I cut my mark. These vases, blue, black, celadon, white with blue underglaze decoration and yellow bronze (Kou-tong) have all succeeded with the exception of the last which went wrong but offers an excessively interesting glaze due to a kiln accident."

"I had brought by my people some bottles which were filled as I watched with different glazes I had seen used; I also got hold of some specimens of the body of which the vases had been made that was destined to receive the glazes."

"I had the occasion of verifying the fact that the Chinese decorate certain objects, usually the small ones, on the biscuit. Pieces brought back with turquoise glazes pass twice through the high temperature firing; the other glazes, yellow, green or violet are simply fired in an enamelling kiln. As for the rest, I have brought back the complete collection of vitrifiable colours which for the most part are prepared in Canton."

"I will end this brief work in pointing out the most striking facts which I have been able to establish during my stay of nearly three weeks at King-te-tchen:

1. Firstly the use of one uniform type of kiln, in which all glazes are fired indiscriminately.
2. The total absence of any interference with the atmosphere inside the kiln.
3. Relative temperatures very little higher in the firing compared with those in use in Europe generally, and at Sèvres in particular.
4. The application of different coloured glazes on the same unfired body, with the exception of the copper red and the turquoise blue (Fa-tsouei), which need special biscuit firings.
5. Production of crackle, due to the use of a particular type of china stone or decomposed granite in the preparation of the glaze.
6. The exclusive use of a cobalt blue coming from the processing of a cobalt bearing mineral, manganese peroxide, taken from the provinces of Yunnan and Tche-Kiang.
7. The disappearance of the making of the red Sang de Boeuf (Tsi-houng)."

The report was accompanied by notes, samples and drawings collected on the sites and sent to the factory at Sevres. Some of the notes and a sketch are included in Appendix VII with the technical information.

APPENDIX VII.

TECHNICAL INFORMATION RELATING TO THE COPPER RED GLAZES.

1. Recipes, methods and kiln logs documenting the ceramic tests p.266
2. Mellor on the opalescence of Chinese copper red glazes..... p.274
3. Recipes of Bernard Moore and T'ang Ying..... p.275
4. Mellor on the proportion of copper needed for red glazes.... p.275
5. Recipes from the Scherzer Report and a sketch illustrating a Chinese method of achieving reduction..... p.276
6. Recipes from Seger..... p.279
7. Recipes from Doat..... p.281
8. Reduction firing by Seger and Doat..... p.282
9. Reduction firing by Lomax..... p.282
10. Reduction firing by Poole Pottery..... p.283
11. To produce metallic lustres (Minton Archives)..... p.284
12. Reduction firings and materials from Wengers catalogue 1937. p.287

RECIPES AND METHODS USED IN TEST GLAZES.

All tests have been fired using a porcelain body unless otherwise stated.

Test No.1. Salvetat's first recipe:

| | |
|-------------------------|-------|
| Flint..... | 38.00 |
| Feldsper..... | 50.00 |
| Chalk..... | 12.00 |
| Peroxide of Copper..... | 6.00 |

Salvetat's glaze was placed on top of a Dora Billington medium stoneware glaze. Tin oxide had been added to Miss Billington's glaze and it contained the following:

| | |
|-----------------|-------|
| Flint..... | 10.00 |
| Feldsper..... | 48.00 |
| Chalk..... | 20.00 |
| China Clay..... | 22.00 |
| Tin Oxide..... | 10.00 |

The medium stoneware glaze was based on a Staffordshire recipe, according to Miss Billington. It was felt that this glaze could have represented the family of glazes used by Moore for his experiments.

This test was fired in a down draught gas kiln to a temperature of 1250c, using Seger's method for reduction, documented on page 272. Other tests of this glaze were fired in a normal glaze reduction firing to 1280c, described on page 271 and the results were in fact very similar.

Test No.2. As above, except that the red glaze of Salvetat was applied thinly.

Test No.3. Shows Salvetat's red glaze on top of the medium stoneware glaze after correcting the copper content, according to Seger, to .92%.

Test No.4. Seger's 'dark red Chinese glaze' was used on top of the same medium stoneware glaze.

White Porcelain Glaze:

| | |
|----------------------|-------|
| Marble..... | 17.70 |
| Feldspar..... | 42.10 |
| Zettiltz kaolin..... | 13.00 |
| Ground sand..... | 27.20 |

Barium Glaze:

| | | |
|---------------------|--------|---------------------|
| Barite..... | 125.30 | |
| Calcined Soda..... | 26.50 | |
| Borax Crystals..... | 95.50 | |
| Sand..... | 141.20 | |
| Charcoal..... | 15.00 | Needs to be fritted |

Dark Red Chinese Glaze:

| | | |
|----------------------------|-------|-----------------------|
| White porcelain glaze..... | 75.00 | |
| Copper Oxide..... | 00.15 |) |
| Tin Oxide..... | 01.00 |) Fritted in reducing |
| Ferric Oxide..... | 00.50 |) fire |
| Barium Glaze..... | 23.35 |) |

This glaze was fired in a down draught gas kiln, using Seger's method for reduction documented on page 272. It was fired to 1250c.

Test No.5. Same as No.4 except that the glaze was applied thinly.

Test No.6. Doat's recipe for copper reds on top of an alkaline glaze; this was fired with tests 7, 8, and 9 on the same kiln shelf. All of these four tests were fired in a down draught gas kiln to a temperature of 1250c, using Seger's method of reduction, page 272.

Doat's Recipe:

| | |
|----------------------------------|--------|
| Pegmatite (feldspar)..... | 108.00 |
| Quartz Sand of Fontainbleau..... | 126.00 |
| Zinc Oxide..... | 15.50 |
| Carbonate of Barium..... | 36.00 |
| Fused borax..... | 45.00 |
| Dry Carbonate of Sodium..... | 16.50 |

This recipe is fritted in a reducing atmosphere.

| | |
|--------------------------|--------|
| Ground Glass (Frit)..... | 100.00 |
| Oxalate of Copper..... | 2.00 |
| Calcined Tin Oxide..... | 1.00 |

Alkaline Glaze:

| | |
|--------------------|-------|
| Alkaline Frit..... | 80.00 |
| Whiting..... | 5.00 |
| China Clay..... | 15.00 |
| Tin Oxide..... | 10.00 |

Test No.7. Doat's red glaze on top of the medium stoneware glaze, otherwise it was the same as test no.6.

Test No.8. A thin layer of Doat glaze was applied over a medium stoneware.

Test No.9. Again, a thin layer of Doat glaze was applied over an alkaline glaze.

Test No.10. A porcelain body fired only to a temperature of 1060c, it was then covered with an alkaline glaze and fired to 1100c. A De Morgan lustre was applied to the glazed test and refired according to the method described on page 270. The alkaline glaze recipe is described for test no.6.

De Morgan Lustre Recipe:

China Clay.....70.00
Copper Carbonate.....30.00
Gum Arabic was added to this recipe to help the lustre adhere to the white glaze.

Test No.11. As above except that the porcelain and alkaline glaze were fired to 1280c.

Test No.12. The same alkaline glaze and lustre that was applied to a bone china body fired to an earthenware temperature of 1100c.

Electric test kiln, chamber 1' x 1' x 1'

DESCRIPTION William De Morgan
Reduction firing. **FIRED BY** D. A. Hall
7:11:83

TEMPERATURE/CONE

750c

| TIME | REGULATOR | TEMPERATURE | ATMOSPHERE | COMMENTS |
|-------|--------------|-------------|--|----------|
| 10.00 | Low | - | Oxidising | |
| 10.30 | Med | 200 | Ox. | |
| 11.00 | High | 320 | Ox. | |
| 12.00 | High | 600 | Reducing, 100grms wood, seal door & bung | |
| 12.10 | Med | 640 | Reducing, 100grms wood. | |
| 12.15 | Med | 620 | Reducing, 100grms wood. | |
| 12.20 | High | 600 | Reducing. | |
| 12.30 | High | 650 | Reducing, still smoking so no wood added | |
| 12.40 | Med | 700 | Reducing. | |
| 12.45 | Med | 650 | Reducing, 200grms wood added | |
| 13.10 | High | 660 | Reducing, 200grms wood added | |
| 13.30 | High | 700 | Reducing, 200grms wood added | |
| 13.45 | High | 600 | Temp. dropping, reducing 100grms wood | |
| 14.00 | Element gone | 550 | Switch off. | |

DURATION OF PREHEAT

Nil

DURATION OF MAIN FIRING

6 Hours 1000grms wood

NOTES

Tests - porcelain body, alkaline tin glaze fired at 1100c, William De Morgan's lustre recipe added (china clay 75%, copper carbonate 25% plus vinegar, gum arabic and water).

Green horse chestnut used for reduction - all weight approx. - twigs $\frac{1}{4}$ to $\frac{1}{2}$ inch in diam. Wood fed through bunghole as smoking eased.

Awful results, irregular blushes of red on some tests others white - not enough reduction and not a high enough temperature.

Electric test kiln, chamber 1' x 1' x 1'

DESCRIPTION William De Morgan
Reduction firing. **FIRED BY** D. A. Hall
13:11:83

TEMPERATURE/CONE

750c

| TIME | REGULATOR | TEMPERATURE | ATMOSPHERE | COMMENTS |
|-------|-----------|-------------|--|----------|
| 9.30 | Low | - | Oxidising | |
| 10.15 | Med | 200 | Ox. | |
| 11.00 | High | 380 | Ox. | |
| 12.00 | High | 600 | Reducing, 200grms wood, seal door & bung | |
| 12.15 | Med | 640 | Reducing | |
| 12.20 | High | 620 | Reducing, 200grms wood added. | |
| 12.40 | High | 650 | Reducing, 300grms wood | |
| 12.50 | High | 680 | Reducing, 300grms wood | |
| 13.10 | High | 710 | Reducing, 300grms wood | |
| 13.25 | Med | 750 | Reducing, 300grms wood | |
| 13.45 | Off | 700 | | |
| | | 600 | Oxidising, remove clay from door & bung | |

DURATION OF PREHEAT

Nil

DURATION OF MAIN FIRING

4½ Hours 1600grms wood

NOTES

Tests - porcelain body, alkaline tin glaze fired at 1100c, William De Morgan's lustre recipe added (china clay 70%, copper carbonate 30% plus vinegar, gum arabic and water).

Green horse chestnut used for reduction - all weights approx. - small twigs, ¼ to ½ inch in diam. Wood put in kiln when the smoking eased.

Good even reduction - red glazes identical to many of De Morgans in colour.

Down draught gas kiln, chamber 3' x 3' x 2'

DESCRIPTION

FIRED BY

Stoneware firing with glaze reduction

D. A. Hall
15.2.84

TEMPERATURE/CONE

7 8 9 (1280c)

| TIME | REGULATOR | TEMPERATURE | ATMOSPHERE | COMMENTS |
|-------------|-------------------------------|--------------------|--------------------------|-----------------|
| 7.00am | F1½ | 40c | | |
| 8.35 | FL½ BR½ | 200 | | |
| 11.00 | FL½ BR½ FR½ | 480 | | |
| 14.45 | All on ½ | 800 | | |
| 16.45 | All on ½ | 1000 | | |
| 17.15 | Gentle increase | 1020 | Reduction | |
| 20.00 | Gentle increase | 1130 | Reduction | |
| 21.00 | " | 1200 | Reduction 1st cone down. | |
| 21.15 | " | 1220 | Reduction 2nd cone down. | |
| | FL&BR Full (two burners only) | | Oxidise | |
| 21.30 | Off | 1230 | Oxidise 3rd cone down. | |

Pyrometer not accurate.

DURATION OF PREHEAT

2 hours previous day

DURATION OF MAIN FIRING

14.30 hours

NOTES

Normal stoneware firing with glaze reduction - T'ang Ying tests near the middle of the kiln.

Down draught gas kiln, chamber 3' x 3' x 2'

DESCRIPTION

FIRED BY

Porcelain firing with Seger reduction

D. A. Hall
24.3.84 & 25.3.84

TEMPERATURE/CONE

7 8 9 for 1250c firing

| TIME | REGULATOR | TEMPERATURE | ATMOSPHERE | COMMENTS |
|---------------------------------------|-----------------------------------|-------------|------------|---|
| 21.00 | FL $\frac{1}{2}$ | 0 | | |
| 22.55 | FL $\frac{1}{2}$ | 80 | | |
| Lose one hour for British Summer Time | | | | |
| 6.00 | FL $\frac{1}{2}$ BR $\frac{1}{2}$ | 350c | | |
| 8.30 | FL & BR Full | 630c | | Reduce - oxidise for 1 minute every $\frac{1}{4}$ of an hour. |
| 10.30 | FL & BR Full | 700c | | |
| 13.50 | FL, BR, FR, Full | 900c | | Three burners on - reduction continued. |
| 14.50 | FL, BR, FR, Full | 908c | | Oxidise for $\frac{1}{4}$ hour. |
| 15.05 | FL, Br, Fr, Full | 1020c | | Reduce again. |
| 17.05 | All full | 1060c | | Reduce using four burners. |
| 18.20 | All full | 1180c | | Oxidise |
| 18.30 | All full | 1220c | | 7 bent 8 just starting to bend. |
| 18.40 | All full | 1250c | | 8 down for 1250c. |

DURATION OF PREHEAT

Just under two hours.

DURATION OF MAIN FIRING

22.40 hours. Reduction 9.35 hours.

NOTES

A wet and gusty Sunday, affecting reduction at times. Reduction at 8.30, door and other apertures sealed. Damper all but closed, similarly primary and secondary air. High speed oxidation for 1 minute every $\frac{1}{4}$ hour. Blow back at 720c (10.50). Personal work fine, tests show the whole range of colour possible in such a firing.

ANALYSIS OF LOW TEMPERATURE BRIGHT RED GLAZE BY B. MOORE.

Carried out with an electron micro probe by Mr. R. N. Wilson at Leicester University, assisted by Dr. Hugh Rollinson and Dr. John Harpum.

A small flake of bright red glaze made by Bernard Moore was mounted on a special slide framed with metal foil. The flake was about one eighth of an inch square.

Composition of glaze from the analysis, where only the main elements are indicated:

| | |
|-----------|------|
| Silica | 59.3 |
| Alumina | 8.4 |
| Calcium | 5.7 |
| Potassium | 2.7 |
| Copper | 6.0 |
| Lead | 17.9 |

Acceptable proportions for an earthenware glaze apart from abnormally high percentage of silica, about three times too much. However, a trial glaze was made translated from these proportions.

| | |
|--------------------|------|
| Potassium Feldspar | 15.8 |
| China Clay | 13.8 |
| Whiting | 10.2 |
| Flint | 42.4 |
| Black Copper Oxide | 6.0 |
| Litharge | 17.8 |

This was fired on a test piece and the porcelain body melted before the glaze at 1320c! The geologist, Dr. Harpum assumed the high silica content was due to "the glaze differentiating into layers or laminae, as a result of differential ionic diffusion in a non-Newtonian liquid just prior to setting." Alternatively, there were crumbs of porcelain body attached to the flake and if the probe took a reading from these, there would be a high silica content.

OPALESCENCE.

MELLOR, J.W., "The Opalescence of Chinese Copper-Red Glazes" from "Transactions of the Ceramic Society", No.1, January 1937, page 46.

"Phosphates are not needed as an opacifying agent in these glazes, and such analyses of the glazes as are available usually indicate that the proportion of alumina is low and that of lime, high; it is known (Trans., 4,64,1905) that these conditions favour the development of the opalescence by the incipient devitrification of the glaze. Seger's analysis of a Chinese flambé.....(indicates only.11 Al₂ O₃..... whereas a normal glaze would have had more than three times this molecular proportion of alumina..... we are here hampered by too much opinion, and too little fact....."

".....my paper on the copper red glazes (Trans., 35,364,487,1936) gives no indication of the presence of phosphates; nor do the analyses of H. A. Seger, G. Vogt, C. Otsuki, and J. J. Ebelmen and A. Salvetat. This all means that the opalescent effect is due to a partial devitrification of the glaze, which is favoured by the low alumina and high lime content of these glazes."

He continues on the same page saying that the Chinese knew about the opacifying effect of the phosphates and he quotes the analysis of some sherds of Chün ware by Mr. Littler (page 47) showing the presence of phosphates and traces of copper.

BERNARD MOORE AND MELLOR PORCELAIN BODY AND GLAZE.

MELLOR, J.W., "Cobalt and Nickel Colours" in "Transactions of the Ceramic Society", January 1937, page 6.

Porcelain Body

| | |
|-------------------|----|
| Dry Cornish Stone | 55 |
| Aylesbury Sand | 12 |
| Ball Clay | 5 |
| China Clay | 28 |

Porcelain Glaze

| | |
|--------------|----|
| Purple Stone | 85 |
| Limestone | 15 |

Fired at cones 8 to 10.

Rather like the porcelain glaze that T'ang Ying describes:

"T'ang Ying tells us that in his time the glaze of the highest class of porcelain was composed of ten measures of the petuntse purée with one measure of the liquid lime. Seven or eight ladles of petuntse with three or two ladles of lime were used for the glazes of the middle class. With petuntse and lime in equal proportions, or with lime predominating, the glaze was described by him as fit only for coarse ware."

BUSHELL, "Chinese Art", Vol.2, V & A Museum, 1909, page 17.

MELLOR, J.W., "The Chemistry of the Chinese Copper-Red Glazes" in "Transactions of the Ceramic Society", Vol.35, page 370.

".....whereas H. A. Seger, in Germany, and Bernard Moore, in England, found that 0.1 to 0.5 is sufficient. (Mellor writing about the quantity of copper oxide needed for copper reds)."

Ibid., page 369.

"It is doubtful if these auxiliary oxides of tin and iron are essential for the development of the copper-red, but all workers - e.g. H. A. Seger, Bernard Moore, A. Lecrenier and co-workers, E. Breitenfeldt, T. Doat, C. Lauth and G. Dutailly, and others - are agreed that the production of the better type of copper-red is greatly facilitated by their presence."

THE SCHERZER REPORT, WRITTEN ON THE 23rd DECEMBER, 1882.

Being an account of a journey to King-te-tchen, started on November 14th, 1881, to study the methods used in the production of porcelain.

From "Chimie" Avril, 1900.

"As for the copper red, Yeou-li-houng, it is applied on raw porcelain and receives the ordinary glaze." (Could the copper be applied as a slip with a transparent glaze over it?) page 534.

Kun-houng glaze

Ting-leao:

Melt together in a crucible

| | |
|--------------|----|
| Lead filings | 50 |
| China stone | 50 |

Grind material after cooling with saltpetre (potassium nitrate).

Since the saltpetre is soluble, frit with the powdered lead and flint.

| | |
|-------------------------------|-------------------|
| Powdered lead and china stone | 10 livres |
| Saltpetre | 3 livres 4 ounces |

(1 livre = 1.1 lb)

The resulting frit is a green glass called Ting-leo page 585.

Artificial Jade

No recipe, but contains:

| | |
|---|-------|
| Silica | 57.81 |
| Fluorspar (Calcium Fluoride - 5% or more could cause blistering, acts as strong flux). Possible 2%? | |
| Whiting | 18.16 |
| Iron oxide | .49 |
| Alumina | 2.56 |
| Magnesium | 4.50 |

Traces of Lead, Copper, Manganese, Potassium and Soda.
(Copper = .06, Lead = .86)

KUN-HOUNG GLAZE (cont.)

The materials having been already carefully ground are reground to the following recipe:

| | | |
|--------------|-------|-------|
| Ting-Leao | 64 | 39.03 |
| A. Jade | 64 | 39.03 |
| Ground Cu. | | |
| Filings | 12 | 7.31 |
| Col. glass | | |
| beads | 12 | 7.31 |
| Bottle glass | 12 | 7.31 |
| | <hr/> | <hr/> |
| | 164 | 99.99 |

Grind for a month!

First layer of glaze applied by dipping.

Biscuit yellowish in colour through iron content.

Three further coats of glaze are applied with a brush.

Glazed ware is placed on two discs separated by a layer of charred rice husks. The ware is separated from the top disc by a layer of husks.

Lower disc rests on 8mm of fine grog, to prevent sticking.

METHOD OF ACHIEVING REDUCTION WITHIN A SAGGAR, THAT WAS RECORDED BY SCHERZER AFTER HIS VISIT TO CH'ING-TÊ-CHÊN.

(from an article by Vogt, page 586, see footnote 136).

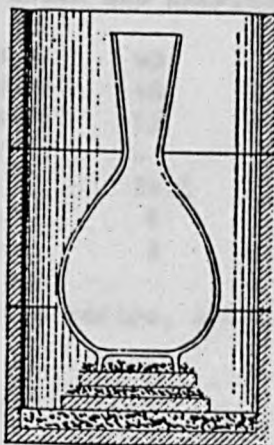


Fig. 2.

"When the kiln is packed, the glazed vase is placed on two discs separated by a layer of charred rice husks. The piece itself is separated from the upper disc by a layer of the same material. The upper disc (Fig. 2) is smaller in diameter than the lower, which in turn does not rest directly on the base of the saggar, but on an 8 mm. thick bed of fine grog made by crushing old bricks or broken saggars. This arrangement facilitates the running off of excess melted glaze and prevents the vase sticking to the surface of the saggar."

The grog has two functions. It slows the rate of combustion of the husks thus retaining a reducing atmosphere for a longer period of time. It also helps to stop the vase tipping over by supporting the discs when the combustible material has burnt away.

A similar technique was used at the Royal Lancastrian Pottery, see footnote 143.

SEGER ON THE COPPER REDS.

"The Collected Writings of Hermann August Seger" (67)

Vol.2, Page 733

(p.734) Quotes recipes of Lauth and Dutailly

| | | |
|----------------|----|------|
| Pegmatite | 40 | 40 |
| Sand | 40 | 40 |
| Chalk | 18 | 12 |
| Calcined borax | 12 | - |
| Soda | - | 24.5 |
| Ox. of Copper | 6 | 6 |
| Ox. of Tin | 6 | 3 |

Slightly similar to T. Doat's recipe, see p.281. Obviously must be partly fritted.

Seger's test glaze (p.735)

| | |
|--------------------|------|
| Sodium Carbonate | 26.5 |
| Marble | 25.0 |
| Ground Quartz | 75.0 |
| Hydrous boric acid | 31.0 |
| Oxide of Copper | 1% |

Fired to melting point of silver - 1870F approx. 1023C (Gold = 1,102C)

Seger writing of copper content:

"In my many experiments I have always used a content of from .5 to 1 per cent and always obtained good results." (p.740)

Barium Glaze

| | |
|--------------------|-------|
| Barite | 125.3 |
| Calcined Soda | 26.5 |
| Crystallized Borax | 95.5 |
| Sand | 141.2 |
| Charcoal | 15.0 |

Needs to be fritted for use. Melts about 1060C.

Dark red Chinese glaze

| | | |
|-----------------------|-------|-----------------------------|
| White porcelain glaze | 75.0 | |
| Copper oxide | 0.15 | |
| Tin oxide | 1.00 |) |
| Ferric oxide | .50 |) Fritted in reducing fire. |
| Barium glaze | 23.35 |) |

Light red Chinese glaze

| | | |
|-----------------------|-----------|-----------------------------|
| White porcelain glaze | 70.0 | |
| Kaolin | 5.0 | |
| Copper oxide | 1.0 to .5 |) |
| Tin oxide | 2.0 |) |
| Barium glaze | 22.0 |) Fritted in reducing fire. |

Blue iridescent Chinese glaze

| | | |
|-----------------------|------|-----------------------------|
| White porcelain glaze | 70.0 | |
| Kaolin | 5.0 | |
| Copper oxide | 1.0 |) |
| Tin oxide | 2.0 |) |
| Ferric oxide | 1.0 |) |
| Barium glaze | 21.0 |) Fritted in reducing fire. |

This glaze appears bluish when covered with a thin barium glaze and given another glaze fire.

Seeger makes the point that fine reds appear particularly when the difference between the melting points of the two glazes is very great.

Chinese porcelain glaze

| | |
|-----------------|-------|
| Silica | 64.88 |
| Titanic acid | 1.39 |
| Alumina | 14.33 |
| Ferrous oxide | 1.39 |
| Lime | 10.09 |
| Magnesia | 1.55 |
| Potash | 5.61 |
| Soda | 0.81 |
| Phosphoric acid | - |

Page 1045

Quotes Salvetat's formula for the Chinese red glaze:

| | |
|---------------|----|
| Feldspar | 50 |
| Chalk | 12 |
| Copper oxide | 6 |
| Sand (Aumont) | 38 |

or if Salvetat confused the lead and the copper, it could be:

| | |
|--------------|----|
| Feldspar | 50 |
| Chalk | 12 |
| Litharge | 5 |
| Copper oxide | 1 |
| Sand | 38 |

This is simplified as Seeger calculates the lead oxide to be 4.15 and the copper oxide 0.92.

Page 173

| | | |
|------------------------------|-------|-------------------|
| Pegmatite (feldspar) | 108.0 | |
| Quartz sand of Fontainebleau | 126.0 | |
| Zinc oxide | 15.5 | |
| Carbonate of barium | 36.0 | strictly reducing |
| Fused borax | 45.0 | |
| Dry carbonate of sodium | 16.5 | |

Frit the above recipe and grind

| | |
|---------------------|-----|
| Ground glass (frit) | 100 |
| Oxalate of copper | 2 |
| Calcined tin oxide | 1 |

New mixture is carefully ground and the glaze applied quite thick on the raw ware, with a brush and gum tragacanth.

Fired at cone 9 or 10.

REDUCTION FIRING.

DOAT, T., "Grand Feu Ceramic", page 143.

Firing a small updraft kiln with coal - he used Grimsby coal which gave a long flame, it was free from slag and "of all European coals, it is the one which resembles wood the most." He used an estimated 500/600 lbs per firing.

Duration of firing 23 hours 30 minutes, for the reduced firing.

Work packed in saggars with openings at the joins and lids.

Log indicates that initially he used a fine reduction from the start of the firing up to the fall of cone 06 (this is a Seger cone 980 deg.C). In all 15 hours of fine reduction and 8½ hours of oxidation at the end of the firing, between 980 deg.C and 1300 deg.C.

SEGER, H. "The Collected Writings of Hermann A. Seger", page 708, a chapter entitled "Japanese Porcelain, its decoration and the Seger Porcelain".

P.741 "After the ware is glazed..... a fire as oxidising as possible is maintained. As soon as a dark red heat shows in the kiln, as much smoke as possible is to be produced and continued up to a temperature at which the glaze commences to vitrify. This is followed by short periods of oxidizing fire, kept up at short intervals, about one to two minutes for each quarter of an hour; between these however, a strongly reducing kiln atmosphere must prevail. This mode of firing must be continued until the glaze has become dense and somewhat glossy. Thereupon the burning may proceed with oxidizing or reducing kiln conditions up to the close of the burn."

LOMAX, A., "Royal Lancastrian Pottery, 1900-1938; its achievements and its makers", publ. 1957 by the author, page 67.

Methods of achieving reduction:

"(writing about earthenware red glazes) Almost all the glazes used in these early experiments were leadless.

The pieces were usually fired in saggars in an ordinary glost oven and sometimes in a muffle kiln. The saggars were double walled with the intervening space filled with a mixture of rice carbon and granular flint to produce a reducing atmosphere and their tops were covered with lids. Later, carbon impregnated saggars, produced by saturating the walls and base with concentrated sugar solution, were used."

ACCOUNT OF A REDUCTION FIRING AT THE POOLE POTTERIES DURING THE 20s.

By D. S. Farmer 38 Fontmell Road, Broadstone, DORSET.
Glaze chemist - the description is from a letter dated 30.8.78.
(Information given by Jennifer Hawkins of the V & A).

This method illustrates Owen Carter's technique from the earlier days.

"He had constructed, at the Architectural Pottery works, a small muffle kiln only five or six feet in diameter. This was built especially for the firing of these wares, with a soft lead glaze containing silver chloride for blue, grey or green effects and copper for the range of reds and purples. A clear base glaze containing a little of either of these minerals were sprayed on and the piece fired. It was then resprayed with a mixture of china clay and silver or copper and fired again at 600 to 650 degrees. The floor of the kiln was false and in the form of an iron grid (probably constructed from old mill pan bottoms, used for grinding powders) and under this they then pushed old leather, wood and other materials which would reduce the atmosphere. The kiln was then left to cool. This process fumed the glaze and the test pieces were then taken out and wiped to see if they had lustred successfully."

Some notes from Don Farmer:

"800 would be the maximum temperature, otherwise the China Clay mixture would incorporate with the glaze coat and would not dust off to reveal the lustred surface.

At intervals while cooling from 700-650 to 600 to ensure the atmosphere was maintained reducing down to 600 after which more oxidising conditions were considered to brighten the lustre effect. (this was an answer to a question - at what point did they remove the test pieces).

Since the uniformity of conditions throughout the kiln varied in atmosphere and temperature, a part of the kiln would be lustred and others not - so it was usual to empty the kiln - clean off - and reset and reheat."

At a later date (1937), Ernest Legg says they heated up to 800 and then injected coal gas to reduce the atmosphere - this of course was a totally gas fired kiln.

METALLIC LUSTRES - FROM THE MINTON ARCHIVES, NO REFERENCE NUMBERS.

"Lustres with metallic reflex called Hispano Moresque which origin must be sought in the old Spanish potteries, more particularly at Manises near Valencia have had in all times a very great repute. Since a few years the favour they were enjoying near the ceramists and amateurs having increased every day, we believe to be agreeable to china manufacturers in initiating them into the so called secrets of firing that in all times, writers have opposed, to people who tried to reproduce the so remarkable old potteries.

Metallic Lustres are not only susceptible to be used for decorating earthenware or artistic stoneware, but they also allow brick and tiles manufacturers to obtain a ware splendidly decorated at a very cheap rate.

Lustres can be divided in three classes:

- 1st Lustres for painting on enamel.
- 2nd Lustres spontaneously created under the influence of special metallic agents.
- 3rd Lustred enamels.

1st Lustres for painting on enamel

Lustres can be laid on china, earthenware or porcelain enamel (similar to Chinese porcelain) whether with turpentine, gum dragon or seaweed; but it is understood they are not to be fired at the same heat on these various enamels.

In fact heat must be strong enough to sufficiently soften the enamel so as to make lustres adhere, but without making them penetrate the enamel.

Then softer the enamel is, lower the fire must be. In information we give here, we only care, in regard to firing, for enamels we supply to the trade.

In regard to decorating, artist may use lustre alone or make combinations on his palette. In doing so he will obtain metallic reflex of various hues, which brightness shall not be surpassed by originality in that way, it is what must be sought after.

Enamels on which lustres are most beautiful are:- turquoise enamel, white enamel, cobalt blue enamel, celadon enamel.

If the artist want his design made with lustre to stand out on a lustre ground, he shall have when firing to use a special flux, which we will speak of below.

2nd. Lustres spontaneously created

There is, forgetting lustres, a second process, which can be used only for decorating of cheap ware, as it can only produce grounds. It will be advantageously used by glazed brick and tiles manufacturers. If a piece of ware decorated with an enamel turquoise and not decorated with lustre, is put in the muffle, to obtain metallic reflex it will be sufficient of dusting on the ground of the muffle, a small quantity of a special flux, which will do itself the reflex wanted.

The same process is to be used if having a piece decorated with enamel and that you want these designs to stand out on a lustre ground. Three hundred grams (10 ounces) is quite enough for a muffle of $\frac{1}{2}$ cube meter. Then according to the size, that quantity will be reduced or increased.

3rd. Lustred enamel

There is lastly a third process to obtain lustres, this process consist simply, to glaze the piece of ware with a special enamel, which shall have, after usual firing, to be put in muffle as ordinary lustres, and then will be smoked without intervention of painting lustres or flux. Magnificent metallic reflexes are obtained with that process, but only as ground.

The Muffle

As many manufacturers do, a muffle might be used. This is a circular muffle pierced laterally and to his upper part with many holes so as to allow smoke to come into in great quantity. But this disposition which perhaps has the advantage of giving a more perfect smoking, is not indispensable. Ordinary glazed muffle may be used (a non-glazed muffle is to be preferred). Chimney has only to be provided above the evaporation tube, with a register, which shall be shut when the smoking will begin. Putting in is done as for an ordinary firing and then special flux is sprinkled or not, according to the effect required.

Firing of Lustres

Lustres on tender enamel of earthenware are fired to a low red heat (between 932 deg. and 1022 deg.) and firing on tender enamel of stoneware or porcelain is done to about 1310 deg. Wood is the best fuel. So for earthenware enamel fire shall be stopped when the muffle will be light enough so as to let see inside of it.

Firing on tender enamel for stoneware or china porcelain become more by using our pyrometers. These pyrometers which look like a triangular pyramid are sticked with a fragment of fire clay, upon a brick place just in front of the muffle beaver. When the regular heat is attained pyrometer bend downward and then fire must be stopped. It is a good precaution of putting two pyrometers together: a pyrometer of the degree required and another one of one degree lower. When the latter bend, it mean, that firing is almost ended.

(the temperatures mentioned, in centigrade would be approximately, 550c, 600c and 760c respectively).

Smoking

Smoking is the most important operation of the lustres firing. When the heat required is obtained, smoking is begun like indicated below. Chimney register is quite shut, also the ash pan; then the beaver is opened. That care having been taken, small pieces of green bush and anything producing much of smoke without increasing the heat which is kept up red hot. Smoke produced goes up in chimney where it meet register, then down in the evaporating tube, fill the muffle and get through the beaver.

Smoking last about six hours, without any break and when fulfilled, pieces of ware are to be cool very slowly as they have to be washed.

Washing

This is the last operation to entertain.

When pieces of ware are taken out of the muffle they are covered with an earthy matter, sometimes very adhesive. To clean them they need only to be thoroughly washed with water and if necessary to rub them with damp sand very fine.

Lustres, then will appear in all their brightness."

"In recent years there has been a revival among potters of the desire to reproduce the ancient Chinese, Moorish and Italian Smoke Lustres, which were produced by the reduction of Metallic Oxides on and in the glaze.

This "Smoking" or reducing of the Metallic Oxides must be produced at the exact moment when the metals commence to volatilise; the process therefore is extremely complicated and requires great art and care, and it is most difficult to reproduce exactly the same effect again owing to the variation of temperature and atmosphere.

We supply for this purpose our special Transparent Plumbic Glaze No.671 G. (which fires as below). After glazing the biscuit ware with this glaze and firing at the temperatures given below (950c-1050c), the ware is coated thickly, by painting or otherwise, with one of the Smoke Lustres below, mixed with water and gum, and refired up to 500c (Calorite CT 19) and kept to that temperature for 15 minutes, with a reducing atmosphere, and when it comes out after this fire with a black coating, the articles are well washed in water with a stiff brush to remove the coating when the colour will be seen and then polished with our Polishing Powder 286D, at 6d per lb.

The reducing atmosphere can be produced by introducing gas into the muffle, or by setting fire to some volatile matter in the muffle which will give off a certain amount of smoke."

In the information below this introduction a product called - ANTI-SMOKE is mentioned. It is used for preventing the smoke lustres affecting the parts covered with this preparation.

They also supplied 'glazes which produce smoke lustre alone without other preparations.' These are applied thickly, direct on the biscuit ware, then fired at the temperature given below, in the ordinary Glost Oven, after which the fired glazed goods are re-fired and 'smoked' with a reducing atmosphere at about 500c (Calorite CT 19).

APPENDIX VIII.

GLOSSARY.

AMPHOTERIC.

An oxide that acts as both a base and an acid. Alumina is a good example. When it is added to the glaze it increases the viscosity thus helping the glaze to adhere to the clay body.

BALUSTER FORM.

A vase with a cylindrical neck resting on a rounded body that has a trumpet lip. Similar to the small pillars found in balustrades. It is sometimes described as a yen-yen vase.

COLLOIDS.

Particles so fine that when they are dispersed in a liquid, they remain in suspension for a long period of time. Red copper glazes are coloured by colloidal particles of copper suspended in the glaze. They measure in size approximately four microns across (i.e. four millionths of a metre).

HIGH TEMPERATURE GLAZE.

A phrase used by potters to describe ceramics that have been fired above the temperature of 1200c, inferring stoneware or porcelain temperatures.

LOW TEMPERATURE GLAZE.

Descriptive of ceramics that have been fired below the temperature of 1200c, such as earthenware.

LUSTRE.

A very thin metallic coating that has been applied to a glaze surface. The metal is produced by reducing the metallic salts either through the kiln atmosphere or by using reducing agents added to the recipe. If a copper lustre has a prolonged reduction firing, it can break up into colloidal particles giving a variety of red coloured glazes.

MEI-P'ING FORM.

A tall pot that has a small aperture at the mouth with broad shoulders tapering down to the base. Originally it was designed for displaying a single branch of plum blossom and hence the name prunus vase.

OXIDIZING ATMOSPHERE.

A clean firing with a good supply of air so that oxides remain unaltered in the work but elements such as carbon are able to oxidize freely. The appearance within the kiln is that of a clear bright atmosphere.

PRIMARY AIR.

The air which is mixed with the fuel for combustion. On many gas kilns the air is pulled into a venturi tube by gas pressure on the burner. The smaller the gap on this control the smaller the volume of air that can ignite with the gas.

REDUCING ATMOSPHERE.

A firing in which much of the oxygen is removed from the fuel through the control of primary air, secondary air and the use of the damper. It is also known as smoking, since materials, slow burning materials, are placed in the chamber to use up the oxygen in the atmosphere. Green wood, rice husks, leather, mothballs and coal-dust have been used to achieve reductions, making volumes of smoke in the process. Carbon monoxide and other gases are given off during the smoking so that care should be exercised to keep the kiln room well ventilated as the gases are dangerous. The appearance within the kiln is evil, with hazy smoke drifting in slow motion. Generalising, a reduced firing intensifies the colour in the work because the fuel, starved of oxygen, seeks further supplies in the metallic oxides leaving a purer state of metal. A reducing atmosphere is only used for selected periods during a firing. Copper reduction takes place at lower temperatures than other metals, starting at about 600c, just as the kiln begins to show a dull red glow, a cherry red. Greater details of reduced firings can be seen in the kiln logs. (pages 269 to 272).

SECONDARY AIR.

The air supply entering the kiln to assist flow and combustion. Normally placed away from the burners, the secondary air control plays an important role in determining the kiln atmosphere.

TRANSMUTATION GLAZES.

The changing colour and textures that occur, particularly to copper red glazes, when strong reducing agents like carbon monoxide from the smoke, attack the surface of the glaze, leaving a variety of different qualities.

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