

WILLIAM COOKWORTHY AND THE PLYMOUTH CHINA FACTORY.

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(Read at Ashburton, July, 1876.)

CONCERNING William Cookworthy the man we have abundant information.* The doings of William Cookworthy the potter are as vaguely reported as the substratum of an ancient myth, and as variously stated as if there were half-a-dozen potter Cookworthys instead of one. It is hoped that this paper may be the means of giving fuller and more accurate information concerning William Cookworthy and the Plymouth China Works than has yet appeared.

How little was really known, even by connoisseurs, concerning Cookworthy the potter, a quarter of a century since only, may be illustrated by a reference to Mr. Marryatt's first edition of the *History of Porcelain*, published in 1850. He there, speaking apparently of white china only under the term Bristol ware, says it was not known whether it was actually made at Bristol or not; and that Cookworthy, who made the first hard English porcelain, appeared to have carried on the manufacture at Worcester. By the time his second edition appeared Mr. Marryatt had learnt better, and rightly placed the seat of Cookworthy's pottery at Plymouth, distinguishing between the Plymouth porcelain and the Bristol, and speaking highly of the later Plymouth ware.

Recently however an important contribution to the literature of ceramics has appeared, in which the claims of Cookworthy to have been more than an inventor are impugned; and it is sought to prove that the china works of Cookworthy at Plymouth were very inferior, alike in extent and in artistic production, to the china works of Champion at Bristol.† Moreover, from first to last, all accounts of the

* See *Memoir of William Cookworthy*, by his grandson, G. H. Harrison; and *Relics of William Cookworthy*, by John Prideaux, the one published in 1854, and the other in 1853.

† *Two Centuries of Potting in Bristol*. By Hugh Owen, F.S.A.

Plymouth china works are more or less erroneous; to an extent that appears almost incredible, considering it is little more than a century ago they ceased to be. To attempt a sketch of the Plymouth China Factory is therefore to enter into the region of almost endless controversy.

Concerning Cookworthy the man, as already stated, all is clear enough. He was born at Kingsbridge, April 12th, 1705; and his father, who was a weaver, died when he was a lad, leaving his family in straitened circumstances. Young Cookworthy was apprenticed to a firm of druggists in London, named Bevans; and it is stated that, in consequence of want of means, he had to walk to London to enter upon his duties under that firm. He won the esteem of his employers, becoming not only an able man of business, but an accomplished chemist, and by the aid of the firm established a wholesale drug business in Notte Street, Plymouth, at first under the style of Bevans and Cookworthy. With this firm, which subsequently, on the admission of his brother Philip as partner, became that of William Cookworthy and Co. Cookworthy remained connected until his death, in October, 1780. He was in many respects a remarkable man, and his life is one of the most illustrious examples of men who have risen of which even England can boast. Emphatically self-made, he had none of the foibles which frequently mark the characters of those who have been the architects of their own fortunes. An industrious man of business, a shrewd and painstaking inventor, deeply versed in the science of the day, valued in society for his geniality and power of conversation, he was at the same time one of the simplest and devoutest of Quakers, and an enthusiastic believer in the views of Swedenborg. He was withal most absent-minded, and on one occasion, while on his way to meeting at Exeter, was so engaged by a novel which he found on an inn table, that he never reached his destination. Yet he was, in the words of Sarah Champion, an "eminent minister" in the society. "His benevolence was as abundant as his charity was extensive," and he had "originality of character," and a "lively entertaining manner." He was a firm believer in the divining rod, and left a treatise on its uses. In short, Cookworthy was a man of many sides, but always genial, courageous, and persevering; a man who won the respect and esteem alike of high and low by his strict integrity, wide sympathies, and varied powers; one who, having set his hand to the plough, was not ready to turn back. And this was the man who, not by accident, but by patient, well-directed research, prosecuted

during his business journeys, first discovered in this kingdom the existence of the china clay and china stone—the kaolin and petuntse—which are the necessary ingredients of true porcelain; and then—not having, like Wedgewood, been bred a potter—taught himself the potter's art, and by careful study and long-protracted experiments, extending over many years, reproduced in England the hard porcelain of the East, the secrets of whose manufacture he had thus attained, and gave to his country new forms of industry and new sources of wealth.

Let us see how this was done.

There is no uncertainty as to the date when the narrative should begin. In a letter addressed to Richard Hingston, of Penryn, on the 30th May, 1745, Cookworthy says:

“I had lately with me the person who has discovered the china earth [in Virginia]. He had with him several samples of the china ware. . . . They can import it [the earth] for £13 per ton, and by that means afford their china as cheap as common stone ware; but they intend only to go about 30 per cent. under the company.”

Cookworthy's search for the kaolin and petuntse of the Chinese potters, of which he had also read in the account of that country, written by the Jesuit Father d'Entrecolles in 1712, is held to have commenced about this period, and with good reason. Various dates are assigned for the consequent discovery, and various places given as the first locality in which the china clay was found; yet we have Cookworthy's own authority on both points, in a valuable but undated paper. Much regret has been expressed at the absence of date; but every writer on the subject appears to have overlooked the fact that within very narrow limits the paper dates itself. Cookworthy says at the commencement, that he first found the china clay nearly twenty years previously, and immediately afterwards, that at the time of writing he had not commenced manufacture. His own words are: “And as I have since that time by abundance of experiments clearly proved this to the entire satisfaction of many ingenious men, I was willing this discovery might be preserved to posterity, if I should not live to carry it into a manufacture.” We know that the clay was undiscovered in 1745, and we know that Cookworthy's patent was taken out in 1768. Nearly twenty years prior to the latter date limits us therefore to 1745–50 as the period of the discovery. He then proceeds:

“I first discovered it [the petuntse, or “china stone”] in the

parish of Germo, in a hill called Tregonnin Hill. That whole country in depth is of this stone. It reaches, east and west, from Breag to Germo, and, north and south, from Tregonnin Hill to the sea. From the cliffs some of this stone hath been brought to Plymouth, where it was used in the casemates of the garrison;* but I think the best quarries are in Tregonnin Hill. The stone is compounded of small pellucid gravel [quartz], and a whitish matter, which indeed is caulin petrified [felspar]; and as the caulin of Tregonnin Hill hath abundance of micæ in it, this stone hath them also. If the stone is taken a fathom or two from the surface, where the rock is quite solid, it is stained with abundance of greenish spots, which are very apparent when it is melted. This is a circumstance noted by the Jesuits, who observe that the stones which have most of this quality are the most proper for the preparation of the glaze; and I believe this remark is just, as I know that they are the most easily vitrifiable, and that a vein of this kind in Tregonnin Hill is so much so that it makes an excellent glaze without the addition of vitrescent ingredients."

Then as to "caulin" (kaolin, "china clay"), he says: "This material, in the Chinese way of speaking, constitutes the bones, as the petunse does the flesh, of china ware. It is a white talcy earth, found in our granite countries, both in the counties of Devon and Cornwall. It lies in different depths beneath the surface. . . . By what I have observed, it is by no means a regular stratum, but is rather in bunches or in heaps, the regular continuance of which is frequently interrupted by gravel and other matters. . . . There are inexhaustible stores of this caulin in the two western counties. The use it's commonly put to is in mending the tin furnaces and the fireplaces of the fire [steam] engines, for which 'tis very proper. The sort I have chiefly tried is what is got from the side of Tregonnin Hill, where there are several pits of it."†

Subsequently Cookworthy states: "I have lately discovered that in the neighbourhood of the parish of St. Stephens, in Cornwall, there are immense quantities both of the petunse stone and the caulin, and which I believe may be more commodiously and advantageously wrought than those of Tregonnin Hill, as by the experiments I have made on them they produce a much whiter body, and do not shrink so much by far

* This may have directed Cookworthy's attention to the locality.

† Borlase, in his *Natural History of Cornwall*, 1758, alludes to some of the clays of his neighbourhood, West Cornwall, as being probably adapted for the manufacture of porcelain. But this must have been written after Cookworthy's discovery, though evidently in ignorance of it.

in baking, nor take stains so readily from the fire. Tregonnin Hill is about a mile from Godolphin House, between Helston and Penzance. St. Stephens lies between Truro, St. Austel, and St. Columb; and the parish of Dennis, the next to St. Stephens, I believe, hath both the ingredients in plenty in it. I know of two quarries of the stone—one is just above St. Stephens, the other is called Caluggas, somewhat more than a mile from it, and appears to be the finer stone."

So much for the discovery; now as to the manufacture.

It is clear that Richard Champion, who became proprietor of Cookworthy's patent, and the sole owner of the Bristol China Manufactory, had been associated with Cookworthy several years before that event; and it is probable that some of Cookworthy's earliest experiments in manufacture were made at Bristol, where potteries already existed. In a letter by Sarah Champion, dated January, 1764, Cookworthy is called the "first inventor of the Bristol China Works," a phrase which Mr. Owen thinks may have been added in copying. But in a letter, dated November, 1765, Richard Champion informs Caleb Lloyd that in a new work just established Cornish clay and Cornish stone were being used; and as no one has ventured to question the claim of Cookworthy to the discovery of these materials, so it is but natural to suppose that he was concerned in their original utilisation. The work however did not prove a success. The difficulties of manipulation were considerable, and a letter from Richard Champion to Lord Hyndford, dated February, 1766, shows that it had then been given up. Mr. Owen points out that there is a dated bowl of hard porcelain which must have been made either out of the materials which Cookworthy had procured from Cornwall, or of kaolin and petuntse from abroad, and which, if the date is correct, would antedate considerably the commencement of the hard porcelain manufacture. This bowl is marked "F B [Francis Brittan], Jan. 9, 1762."*

I think it therefore not only possible, but indeed almost certain, that while Cookworthy made his first experiments with the china clay and stone at Plymouth, and there undoubtedly succeeded in producing the first hard porcelain made in this country, the first attempts to establish the manufacture were made at Bristol, probably because skilled labour of the kind required was more easily obtained there.

* I am largely indebted to Mr. Owen's elegant volume for the facts concerning the Bristol potteries, and I much regret that I am compelled to differ from him in regard to the Plymouth.

That the effort failed we have Champion's own testimony, and that the failure arose from want of requisite scientific knowledge. Cookworthy then resumed his experiments at Plymouth, and very shortly brought the art to such a state of perfection that he applied for a patent, which was granted 17th March, 1768. The earliest dated example of the Plymouth china is March 14th of the same year. In his subsequent specification Cookworthy states:

"The materials of which the body of the said porcellain is composed are a stone and earth or clay. The stone is known in the countys of Devon and Cornwall by the names of moor-stone and growan, which stones are generally composed of grains of stone or gravel of a white, or whitish colour, with a mixture of talky shining particles. This gravel and these talky particles are cemented together by a petrified clay into very solid rocks, and immense quantities of them are found in both the above-mentioned countys. All these stones, exposed to a violent fire, melt, without the addition of fluxes, into a semi-transparent glass, differing in clearness and beauty according to the purity of the stone. The earth, or clay, for the most part lies in the valleys where the stone forms the hills. This earth is very frequently very white, tho' sometimes of a yellowish or cream colour. It generally arises with a large mixture of talky micæ, or spangles, and a semi-transparent or whitish gravel. Some sorts have little of the micæ or spangles, but the best clay for making porcellain always abounds in micæ or spangles. The stone is prepared by levigation in a potter's mill, in water in the usual manner, to a very fine powder. The clay is prepared by diluting it with water untill the mixture is rendered sufficiently thin for the gravell and micæ to subside. The white water containing the clay is then poured, or left to run off, from the subsided micæ and gravell into proper vessells or reservoirs; and after it has settled a day or two the clear water above it is to be then poured or drawn off, and the clay or earth reduced to a proper consistence by the common methods of exposing it to the sun and air or laying it on chalk. This earth or clay gives the ware its whiteness and infusibility, as the stone doth its transparency and mellowness. They are therefore to be mixed in different proportions as the ware is intended to be more or less transparent, and the mixture is to be performed in the method used by potters, and well known (viz., by diluting the materials in water, passing the mixture through a fine sieve, and reducing it to a paste of a proper consistence for working in the way directed for the preparation of the clay).

This paste is to be form'd into vessells, and these vessells when biscuited are to be dipp'd in the glaze, which is prepared of the levigated stone, with the addition of lime and fern ashes, or an earth called magnesia alba, in such quantity as may make it properly fusible and transparent when it has received a due degree of fire in the second baking."

Cookworthy thus describes his mode of operation in the paper already cited :

"Our potters mills prepare the petunse much better than stamping mills, and excuse one from the trouble of washing it off, it being fit to be used as it comes from the mill. I would further observe that the mills should be made of the petunse granite, it being obvious that in grinding, some of the mill-stones must wear off and mix with the petunse. . . . I have generally mixed about equal parts of the washed caulin and petunse for the composition of the body, which, when burnt, is very white and sufficiently transparent. The caulin of St. Stephens burns to a degree of transparency without the addition of petunse. The materials from this place make a body much whiter than the Asiatic, and, I think, full as white as the ancient China ware, or that of Dresden.

"The stones I have hitherto used for glazing are those with the green spots of Tregonnin Hill. These, barely ground fine, make a good glaze; if it is wanted, softer vitrescent materials must be added. The best I have tried are those said to be used by the Chinese; viz., lime and fern ashes prepared as follows: The lime is to be slaked by water and sifted; one part of this by measure is to be mixed with twice its quantity of fern ashes, and calcined together in an iron pot, the fire to be raised until the matter is redhot. It should not melt, and for that reason should be kept continually stirred. When it sinks in the pot, and grows of a light ash colour, 'tis done. It then must be levigated in the potters mill to perfect smoothness. It may be used in proportion of one part to ten, and so on to fifteen or twenty of the stone as shall be found necessary. We found one to fifteen of the stone a very suitable proportion. Our manner of mixing was to dilute both the stone and the ashes to a proper degree for dipping, and then mix them as above. If 'tis too thick for dipping, more water must be added. Our method of dipping was just the same as is used by the delft-ware people. We first baked our ware to a soft biscuit which would suck, then painted them with blue, and dipped them with the same ease, and the glazing grows hard

and dry as soon as it does in the delft-ware. Large vessels may be dipped raw as the Chinese are said to do it; but the proper thickness of the glaze is not so easily distinguished this way, as when the ware is biscuitied; for the raw body being of the same colour and consistence with the glaze, when the latter is dry, 'tis hardly possible to determine the limits of either, a thing very easy to be done when the body is hardened by biscuiting. Our chinaware makers in general deny it to be possible to glaze on a raw body or soft biscuit. And so it is with their glaze, which abounding in lead and other fluxing materials, melts soon and runs thin, and melting before the body closes, penetrates it, and is lost in the body; whereas our stone is almost as hard to melt as the body is to close, and not melting thin, neither runs nor penetrates the body. I insist on the truth of this observation, and 'tis necessary to be insisted on, as scarcely any of our potters, misled by too slavish dependence on their own too partial experience, will allow it. I have said above that the Jesuits observe that the Chinese paint and glaze their ware on the raw body. I know this can be done; for I have done it, and so may any one else who pleases to try it. . . . I don't point out the advantages of painting and glazing on a soft biscuit, as they are very obvious to any one ever so little used to pottery.

* * * * *

"The North of England kilns, where the fire is applied in mouths on the outside of the kilns, and the fuel is coal, will not do for our body, at least when it is composed of the materials of Tregonnin Hill. . . . How true this remark may be with regard to the St. Stephens materials I cannot determine, as they have not yet been tried in a kiln. The only furnace or kiln which we have tried with any degree of success is the kiln used by the potters who make brown stone. It is called the 36-hole kiln: wood is the fuel used in it. They burn billets before and under it, where there is an oven or arch pierced by thirty-six holes, through which the flame ascends into the chamber that contains the ware, and goes out at as many holes of the same dimensions in the crown of the furnace. The air and flame freely ascend and play around every safeguard [seggar], by which means these tingeing vapours which have given us so much trouble are kept in continual motion upwards, and hindered from penetrating and staining the ware. Experience must determine the best form and way of using this kiln. 'Tis the only desideratum wanting to the bringing of the manu-

facture of porcelain equal to any in this world to perfection in England.

"Caulin pipe clay and a coarse unvitriifiable sand make excellent safeguards."

There are two kinds of Plymouth porcelain, the one white, and the other ornamented. The former was rarely, if ever,



March

17¹⁴
68
C.F.

Plymouth, 1770." One article is marked "Josiah and Mary Greathead." The form of the ordinary mark varied much with the hand that made it.

marked; the latter commonly bore the distinguishing mark in blue or red. This mark was commonly the alchemical symbol for tin (the astrological for Jupiter); though others were occasionally used. Thus there is a porcelain cup which bears a shield of the borough arms, a saltire between four castles, and the inscription, "Plymouth China Factory, March 14, 1768, C. F.;" the latter letters probably standing for "Cookworthy fecit." Another dated piece,

a butter-boat, bears the inscription, "Mr. W. Cookworthy's Factory,

W. Cookworthy's
Factory Plymouth

1770.

X 2 x 11
2 2 2 2

There is no doubt that Cookworthy's experiments were at first entirely in the direction of the imitation of the blue oriental porcelain; originally of its body, and subsequently of its ornamentation; and there is abundant

evidence in the examples left to prove that success was not easily achieved. As Mr. Marryatt says, "the early specimens are disfigured by fire cracks* warping and blotches in the glaze from imperfect fusion incidental to first attempts, and his paintings were also coarse and bad." Indeed these defects are not bad means of identifying some of the unmarked specimens. The colouring of the blue ware, which was the chief product of the factory, was at first dull and dirty;

* "The rift or fire-flaw frequently seen in the Plymouth, less so in the Bristol china, was caused by inequality of contraction."—OWEN, p. 307.

but in this respect very remarkable success was afterwards attained, Cookworthy succeeding in manufacturing cobalt blue direct from the ore.

It is believed that in the earlier days of the china works a good deal of the decoration was done by his own hands.

When the manufacture had become established, Cookworthy sought artistic help in carrying out these details, and the Plymouth china thenceforth became distinguished not merely for its composition, but for the beauty of its modelling, and the exquisite character of its ornament. Mr. Chaffers believes that the Plymouth works were organized by workmen from Bow, holding that Bow was the first porcelain manufactory in this country, and the great nursery of potters whence the other works were supplied with workmen. That the works at the two places had a connection is clear from the fact that busts of George II., Woodward the actor, and Kitty Clive, first modelled at Bow, were reproduced at Plymouth; and in fact, articles of Bow china have often been sold as unmarked Plymouth. The modelling of shells and corals for salt-cellars, centre-pieces, &c., is not only very elegant, but marvellously true to nature.

The productions of the Plymouth China Factory included dinner, tea, breakfast, and toilet services, mugs, busts, figures and groups, vases, and various miscellaneous articles. The finest examples are a couple of vases in the possession of Mr. F. Fry, of Bristol, which are adorned with festoons of beautifully modelled flowers, and exquisitely painted in addition. These, though they bear the Plymouth mark, Mr. Owen holds to have been made by Champion, at Bristol. There is really no ground for this opinion, outside Mr. Owen's belief that the Plymouth works were artistically a failure. And these vases, moreover, though the best of their kind, do not stand absolutely alone. Examples of Plymouth china, hardly inferior, may still be found in the immediate neighbourhood of their place of manufacture.

It is stated, but I am not aware of the original authority, that Cookworthy engaged a French artist from Sevres, named Soqui, as a china painter. This Mr. Owen is apparently inclined to think an incorrect version of Champion's having engaged a man named Le Quoi. And it is at least possible.

But upon another point connected with the personnel of the factory I must differ wholly from this gentleman. It has long been held, and indeed the statement found its way into print more than three-score years ago, that Bone, the celebrated enameller, worked for and had his early instruc-

tion from Cookworthy. The attempt is made to controvert this, on the ground that "Henry Bone, son of Henry Bone, of Plymouth, cabinet-maker," was bound apprentice to Richard and Judith Champion, January 20th, 1772. But this undoubted fact by no means disposes of his having previously worked for Cookworthy. Bone when bound to the Champions was seventeen years of age; and it is altogether out of the question to suppose that he would be removed from Plymouth to Bristol if he had not in some way evinced a special aptitude for the work. Mr. Chaffers states that Bone was taken on by Cookworthy in January, 1771, in consequence of his showing an early inclination for drawing, and having copied a set of playing cards. Mr. Harrison says that Bone was taken under Cookworthy's protection in 1768, and employed in the manufactory. And this seems to be the most reasonable account. At the time when the works were in process of transfer to Bristol (of which more anon), Bone would thus be of considerable experience and use. There were other Plymouth lads apprenticed to Champion—John Hayden, whose father had been a cordwainer in Plymouth, and William and Edward Stephens, whose father moved from Plymouth to Bristol in 1771. This William Stephens is the only one of Champion's painters whose work has been satisfactorily identified.*

The mark of the Plymouth ware has already been explained. The distinguishing mark of the Bristol china is a cross. But there are frequent variations from both, and unmarked specimens are common. The fact that both are hard porcelain will help to distinguish them from the other English porcelain of the period. There is also in both a peculiar creaminess in the glaze; and Mr. Owen points out "a distinguishing characteristic of the Plymouth, and in a less degree of the Bristol porcelain," in "the series of spiral ridges often observed on the surface of thrown ware held in reflected light." To the somewhat characteristic flaws allusion has already been made.†

Specimens of Plymouth china now fetch very high prices, and good ones are almost unpurchaseable.

There is no direct information as to the period during which the Plymouth China Works were in operation. Only two dates

* OWEN, p. 301.

† The body of hard porcelain may be distinguished from soft by the fact that it cannot be scratched with a knife. Soft porcelain has an earthy body covered with and penetrated by a transparent glaze; hard porcelain consists of an infusible clay, and a flux consisting of silica and alkali—the first the kaolin, and the second the petuntse.

are certain—that of the grant of the patent, March 17th, 1768, and that of its assignment to Richard Champion, May 6th, 1774. But we have seen that Cookworthy's discoveries had resulted in the manufacture of porcelain (partially at least at Plymouth), certainly four, probably half-a-dozen, years before the issue of the patent. Whether the works continued to be carried on at Plymouth until the transfer of the patent is a more difficult problem. Sarah Champion, in a letter written in February, 1770, refers to the manufacture as then in operation in Plymouth, and this is almost the only definite evidence we possess.

Mr. Owen states: "After some years of variable fortune it was found that Plymouth was not a suitable place for the manufacture, and it was removed to Bristol, and placed under the management of Richard Champion, in extension of his own factory, commenced in 1768. There it was carried on under the firm of 'W. Cookworthy and Co.' till September, 1773, when Champion purchased the entire interest in the patent."*

This begs the whole point at issue. Mr. Owen proves "that W. Cookworthy & Co. made china in Bristol from 1770 to 1773; and he shows that Cookworthy and Champion, with others, were interested therein. But he brings no real evidence to prove that when "W. Cookworthy & Co." went to work at Bristol, "W. Cookworthy" ceased to work at Plymouth. The assessment of the Bristol works changed from the name of "W. Cookworthy & Co." to that of Richard Champion & Co., in September, 1773; though the legal transfer of the patent was not completed until May, 1774.

In the *Worcester Journal* of March 22nd, 1770, there appears the following advertisement:†

"China Ware Painters wanted for the Plymouth New Invented Porcelain Manufactory. A number of sober, ingenious artists capable of painting in enamel or blue, may hear of constant employment by sending their proposals to Thomas Frank, in Castle Street, Bristol." This *may* refer, as suggested by Mr. Owen, to the Bristol works; but on the face of it clearly applies to Plymouth.

The oldest printed account of the Plymouth China Factory, is contained in a letter written to the *Plymouth and Plymouth Dock Telegraph*, Dec. 1st, 1814, by Mr. W. Burt, secretary to the Port of Plymouth Chamber of Commerce, wherein he says:

"I have been so lucky as to meet with a person employed

* Introduction, pp. xxiii., xxiv.

† BINNS'S *Century of Potting in Worcester*.

in it during his youthful days, from whom I collected the following particulars. It was instituted by Mr. Cookworthy of Plymouth (commonly styled the great Cookworthy, through his being considered one of the first chemists in the kingdom), and some gentlemen in Bristol; who, envying its flourishing condition, and wishing to transport it to that city, removed it thither about forty-two years since, whence, after some time, it was transferred to Staffordshire. While it continued at Plymouth, there was such a demand at home and abroad, particularly in America, for its articles, which consisted of enamelled and blue and white china of all descriptions, both ornamental and useful, that they could hardly be made fast enough. The fuel consumed in the manufactory was principally wood, and from fifty to sixty persons were engaged in its various processes. The manufactory buildings adjoin the sugar-house in Mr. Bishop's timber-yard, and have retained the name of the China House. The original shop for vending the manufacture, still used as a china-shop, remains in Nut Street, Plymouth. Mr. Bone, the celebrated enamel painter, in London, learnt his art and was brought up in this manufactory. . . . Mr. Cookworthy, proprietor of the manufactory, carried its productions, particularly the glaze and gilding, to the highest perfection. The latter adhered under all circumstances, the gold being first dissolved in aqua regia, and then applied as a paint; after which the glaze was laid on."

Here we have a very different account of the Plymouth factory to that drawn by Mr. Owen, and one which I think we may treat as substantially accurate, though it certainly does contain some errors. That large quantities of the china were sent to America I have been fortunate enough to obtain corroborative evidence from friends in New England, where the Plymouth china is as highly valued by collectors as it is at home. The reference to some gentlemen in Bristol evidently points to Cookworthy's connection with Champion. The points that I think of most importance are—the statement with regard to the success of the manufacture as an art, the references to the quality of the decoration, and the allusion to the date of the removal to Bristol, which would place that event about 1772.

The two particulars in which Burt was either misinformed or drew mistaken inferences were, first, that the works flourished in a pecuniary sense;* and secondly, that they were situated at the spot still known as the China House.

* See Lord Camelford's letter.

It is quite true that Mr. Cookworthy was in some way connected with these premises, but that they were never used as a pottery I think I shall be able to prove. The first reference to them that occurs in the Plymouth rate-books is in 1769, when "Thomas Veale, Esq.," is rated in £5 for Mr. Cookworthy's "storehouse," &c. Veale was the lessee of Sutton Pool. In the previous year's rate there is no mention of any such premises belonging to Cookworthy, or occupied by Veale; but reference is made to "Late Bray's house in ruins," and "Late Hawkin's, late Bennett's, and late Gimblett's houses in ruins;" and as these valuable properties are omitted from the rate of 1769, and do not thereafter appear, and as moreover they were evidently in close contiguity to the Sugar House, then occupied by Michael Fanning (which adjoins the so-called China House), I think it clear that in the interim they had been replaced by "Cookworthy's storehouse." Of this storehouse, if the rate-books are any evidence at all, Cookworthy was never in occupation. Veale was rated for it down to 1777, when there occurs a gap of some years in the rate-books.

It was years after Cookworthy had anything to do with these premises that they obtained the name of the China House. In the absence of the missing books the exact date cannot be fixed; but the earliest instance of the use of the name I know is in 1786, when Mr. John Hawker is rated for the China House, which is thenceforward for many years, with one remarkable exception, entered under that name. The exception is in 1795, where the entry is "for Chimmo Ho and Gard;" and it is a curious fact that some years previously a certain Benjamin Chimmo did reside in the locality.

But if the "China House" was not the pottery, where was the china made? Mr. Owen assumes, from an entry in the Plymouth rate-books, communicated to him by Mr. F. Fry, of Bristol, that the works were in what was then known as the "Beginning of Old Town Ward." The entry is, that in 1770 Ed. Robinson, Esq., was rated for Mr. Cookworthy's mills; and Mr. Owen infers thence that in this year the manufactory of Plymouth china at Plymouth ceased to exist. The claims of "Cookworthy's mills," however, are easily settled. An examination of the books shows that they were never in Cookworthy's possession. In 1750 they are mentioned as late Robinson's mills. In 1765 Peter Symons had the mill-house, "now Robinson's." In 1768 Robinson was rated for mills, "late Symons's." In 1769 Robinson still occupied them;

but they were then said, as in 1770, to be Cookworthy's. In 1771 Robinson was rated for them as his own property. No question has ever been raised that china was made in Plymouth between 1768 and 1770; and here, as in the case of the China House, there is conclusive evidence that the premises were not in Cookworthy's occupation during that period.

And this leads to my own solution of the problem, which is based on an examination of the rate books over the whole period of Cookworthy's residence in Plymouth. Cookworthy resided and carried on business in Notte Street. In 1746 he occupied the "late Mr. Cown's house" in Higher Vintry Ward. In 1750 he was rated in £15 for Thomas Brent's house in the same ward, and his personal estate was rated at £10, the highest assessment in that ward; indeed, there were only ten persons more highly rated on their personal estate in the whole borough. In 1759 Cookworthy had moved to Madame Ilbert's house in Market Street Ward; for which, in the following year, he and his brother Philip were rated jointly. Five years later they occupied also Elias King's house. The pottery however could have been in none of these.

The clue to the mystery I find in an entry in the rate-book of 1765—"W. Cookworthy, for fore and back part of Weeks's house." This was in Higher Vintry Ward. When Cookworthy took possession of these premises I cannot say, in the absence of the records for the intermediate years; but it was after 1760, since in that year Weeks was rated for them. Cookworthy held them until 1776, when they passed into the possession of Peter Swain, who was rated in 1777.

These premises are still standing. They are among the oldest buildings in Plymouth, relics of one of the ancient religious houses of the town, and are on the eastern side of High Street, immediately to the north of Vintry Street. They were well adapted for Cookworthy's purpose. Not only were they roomy and substantial, and conveniently situated as regarded his ordinary business establishment; but they had long been used as a bakehouse, and when he left them returned to their old use. Indeed, it is only within a year or two that the baking business has ceased to be carried on therein.

Mr. Owen denies that perfect facility in manufacturing hard porcelain was ever attained at Plymouth. To hold that it was "is a delusion, and it is time it was dispelled."* The

* *Two Centuries*, p. 77.

authority for this statement, such as it is, is twofold. Champion, in defending his application for the enlargement of Cookworthy's patent from the attacks of Wedgwood and other Staffordshire potters, states "that his hazard and expense were many times greater than that of the original inventor," and claims that he supported it, "when the inventor declined the undertaking himself, with his time, his labour, and his fortune, and improved it from a very imperfect to an almost perfect manufacture." Then Lord Camelford, writing to Polwhele, the historian, Nov. 30th, 1790, says that the china works at Plymouth were undertaken by Cookworthy "upon a *friend of his* having discovered on an estate of mine, in the parish of St. Stephens, a certain white saponaceous clay, and close by it a species of granite or moorstone, white with greenish spots. . . . The difficulties found in proportioning properly these materials, so as to give exactly the necessary degree of vitrification and no more, and other niceties with regard to the manipulation, discouraged us from proceeding in this concern, after we had procured a patent for the use of our materials, and expended on it between two and three thousand pounds."

I do not think that either of these statements goes the length that Mr. Owen would have us believe. Champion had to make out a personal case against a very strong opposition, and there is no doubt that he said all he could in his own favour. But if what he had bought was so poor and worthless, why should he have agreed, as he did agree, to allow Cookworthy and his heirs a profit equal to the first cost of the materials? And as to Lord Camelford, he is clearly wrong, on Cookworthy's own authority, in ascribing to a friend, and not to Cookworthy himself, the discovery at St. Stephens; and all that he states further is that they were discouraged from proceeding by certain practical difficulties, which may fairly be interpreted to mean that, while success was achieved in the production of various articles, that success was not always certain; in other words, that a good deal of labour and material were wasted.

But the point does not rest here. There are extant a number of very fine pieces of china bearing the undisputed Plymouth mark. These Mr. Owen claims for Bristol, and assigns to the "W. Cookworthy and Co." period; simply, as it would appear, because of their high quality. Indeed he has no other authority. We have quite as good a right to claim them for Plymouth, while if they were made by "W. Cookworthy and Co.," Cookworthy is certainly entitled to

some of the credit.* That the pieces which bear both the Plymouth and the Bristol marks are Bristol ware, and of this date, I readily grant.

My general conclusions are :—

1. That Cookworthy discovered the china clay and china stone somewhere between 1745 and 1750.

2. That having made numerous experiments with these materials at Plymouth, he obtained an insight into the details of the potter's art, possibly at Worcester, certainly at Bristol.

3. That having succeeded in making true porcelain at Plymouth, he originated a manufactory at Bristol before January, 1764, which was given up by February, 1766.

4. That china was being manufactured by him at his Plymouth factory prior to the date of the patent, March 17th, 1768.

5. That he was concerned in the manufacture both at Plymouth and at Bristol up to May 6th, 1774; but that the Plymouth works probably did little after 1772.

6. That at Plymouth china was manufactured in large quantities both for home and colonial markets.

7. That although the works were not successful in a pecuniary sense, they were in a manufacturing; and that while in its early days the ware was coarse and rough, it was brought to a very high degree of perfection, alike in body, modelling, and ornament.

8. That the ware bearing the Plymouth mark is really Cookworthy's, and Plymouth made, though in a few instances the mark may have been used at Bristol by W. Cookworthy and Co.

9. That the ware bearing the double mark was made at Bristol during the W. Cookworthy and Co. period.

10. That the Plymouth China Factory was not on the China House premises, but in High Street, near Cookworthy's residence and place of business.

* Pryce in his *Mineralogia* speaks of the manufacture of porcelain at Bristol as being, under Cookworthy's direction, "likely to be rendered not less elegant and durable than the best oriental china." Pryce published in 1778, but his book was written piecemeal during previous years.