ENGLISH CERAMICS IN FRENCH ARCHIVES

THE WRITINGS OF JEAN HELLOT,

THE ADVENTURES OF JACQUES LOUIS BROLLIET

AND THE IDENTIFICATION OF THE

'GIRL-IN-A-SWING' FACTORY

by

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Foreword

When Bernard Dragesco did me the honour of telling me, in confidence, of the discoveries he was making about English porcelain in the archives of France, I was thrilled at the implications of what I heard. For of all the mysteries that have intrigued our ceramic historians none had seemed so impenetrable as the relationship between the main Chelsea porcelain factory of Nicholas Sprimont and a more shadowy factory, of uncertain location, which we have till now had to name after one of its products, a figure of a girl in a swing. Now that the fog of time has been lifted for us we can see how close to the truth was the hypothesis advanced on quite slender evidence back in 1962 by two brilliant scholars, Arthur Lane and R. J. Charleston, under both of whom I am proud to have served.

The solution of one problem has revealed a cluster of new problems hitherto unsuspected. What shall we make of all the chemical and technical conundrums? What further news awaits us on the potteries at Oxford and "Brenforth", not to mention the porcelain of "Brumjohn"? Then there is the whole new cast of characters shuttling to and fro between England and France. These and other topics should keep us busy for years to come. Meanwhile I am sure other readers will admire as I have Bernard Dragesco's crisply constructed study of English eighteenth century ceramics as perceived by rivals in France.

J. V. G. Mallet

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Jean Hellot

While studying the history of 18th century French porcelain for a new book on the subject I have been very impressed by the wealth of archival material surviving in France, much of which has not been studied in depth. Documents that have already been published sometimes contain secondary information which has been overlooked, but can be of great importance when considered from a different line of research. The two manuscripts, from which extracts are to be discussed here, were written by Jean Hellot, a leading French scientist, in 1753 and 1759. While the first is a well-known book belonging to the Sèvres factory archives, the other is from a large collection of notes and essays, which are now at the Caen city library. It is Madame Tamara Préaud, Director of the archives of the Manufacture Nationale de Sèvres, who brought the Caen document to my notice. She had located it in the course of her work on Vincennes porcelain. I immediately realised the importance for the history of English ceramics of some of the information it contained. Madame Préaud, who had also noticed them, kindly agreed that I should publish them. The purpose of this article is primarily to publicise the new material internationally, with the sincere hope that it is only a beginning and will lead to discussion, and new research in Britain.

Jean(Baptiste) Hellot[1] was born in Paris on 20 November 1685, the son of Michel Hellot, a *bourgeois de Paris.* From 1718 until 1732 Jean Hellot was editor of the *Gazette de France,* but being also a keen and able chemist he was admitted in 1735 to the exclusive Académie des Sciences, founded by Colbert in 1666.[2] On two occasions he was also the *Directeur* of that academy, in 1751 and 1764. Early in life Hellot had travelled to England and met famous scientists there.[3] In 1740 he was elected a fellow of the Royal Society of London and his 'Certificate of Candidate' stated that he was '...Pensionaire Chymiste of the Royal Academy of Sciences at Paris, and Successor to the Late Monsieur du Fay in the care of the Kings Royal Laboratory there...' His membership had been proposed by Charles Lennox, Second Duke of Richmond, and seconded by Sir Hans Sloane (president), Martin Folkes (vice-president), and Doctor Cromwell Mortimer.[4]

Following the death of Jean Henry Louis Orry de Fulvy, who had masterminded the Vincennes porcelain undertaking almost from the start, that factory was reorganised in June 1751. At the same time Hellot was asked, in the name of the king, to oversee the production, correct the various manufacturing problems, and carefully write down all the recipes for paste, glaze, colours and gold, as well as all the techniques used.[5] Having more than fulfilled his task, and discovered an important new colour, the vivid *bleu Hellot,* he stayed on as *Académicien Chimiste* attached to the factory, until his death on 15 February 1766, at his Paris home in rue d'Anjou, paroisse St. Jean en Grève.[6]

The Document at Sèvres

In the Sèvres factory archives are three manuscript books in the hand of Jean Hellot. They are all closely related. The first is dated 1 May 1753, and includes a description of the Vincennes concern, a general history of porcelain making, very many formulae, and an account of his own involvement to that date.[7] The second (written in January 1754) is an altered and edited version of the first.[8] The third is yet another enriched version, started after the move to Sèvres in 1756, and very tightly written in a small but thick notebook (obviously Hellot's own copy), with many additions dated 1757 to 1759.[9] The writings of this eminent scientist show a good analytical mind, whose accounts are very detailed yet beautifully clear. His mastery of both syntax and spelling was excellent for the time, and his actual handwriting, very neat, uncomfortably small but highly legible, betrays a careful and meticulous man. In the earliest of these

1 Although his first name is normally stated to be just 'Jean', a legal document of August 1728 refers to him clearly as 'Jean Baptiste' (Archives Nationales, Minutier Central [hereafter A.N., M.C.], étude CXVII, liasse 362).
2 See his *Eloge* by Jean-Paul Grandjean de Fouchy (*Histoire de l'Académie Royale des Sciences, 1766,* Paris, 1769, p. 167-179).
3 Ibid., p. 168.
4 Royal Society, Cert. I. 155.
5 For further details see: Albis, Antoine d', 'Procédés de fabrication de la porcelaine tendre de Vincennes, d'après les livres de Hellot', *Faenza,* LXIX (1983), n° 3-4, pp. 202-216.; and Préaud, Tamara, and Albis, Antoine d', *La Porcelaine de Vincennes,* Paris, 1991.
6 A. N., M. C., étude CVIII, liasse 578.
7 Manufacture Nationale de Sèvres, Archives (hereafter M.N.S.), Y 49. Beautifully bound in red morocco with silver clasp and lock, it is illustrated on page 154 of Frégnac, Claude, et al., *Les Porcelainiers du XVIIIe Siècle Français,* Paris, 1964.
8 M.N.S., Y 51 bis.
9 M.N.S., Y 50.

books Hellot briefly describes Chinese porcelain, and after considering the nature of *Petuntsé* and *Kaolin*, moves on to the 'porcelain of Saxony which is manufactured at Meyssen' (sic).[10] The paragraph then following deserves quoting in full, and will be found in Appendix I.[11] The translation below is my own and tries to be as close as possible to the French original.[12]

'On 4 October 1751, Mr. Woutters, arriving from England, brought me, on a piece of paper written in English and which I translated, the secret of the Porcelain of Chelsey (sic), *established 2 or 3 years ago at the expense of* (blank space)

It is entitled <u>*Receipt for China*</u>[13]

Take 10 pounds of flint glass: this is rock crystal, but here these two words mean powdered glass or broken crystal from the London crystal-works; pound it, grind it and sieve it. Take also 15 pounds of lime (calcined flint)[14] *in fine powder. Mix these two substances well together. Pour on top an adequate quantity of water to make a paste of it. Leave it to soak 3 or 4 days or longer, which can only be better. Stir them* (sic) *each day to blend them together. When this paste has taken enough consistency, form it into vessels, either at the wheel or in moulds. Leave them to dry very slowly; for if you dry them too quickly they are liable to splitting and warping. When they are perfectly dry, dip them into the glaze.*

This glaze is made up from 2 pounds of the finest calcined tin, one pound of common salt and 10 ounces of saltpetre. One mixes well these three substances together and one puts them to frit in the kiln for 30 or 32 hours. One grinds this frit, one mixes it with water, of which one only puts the quantity needed to give it the consistency of milk. After dipping the porcelain in it, one leaves it to dry well. Then it is ready to be put in the kiln, unless you want to paint it before.'

The above text calls for a number of comments. We do not know who this Monsieur Woutters was, nor how he got hold of what is said to be the Chelsea formula. His name suggests that he may have been of Flemish or Dutch extraction.[15] The date given for the foundation of the factory (1748 or 1749) seems far too late because we know that Chelsea porcelain was already being advertised for sale by March 1745.[16] It is possible however that Woutters considered the 1749 alleged closure and reorganisation of the earlier undertaking as the real beginning. I do not think he refers, as might be suggested, to a second Chelsea factory, where the 'Girl-in-a-Swing' class would have been produced. As will be shown later in this article, that group is most likely to have been manufactured in St. James's, London. Hellot did not put in the name of the man who initially financed the factory, but left a blank. Had he forgotten what Woutters told him, or was the latter not sure himself?

The important question is how close to the actual recipe used at Chelsea this one really is. It is not for me to discuss it in detail, but I am not a little surprised to see only two components for the paste, and there is one obvious error: 'lime' is not 'calcined flint'. This point however did not escape Jean Hellot when giving the formula again in his third book.[17] That time he changed 'lime' to 'quicklime' and wrote 'gypsum' above 'flint', seemingly not knowing quite what to put.[18] We unfortunately do not know the word used in the original English text, and Hellot probably had trouble translating it. Whether reliable or not, Mr. Woutters's recipe may not have been very recent when he brought it over, for in mid 1751, Chelsea was in the middle of the Raised Anchor period. Analysis has shown the paste of that period to be almost free from lead,[19] which cannot be reconciled with the alleged use of powdered English glass. However, in the earlier Triangle period, the Chelsea paste had contained a fair amount of lead. As for the glaze, the recipe shows it to be tin-based, which could be right for the late Triangle and the Raised Anchor periods[20], but the total absence

10 M.N.S., Y 49, pp. 25-26.
11 Ibid., pp. 26-27.
12 I have preferred this precise translation into rather broken English to a less accurate complete rewriting.
13 Written in English by Hellot, and spelt *'Recept...'* (sic).
14 Not in brackets, but added in, above the word 'lime'.
15 I have found no other mention of this name in France. In 1784, a Joseph Wouters started manufacturing creamware at Andenne in Belgium (Towner, Donald, *Creamware*, London, 1978, p.186), and as early as the 1660s, a Symon Woolters of Southampton was making salt-glaze stoneware in England (Mountford, Arnold R., *Staffordshire Salt-Glazed Stoneware*, London, 1971, p. 3).
16 The latest general history of the factory is to be found in Adams, Elizabeth, *Chelsea Porcelain*, London, 1987.
17 M.N.S., Y 50, pp. 20A-21A (Hellot's own page numbering).
18 The French in that version reads '*Prenez aussi 15 livres de Chaux Vive en poudre fine (ou Silex Calciné)*'. The word *Gips* is written just above *Silex*.
19 Lane, Arthur and Charleston, R.J., 'Girl in a Swing Porcelain and Chelsea', *Transactions of the English Ceramic Circle* (hereafter *Trans. E.C.C.*), Vol. 5, part 3, 1962, pp. 112 and 136-138.
20 Adams, op. cit., pp. 26 and 68.

of lead is bewildering.

Some of the actual manufacturing techniques described are also disconcerting: did they really let the formed vessels 'dry perfectly' and then dip them unfired into the milky glaze? The last sentence even suggests that painted decoration can be applied before any firing has occurred.[21] Jean Hellot's books describe the Vincennes processes with great accuracy and we know that there, first a glassy mixture was fritted to be used as the major ingredient in the paste, then the turned or moulded pieces were fired unglazed, producing *biscuit* porcelain which was fired again after glazing, before any overglaze decorating was undertaken. This has always been thought to be the technique used at all English and French soft-paste factories.[22] We can only regret that Hellot himself did not comment on that strange recipe in his books.

After giving the above Chelsea recipe, Hellot immediately follows (in his first book) with what he titles 'Process for the pottery of white earth, so-called of England'.[23] The mysterious Mr. Woutters probably brought also this recipe for some kind of white stoneware. After translating it into French, Hellot decides to give it in English as well, saying: '*Voicy cet article en Anglois*'. So here it is: [24]

'Take flint stones calcined and Ground or pounded to a veri fine powder, moisten itt With Water sufficient to make itt into a clay fitt for moulding Litt itt lys[25] *3 or 4 days or a week to incorporate Well treading itt everi day Then Work itt use*[26] *into your Vessels, and set them to dry gradualli* ———[27] *Make your glazing of Sea Salt dissolvd in water Strong enough to bear an Egg Then dipp your Ware into itt ad*[28] *Set it to dry, then put itt into your Kilne and burn them as above.'*[29]

In his French translation of this recipe, Hellot adds a note, wondering if the phrase 'to make it into a clay fit for moulding' may not mean that actual clay has to be added to the powdered calcined flintstones. He concludes: 'I do not believe so',[30] and we can only agree with him that the recipe, as it was given to him, does not include any clay. His doubts were nevertheless very well founded because we know ball-clay was an ingredient used for English white stoneware. As for the glazing technique, it sounds most improbable, unlike the well-tried and usual method of throwing in dry salt which vaporised and formed a thin layer of salt-glaze on the surface of the pots.

The Document in Caen

The other manuscript by Jean Hellot which gives us information on English ceramic manufacture is part of his *Collections d'Arts et de Sciences* in the Bibliothèque Centrale de la Ville de Caen (Normandy).[31] This collection consists of nine contemporary cardboard folders containing over 2,700 pages in Hellot's hand. A loose note (written in another 18th century hand) inside the first volume indicates that the set was bought by Monsieur Trudaine from Madame Hellot for 6,000 *livres*.[32] It forms a sort of extensive private encyclopaedia, with short notes and long memoirs on a wide variety of subjects, in the fields of physics, chemistry, medicine... and even cookery. There are recipes for various jams, remedies for all sorts of illnesses, records of human deformities in far-off countries, but also detailed technical accounts of industrial processes. His sources were partly his own researches and observations, but also earlier scientists'

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21 The reference to decorating is left out by Hellot in his later version of the Chelsea recipe (M.N.S., Y 50).
22 Underglaze decoration, where it existed, was of course applied to the fired *biscuit*, before glazing.
23 '*Procédé des poteries de terre blanche dite d'angletere*' (sic). M.N.S., Y 49, p. 27.
24 I have faithfully kept to Hellot's spelling and punctuation.
25 Certainly misspelt for 'lye'.
26 This word does not appear to make sense here.
27 This line is in the manuscript, but does not seem to mean anything.
28 Certainly misspelt for 'and'.
29 Most probably referring to the Chelsea process immediately preceding. This infers that both recipes were on the same piece of paper. In French, Hellot is more precise saying: '*...et les mettez au four. La pate et la couverte s'y cuiront ensemble*'.
30 '*...peut etre cela veut il dire qu'on ajoute de la glaise, ce que je ne crois pas*'.
31 Hereafter B.C.V. Caen. The whole set is referenced: Manuscrit in-quarto, 171. It is not known how these documents ended up in Caen, but they were already in the library in 1880.
32 Certainly after Jean Hellot's death in 1766. The author of his *Eloge* (see note 2) had been worried about the fate of these documents: '*Il s'st trouvé dans ses papiers beaucoup de Mémoires et de Manuscrits sur les Arts et les Sciences; nous ne pouvons que faire des vœux pour que cette importante partie de sa succession tombe dans des mains dignes de la recueillir et en état d'en faire jouir le public.*' (p. 179). The eventual buyer was perhaps Daniel Charles Trudaine (1703-1769), but more likely his son Jean Charles Philibert Trudaine de Montigny (1733-1777). They were both conseillers d'Etat and honorary members of the Académie des Sciences. The *Eloge* specifically mentions that the Trudaines, both father and son, were close friends of Hellot (p. 178), but the price is very high. The purchase may have been a way of helping the widow, as well as preserving the papers.

studies, more general old books, and newspapers. Being a meticulous man, he always noted the provenance of any information and made a very extensive index (the whole last folder). Approximately seventy tightly written pages are devoted to enamel and ceramic manufacture, in four different parts of Volume I. One important and frequent source given by Hellot is the *Papiers de Mr. de Reaumur.*[33] Luckily a collection of notes and short memoirs in the hand of Réaumur belongs to the Sèvres factory archives[34] and is obviously part of the papers Hellot used. This has allowed me to test, by comparative study, the latter's reliability in quoting other people. I have found him to be extremely faithful, and his editing and occasional rewriting of Réaumur's notes do nothing but improve clarity.

Jacques Louis Brolliet

In Hellot's manuscripts at Caen, seven pages deal with English porcelain and pottery making (see Appendix IV, and Fig. 1 and 2).[35] They start with this paragraph: '*Broillet alias Fribourg,*[36] *returning from England, where he was a prisoner with the rest of the Louisbourg garrison, fled from there on 14 January 1759. He has worked at the Chelsea porcelain manufacture, and saw the white pottery of England being made, in a previous trip.*' So Hellot immediately identifies his informer, but before looking in detail at what 'Broillet' told him, we must find out more about this new character. A whole letter concerning him has survived, written in Paris by Jean Hellot to Jacques René Boileau, the director of the Sèvres factory. It is dated 3 February 1759 and is so packed with interesting material as to deserve quoting in full (the French original is in Appendix II):[37]

'The man Broillet, who served me for 2 years, was, Sir, an extremely industrious servant, although a Swiss[38] *from the Canton of Fribourg; he left me to enter into Mr. de Montcalm's service who took him with him to Canada, where he served him as his chemist; for Mr. de Montcalm enjoys seeking out remedies.*[39] *Many officers having been killed, help was sent to Louisbourg as you know, and Broillet, commanding a picket of 50 men, was with the detachment which entered the town, where he was shot in the neck. The garrison having been taken as prisoners of war, he was transported to England and sent out to the county of Cantorberi.*[40] *As he had already made a trip to that country, and speaks very well English, German,*[41] *Dutch and Italian, it was easy for him to disguise himself and as a German get into several factories, among others the factory making the white pottery which we cannot imitate, and which he had seen on a previous trip. He also saw Chelsea porcelain being worked and can entice away from that factory the man Martin, a clever craftsman, who works on the wheel and the rose-engine, where he produces each day 1,000 to 1,100 cups which he later finishes. That workman is earning there one guinea a week.*[42] *As for Broillet, he gilds porcelain very well and quickly with gold leaves and with powdered gold. His mordant is not known at Sèvres, is different from those in use there, and he made it at my house. He can paint in monochrome about twenty cartouches*[43] *in a day, either the same one over and over, or different ones, although he can neither paint nor draw. All he needs are engraved copper plates.*[44] *The method he has suggested to me of supporting raw pieces with projecting parts, without using props, seems good to me, and should stop them from sagging. Using the same method, he can fire 7 to 8 plates or dishes inside the same saggar without them warping. He showed me small samples of porcelain and of biscuit, and to tell the truth they lack a little whiteness, but they withstood the most intense forge-fire without melting, nor even sagging.*[45] *His paste would not cost more than 4 sols 6 deniers per pound; I have written down its composition.*

33 René Antoine Ferchault de Réaumur (1683-1757), a brilliant and versatile scientist who became a member of the Académie des Sciences at the early age of 25. He studied the manufacture of porcelain at great length, particularly in the years 1727-1729, and even discovered a type of white devitrified glass, which was named *Porcelaine de Réaumur.*
34 M.N.S., Y 39.
35 B.C.V. Caen, Manuscrit in-quarto, 171, Volume I, folios 127vo-130vo. The folio numbering has been done in pencil by a later hand.
36 The alias of 'Broillet' derives from his native country, the Swiss canton of Fribourg.
37 M.N.S., H 1, liasse 3. Again this is my own translation, perhaps a little too literal, but I hope not omitting any information.
38 Hellot seems a little surprised that a Swiss should be industrious!
39 Louis Joseph de Montcalm, marquis de Montcalm, born in 1712, was sent in March 1756 to Canada, to be in charge of the French army there. After some success he was made *lieutenant général,* but later died at the siege of Quebec, on 14 September, 1759.
40 Obviously Canterbury in Kent.
41 This is very likely, because the *Canton* of Fribourg straddles the border between the French- and German-speaking regions of Switzerland.
42 Hellot wrote *une guinée,* definitely referring to English currency.
43 *Cartouches* is the actual French word used. Here it has the more general meaning of 'decorative designs' or 'reserves'.
44 The earliest mention of transfer-printing in a French document.
45 This was one one test thought by scientists to be useful for distinguishing hard-paste from soft-paste. Brolliet's porcelain must have been highly refractory although undoubtedly of the soft kind (see the recipe in Appendix IV).

However I doubt it could be fired in the Sèvres kilns. It needs the Meissen kiln, which is the same as that of Chelsea. He made for me, in two hours, a little cardboard model of it so that I would understand it well, and he only needs 3 to 400 bricks and some tiling to make a small one 3 foot high which would be used to fire trial pieces of his paste. He claims square kilns fire unevenly; his is round, or as a vaulted tower, surrounded by several furnaces so as to get heat on all sides. As I think he could be very useful to the factory, I have him work at my house and give him 30 sols a day, to be well informed of his processes; one can reimburse me if it is deemed fit. I do not think he could be kept at Sèvres for less than 100 livres a month.[46] *He has gone along the Seine looking for the kind of round pebbles which he needs for his paste, because I want him to make 2 pounds of it before me. I will provide him with the pipe clay he uses. He calcines his pebbles and grinds his frit in the usual way, but not together with the clay like Gravant.*[47] *He then mixes them in a tun using a bladed vertical shaft, like in Saxony. Now you are informed, Sir, of what my Broillet can do.'*

Judging from this letter, Jacques Louis Brolliet[48] would appear to be a most interesting and reliable source of information, but we have to be a little more careful, for later documents cast a rather dark shadow on his character and show he got into a great deal of trouble. He stayed with Jean Hellot until at least 18 February 1759[49] and joined the Sèvres factory probably shortly after, on the strength of Hellot's vibrant recommendation. However by October 1759, Brolliet was earning still only 60 livres,[50] being listed with the *manœuvres* (labourers). In later months he was among the *graveurs*, and in August even one of the *sculpteurs*, but he received no salary increase and ended up being dismissed in November 1760.[51] Yet in February of that same year, a specially drawn-up staff roll (listing potential salary reductions) had mentioned him in the *atelier de peinture*, with the comment: '[his salary] must not be reduced; he brought to the factory the secret of printing'.[52]

Despite his failure at Sèvres, Brolliet managed to obtain a royal privilege for the manufacture of 'crucibles and chemistry utensils', which was granted on 23 March 1762.[53] He set up a factory in rue Saint-Dominique au Gros-Caillou, in Paris, and was at one time financed by a Mr. Marquis.[54] Then, on 1 July 1767, the production was extended to include 'porcelain in the Chinese taste', this time with funds provided by Jean Baptiste Fouquet de Provigny. That financier formally set up a company with Jacques Louis Brolliet in December 1769,[55] only to buy him out entirely four months later.[56] What actually happened between them? We do have one side of the story, as that episode is included in a very long and detailed memoir written in August 1772, probably by a lawyer at the request of Brolliet's latest backer, a Paris banker called Frécinet. Intended as a plea to have

46 Quite a high salary, since only the best Sèvres painters were then earning about that sum. The 30 *sols* a day Hellot was giving him amount to 45 *livres* a month.

47 (Louis) François Gravant (died 1764, aged about 49) had been at Vincennes almost from the beginning, joining in 1741. After perfecting the original formula, Gravant obtained the monopoly for the production of the raw paste, which he sold ready for use to the factory. This arrangement was carried on at Sèvres until 1775, Gravant's son having taken over upon his father's death (See Préaud, Tamara, and Albis, Antoine d', *La Porcelaine de Vincennes*, Paris, 1991, p. 207).

48 This seems to be the proper spelling of his name, which he used in legal documents and when signing.

49 According to Hellot's account of expenses, sent to Boileau at the factory (M.N.S., H 1, liasse 3).

50 M.N.S., F 5, liasse 2. The detailed accounts for the period January-September 1759 are missing, and it is therefore not possible to know exactly when Brolliet entered the factory, and with which salary.

51 Ibid. His recipes must nevertheless have been tested, because there are a few mentions of '*couverte de Mr Broliet*', '*terre de Mr Brolliet*' and '*cailiou de Mr Broiliet*' (sic) in a small notebook of experiments, dating from 1759-1760, and attributed to Robert Millot, who was in charge of the kilns (M.N.S., Y 53). Furthermore, the factory accounts for the period October 1759-December 1760 indicate that a total of 103 *livres*, 3 *sols* was paid to Brolliet '*pour diverses fournitures*', obviously as reimbursement for materials provided (M.N.S., F5).

52 M.N.S., D 1, liasse 1. This early reference to transfer-printing is very interesting, because Sèvres used that technique only for outlines, and much later (first on the Catherine the Great service, circa 1777-1779). Transfer-printing was hitherto thought to have been brought to France by Nicolas Pierre Berthevin in the 1770s. See Savill, Rosalind, *The Wallace Collection, Catalogue of Sèvres Porcelain*, 3 volumes, London, 1988, pp. 764-765 of Volume II. No piece of porcelain decorated in this way appears to have survived from any other 18th century French factory. See also note 44.

53 A.N., M.C., XCVII, 434 , folio 1 of the document dated 13 December 1769.

54 Ibid., folio 1vo. See further details from a different document in note 64.

55 Ibid. This document is the contract of association.

56 A.N., M.C., XCVII, 436, 19 avril 1770. Then, the following month, de Provigny sold a minority interest in the factory to the landlord, Guy Paul Tocquiny de Villarceau, and to Adam Joseph Delamotte (A.N., M.C., XCVII, 436, 11 mai 1770). Nothing is known of the production at the Gros-Caillou factory under either Brolliet or de Provigny. Originally an investor, de Provigny must have got hold of Brolliet's processes, for in the contract of May 1770 with his new associates he promises to write down the secret in detail. In 1989, the British Museum acquired in Paris a large oval hard-paste biscuit medallion showing the profile of Henri IV in low relief. It is signed on the back *Deprovigny* and, while the modelling is fairly crude, the quality and whiteness of the porcelain are

Brolliet severely condemned, this document relates his life as a series of successive swindles.[57]

Notwithstanding the obvious bias and exaggeration of such a petition, it includes much information on Brolliet's life, not given by Jean Hellot in his above letter, but probably partly true and certainly worth relating here. We are told it was a certain Admiral Handson who, in 1760, brought Brolliet back from Canada to England, as his servant.[58] The date given here, 1760, must be wrong. Hellot tells us Brolliet was in France in January 1759, so he must have sailed from Canada to England some time before, probably during 1758. The English had started the siege of Louisbourg on 1 June 1758, and the town finally fell on 27 July. So it would seem Brolliet spent as little as five months or less in England, if indeed he had been captured at Louisbourg. No Admiral Handson or Hanson is recorded, but George, 1st Baron Anson, the celebrated circumnavigator, was an admiral, and also First Lord of the Admiralty at the time, although he did not sail to or from Canada during the war with France. Did he really employ Brolliet in England in some capacity?[59] The memoir goes on to say that 'Handson' soon dismissed Brolliet, who went to Oxford, posing as a chemist and trying to start a factory. Having found nobody he could dupe there, he came to London, where he somehow befriended the famous French engraver, Ravenet[60], and then persuaded a jeweller, Hardesoif, and a porcelain flower manufacturer, Mrs. Voitine,[61] to invest in a ceramic undertaking, which came to nothing. The memoir says everything could be certified by the man Martin, a Paris faience dealer, also turner at the Sèvres factory, who knew and followed Brolliet in London. This is probably the Chelsea workman discussed by Hellot.[62] Brolliet fled to France with the assistance of Ravenet and a wine merchant, Chateauneuf.[63] Arriving in Paris, he was helped by Ravenet's brother-in-law, Lamel, a printer on Ile Saint-Louis. The document goes on to give many details on Brolliet's activities in Paris after his dismissal from Sèvres, but they are of lesser interest in our context.[64] Frécinet, the banker

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quite acceptable. By 26 July 1773, the Gros-Caillou factory was in the hands of Messrs. Advenier and Lamarre (M.N.S., A 2, liasse 1, *Etat des manufactures de porcelaine établies en la ville et faubourg de Paris*, possibly ill filed, logical location would be in liasse 3). Finally, on 19 August 1774, the factory was quoted as having been 'the object of more law suits than it ever made porcelain' (M.N.S., A 2, liasse 3, *Rapport à M. de Sartine par le Sr Buhot, Inspecteur de Police*).

57 M.N.S., A 2, liasse 5. The Sèvres archive documents mentioned in this and the previous note were known to Madame Régine de Plinval de Guillebon when she wrote her standard book *Porcelaine de Paris, 1770-1850*, Paris, 1972 (pp. 204-206). However, I have made here reference only to the original documents because my interpretation of them, and my reading of some names, are different from hers, and I believe, more accurate.

58 Brolliet said to Hellot he had been taken to England as a prisoner-of-war.

59 It is interesting to note that Lord Anson was one of Paul de Lamerie's major patrons (*Paul de Lamerie*, exhibition catalogue, Goldsmith's Hall, London, May-June 1990, p. 113).

60 Actually spelt in the document *Ravenel* with an 'l', but almost certainly referring to Simon François Ravenet (1706-1774), who was in London by 1744, and is now best remembered for having provided the finest engravings used at the short-lived Battersea enamel factory (1753-1756). Some of his engravings were also used by Joseph Willems for new porcelain models at Chelsea (Adams, Elisabeth, *Chelsea Porcelain*, London, 1987, pp. 85 and 87). See also: Jean-Richard, Pierrette, *L'Œuvre gravé de François Boucher dans la Collection Edmond de Rothschild*, Musée du Louvre, Paris, 1978, pp. 365-369. It must be from Ravenet that Brolliet learnt about transfer-printing.

61 In French: '*...dame Voitine, fabricante de fleurs en porcelaine...*' I have found nothing about her activities, either in London or elsewhere.

62 See his letter above. A Joseph Martin *l'ainé* joined the Sèvres factory in April 1767 as a *repareur* with a salary of 24 *livres*. His brother Francois Martin *le jeune* was taken on exactly two years later, also as a *repareur* (workman applying and finishing the smaller moulded parts of an elaborate piece of ware, or a figure). He may be the François Martin of Paris, known to have been employed as a potter at the Spanish faience and porcelain factory of Alcora, from about 1774 until 1786. In June-July 1795, The two brothers were at Sèvres, and stated to be respectively 51 and 47 years old, originally from Chambéry in Savoie, and residing in France since 1759 (M.N.S., fichier du personnel, and D 3, liasse 4 bis). In 1759, Joseph Martin would have been only about 15 years old, and if he was not Brolliet's friend in London, he may still have been a relation of the latter.

63 I have mentioned the names of every person Brolliet was connected with in London, in case they are known to other researchers as having been involved with pottery or porcelain. It is important to remark that they all have French names, and were probably Huguenots.

64 A few purported facts are worth mentioning, if not entirely relied upon. Just after Sèvres, Brolliet would have worked for the comte de Lauraguais (also known under his later title of duc de Brancas, and usually credited with producing the first hard-paste porcelain made with French kaolin, from Alençon, circa 1764-1768). Then Brolliet founded a factory at the Gros-Caillou in Paris, and his original backers were Mr. Vorss, a dealer, and Mr. Valet, secretary of the duc de Bouillon. Seeing no worthwhile results, they withdrew and were replaced by Mr. Stoucrad, a manufacturer of painted tapestry, who also introduced Brolliet to a 'baron d'Armenhagen, envoy of the prince of Armestat'(?). A company was formed, in which Armenhagen used a front man, the Mr. Marquis mentioned earlier in the main text, at note 54. One kiln firing failing after the other, Brolliet's associates sued him, but he somehow won the case in court, and soon found a new financier in Mr. de Provigny (see main text, and notes 55 and 56). Appended to the anti-Brolliet memoir are two certificates, signed by Stoucrad and de Provigny, both confirming they had been badly defrauded. De Provigny, writing on 31 July 1772, was still '*à la manufacture de porcelaine du Gros-Caillou*' (M.N.S, A 2, liasse 5).

who probably commissioned this long memoir against Brolliet, is said in it to be his most recent victim, having poured vast sums of money into yet another useless porcelain factory, in the village of Vaugirard just outside Paris.[65]

Jacques Louis Brolliet was actually arrested on 14 July 1772, following street fighting, and five days later he wrote a long letter from prison to the minister Bertin[66], accusing Frécinet of having organised the scuffle to have him out of the way, and take over the factory. He also complained that Frécinet was preparing a petition against him,[67] getting other people to sign it too. Brolliet was still in prison on 23 September of that year, when he signed an agreement with some of his creditors, among them three of his employees at Vaugirard, where crucibles were apparently being manufactured alongside the unsuccessful porcelain.[68] Finally, in 1775, we still find a mention of Brolliet as a debtor and minor associate of Noël Claude Chervise, then master of the Vaugirard factory.[69]

As I suspected Brolliet might have left Paris by that time, I made enquiries in his native country. Colette Mottas-Dreyer, of the Musée d'Art et d'Histoire in Fribourg, has very kindly provided the following information. On 31 January 1775, Jacques Louis Brolliet asked for, and was granted by the Grand Conseil, a ten year privilege for mining exploration in the Etat de Fribourg.[70] Two months later, he came to terms with two impatient creditors, the Fribourg innkeeper whom he had not paid for four months, and Louis Melenotte, his Vaugirard foreman still chasing him.[71] Brolliet was then described as *'chymiste, bourgeois de Semsales'*, meaning he was born in the village of Semsales, near the border between the cantons of Fribourg and Vaud.[72] The last mention of him is on 25 August 1775, when he was the victim of a theft in his laboratory in Fribourg.[73]

Brolliet certainly was not an ignorant rogue as his enemies claimed. He knew very well the difficulties of setting up a profitable porcelain factory, but probably did not always apply himself to his work with all the necessary care and industry. The many law suits brought against him also shed a somewhat unfavourable light on his ethics, and point to a tumultuous private life. Nevertheless, the complex and wide-ranging information which he freely delivered to Jean Hellot early in 1759 bear witness to his knowledge and understanding of ceramic matters.

Red Glass, and Gilding on Glass

In the Caen document, a few pages before the major section on porcelain and stoneware, Hellot noted detailed information concerning glass, also given to him by Jacques Louis Brolliet (see Appendix III).[74] There is a lengthy recipe for red glass made with copper, and two shorter ones, also for red glass, one using copper again, and the other, gold. We do not know where Brolliet may have learnt about glass. Translucent red glass was not a speciality of either England or France at the time; it is generally thought to have been first produced by Johann Kunckel von Löwenstjern, at the Potsdam glass-house, circa 1678-1679. However Bernard Perrot of Orléans is also known to have developed a translucent red glass, probably as early as 1668, when this invention is specifically mentioned in his privilege.[75] Both Kunckel

65 According to the document, very much the same story happened at Vaugirard as at the Gros-Caillou. After leaving the latter factory in April 1770, Brolliet started the new one with the help of friends, Mr. and Mrs. Le Roy, and a Swiss named Daflon. Having spent their money, Brolliet formed a company with the banker Garnier, who went bankrupt and was imprisoned, probably over unrelated business. Garnier's assets, including the lease on the Vaugirard house, were then taken over by one of his creditors and colleagues, Frécinet. At first Brolliet succeeded in persuading him to advance more funds, but their friendly relations did not last, and Frécinet finally did all he could to have Brolliet jailed for good.

66 M.N.S., A 2, liasse 5. Henri Léonard Jean-Baptiste Bertin, minister and secretary of state, was at the time also responsible for the Sèvres factory.

67 It is probably the long memoir used extensively for this part of the article (M.N.S., A 2, liasse 5).

68 A.N., M.C., LXXXV, 640. His creditors included Jean Claude Dupasquier and François Ducret, both Swiss, and Louis Mellenotte (or Melenotte), administrator of the crucible undertaking.

69 A.N., M.C., LII, 514, 25 février 1775. See also Archives de Paris, D^4 B^6 55, dossier 3430 (bankruptcy of Chervise on 19 mai 1775).

70 Archives de l'Etat de Fribourg (hereafter A.E.F.), Manual n° 326, p. 72-75. Brolliet stated he had left his country over thirty years earlier, in other words before 1745. We can therefore assume he was born fairly early in the century.

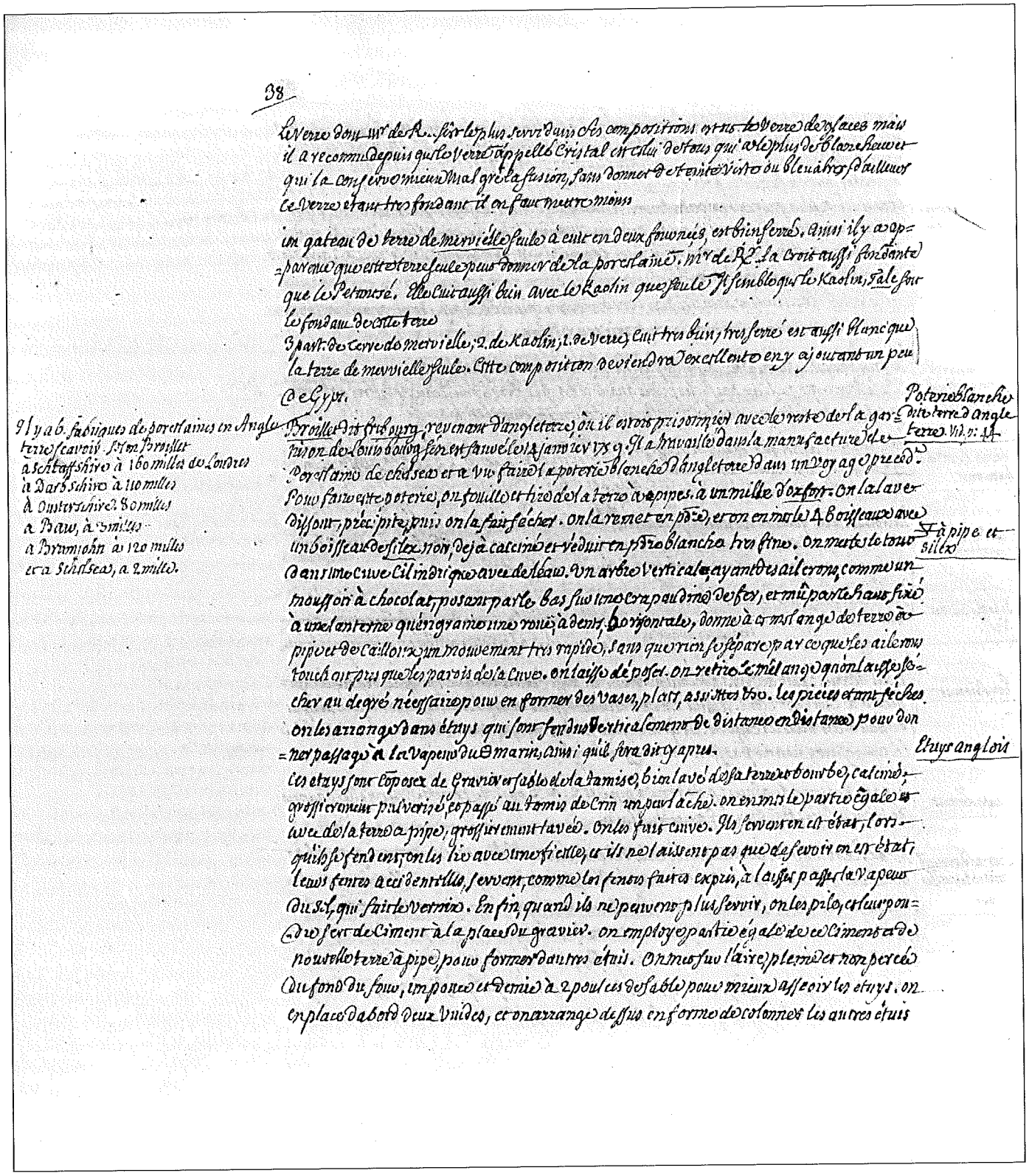
71 A.E.F., Registre des Notaires 740, folios 65-67 (29 March 1775).

72 The present Semsales Roman Catholic priest has not found any trace of Jacques Louis Brolliet in the 18th century local parish registers. However, a Louis Broillet (sic) had a son, Jacques, born in 1685, who married Françoise Robin on 18 September 1728. This couple subsequently had several children, but none named Jacques Louis. Was the family perhaps out of town when he was born?

73 A.E.F., Manual n° 326, pp. 473 and 475, and Deklarationsbuch n° 60, pp. 208 et sqq.

74 B.C.V. Caen, Manuscrit in-quarto, 171, Volume I, folios 119-120. The folio numbering has been done in pencil by a later hand.

75 For further details see: Bénard, Jacques, and Dragesco, Bernard, *Bernard Perrot et les Verreries Royales du Duché d'Orléans*, Orléans, 1989, pages 24, 55-56 and 97-98.



38

Il y a 6. fabriques de porcelaines en Angleterre, sçavoir: Stoke Brouillet à Schaffshire à 160 milles de Londres à Darbshire à 110 milles à Oustershire à 80 milles à Bow, à 3 milles à Brumiohn à 120 milles et à Shilsea, à 2 milles.

Poterie blanche en terre d'Angleterre. Vid. p. 41

à pipe et silex

Etuys anglois

Figure 1 Page from Jean Hellot's manuscript, listing six porcelain factories in England. *Bibliothèque Centrale de la Ville de Caen, Manuscrit in-quarto, 171, Volume I, folio 127vo.*

and Perrot made their red glass with gold. By the middle of the 18th century, various recipes had been widely published, and it is difficult to assess how much Brolliet just picked up in books. In any case, Hellot, was impressed enough to take it all down faithfully.

There can be no doubt that Brolliet knew exactly how to gild the edge of a wineglass or a beaker: he actually performed the complete operation himself, on 16 February 1759, in front of Hellot, as stated at the end of the long description. We are given an overwhelming wealth of details, not only regarding the actual materials and tools used — some fashioned specially — but also on every aspect of the process itself. In this document, and with his customary thoroughness, Hellot bears testimony to Brolliet's indisputable ability, which, unfortunately, was not always put to good use.

English Porcelain, and the White Salt-glazed Stoneware of Oxford

We must now look at the bulk of the extensive information Brolliet gave Hellot early in 1759. It relates primarily to ceramic manufacture in England, and sheds an unexpectedly new light on some well-known factories, as well as on a few much more obscure undertakings. The complete French text has been transcribed in Appendix IV.[76]

Brolliet knew of six porcelain factories in England, and we can assume he meant they were in activity at the time of his stay in the country, which lasted probably several months, during the second half of 1758. There does not seem to be any particular logic in the order they are listed (Fig. 1).[77] '*Schtaffshire*' is naturally Staffordshire, and refers to the Longton Hall factory, in operation from circa 1749 until 1760. The next three centres present no problem either, as they were both well-known and quite active at the time: '*Darbschire*' (Derby), '*Ousterschire*' (Worcester) and '*Baw*' (Bow). The fifth factory, said to be one hundred and twenty miles from London, was in '*Brumjohn*'. There can be little doubt that Brolliet meant 'Brummagem', or more correctly, Birmingham. No porcelain is known to have been produced there, but an advertisement of May 1757, in the *Public Advertiser*, announced the sale of a dealer's stock including Birmingham porcelain.[78] Brolliet knew all about transfer-printing, as will be seen later, and was perhaps thinking of the famous enamel production of that town. However, one would expect him, as a professional, to have recognised the difference between porcelain and enamel. There is also the possibility that someone in Birmingham had made a speciality of transfer-printing on porcelain blanks manufactured elsewhere.[79] The last factory in the list is '*Schelsea*' (Chelsea), which Brolliet knew best, since he told Hellot he had worked there.[80] This undertaking is described further on.

Next to the list of English porcelain centres, begins the description of the manufacture of white salt-glazed stoneware, which Brolliet is said to have seen on a previous trip. The pipe-clay used, he told Hellot, was extracted a mile away from '*Oxfort*'. On the next page,[81] we read of '*la terre de pipe d'Oxford*', and of the kiln in which is fired '*la poterie blanche, auprès d'Oxford*'. Despite the spelling mistake the first time this place-name occurs, I have no reason to doubt that Brolliet spoke of a stoneware pottery located near the famous city. Incidentally, the long-winded memoir written against him in Paris in 1772 also mentioned Oxford, where he would have stayed after leaving 'Handson', and before going to London. However, Brolliet's information is impossible to reconcile with our present knowledge: no pottery is known to have operated at that time in or around Oxford, and no pipe-clay deposit, as such, is thought to have existed in the area, according to Mr. Robin W. Sanderson,[82] previously curator at the Geological Museum in London. Whatever was really made near Oxford, Brolliet must have been aware it was not of the finest quality. At the end of the document, Hellot wrote literally: 'The finest white pottery of England, glazed by the vapour of salt, is called *Ware* and is made [in] *Schtaffshire*, 110 miles away from London, and at *Brenforth*, 7 miles away [from London]'.[83] Staffordshire was indeed the great centre of white stoneware manufacture in England. As for *Brenforth*, John Mallet has suggested that Brolliet was probably thinking of the pottery founded by Joseph Shore in 1757 at Isleworth, near Brentford.

The complete manufacturing process in use at the 'Oxford' salt-glazed stoneware pottery is given in the document, from the preparation of the paste and that of the saggars, to the actual firing and glazing of the pots. In a note, Hellot added that they used coal as fuel for the kiln, but that Brolliet saw other pottery

76 B.C.V. Caen, Manuscrit in-quarto, 171, Volume I, folios 127vo-130vo. The folio numbering has been done in pencil by a later hand.
77 Ibid., folio 127vo.
78 Nightingale, J.E., *Contributions towards the History of Early English Porcelain from Contemporary Sources*, Salisbury, 1881, pp. lxiv-lxv. There was also the ambiguous notice in the *Liverpool Advertiser* of 11 February 1757 telling of '...the new and curious art of printing or rather reprinting, from copper plate prints, upon porclane, enammel and earthenware as lately practised at Chelsea, Birmingham, etc.' (sic). See Watney, Bernard, and Charleston, R.J., 'Petitions for Patents concerning Porcelain, Glass and Enamels with special reference to Birmingham, the Great Toyshop of Europe', *Trans. E.C.C.*, Vol. 6, part 2, 1966, p.63.
79 Godden, Geoffrey, *Encyclopaedia of British Porcelain Manufacturers*, London, 1988, p. 149.
80 See the same page of the document (folio 127vo).
81 Folio 128.
82 Consulted by John Mallet, to whom he wrote in September 1991: 'I have consulted old memoirs of the Geological Survey to very little result. No references to 'pipe-clay', as such, occur for the Oxford area, and it is a material which I would be surprised to find occurring in close vicinity to the city. There is a reference to beds of 'white clay' and 'white and sometimes reddish *maum*' occurring within the Shotover Sands of Shotover Hill at Forest Hill, four miles East of Oxford. 'Maum' is from the Old English 'mealm' signifying a marly clay.'
83 Folio 130vo.

kilns 'where wood was burnt, like for porcelain'.[84]

The passage following is devoted to what is called '*la porcelaine de Brolliet*'. We cannot be sure however that it was his own invention, and it may well have been 'borrowed' from someone else. In the margin of the same page, Hellot wrote a variant of the recipe, as compounded by Brolliet when he made his paste for the scientist, on 14 and 15 February 1759. Interestingly, his frit mixture included calcined alum, the addition of which Antoine d'Albis considers to be the most important improvement Claude-Humbert Gérin made to the early Vincennes paste formula.[85] It was not an ingredient previously used by porcelain makers, and one wonders where Brolliet got the idea. In view of his apparent lack of success later on in Paris, should we really believe him when he says that, using his own paste, and at his request, they 'made at *chelsée* a three foot tall urn and a large figure which were perfectly successful without any addition [to the paste]'? Hellot sounded more impressed by its low cost (no more than 5 *livres* for 27 pounds of paste), and in his letter to the Sèvres director[86], he stressed that samples had withstood the highest temperatures without melting or sagging. This may explain why Brolliet was later more successful with his crucible factory than with his porcelain undertakings.

With his Vincennes and Sèvres experience, Hellot was well aware of the paramount importance of both the kiln architecture and the firing techniques used, in achieving successful ceramics manufacture. As a result, he obtained from Brolliet every conceivable detail as to how these things were done in England, as well as a cardboard model.[87] That section of the document starts with a startling revelation: not only did the 'Oxford' stoneware pottery and the Chelsea factory have similar kilns, but these were after the Meissen one, thanks to a runaway Saxon workman who brought its design to England. These kilns are then described as round and shaped as a tower (with six or eight furnaces), which is to be expected for pottery in the Staffordshire tradition. It is also quite conceivable for Chelsea porcelain, particularly if some of its workmen came from Staffordshire, as is generally thought. On the other hand, The 18th century Meissen kilns were horizontal, and of semi-cylindrical shape with a rectangular base,[88] so Brolliet must have been mistaken in thinking the Chelsea kiln was after the Meissen one. The actual firing was a lengthy operation: maximum temperature had to be sustained for 18 to 24 hours for the white pottery, and 36 to 40 hours for porcelain.

The Chelsea Factory and Charles Gouyn

The subsequent paragraph is certainly the most important for us in the whole document, and it is the information it contains that made me write this article (Fig. 2). Before discussing it, I would like to translate it:[89]

'*This is how is built the kiln of Chelsea, of which the porcelain factory is near the church. It was first established by Mr. Gouïn, brother of a Paris jeweller of that name, born at Dieppe in the so-called Reformed Faith. His paste was compounded by d'Ostermann, a German, chemist and artist of Doctor Ward, a famous empiric. Mr. Gouin left, with the loss of part of his funds, and makes at his house, in St. James's Street, very beautiful small porcelain figures. The present (1759)*[90] *undertaker of the Chilsea [sic] factory is one named Sprémont, from Liege. The turner was a Frenchman named Martin. He left Chelsea and went to Lambeth, to work for Jacson, a faience-maker. The modeller is one named Flanchet, a pupil of Mr. Duplessis. The draughtsman is named Du Vivier: he is Flemish.*'

While confirming a number of well-known facts, and some previous assumptions, these few lines also give much bewildering information, some of it totally new and controversial. The Chelsea factory was located in Church Lane East and Lawrence Street,[91]

84 Folio 128.

85 Préaud, Tamara, and Albis, Antoine d', *La Porcelaine de Vincennes*, Paris, 1991, pp. 10 and 13-14.

86 Appendix II, and translated earlier in this article.

87 Folios 128-129. The model was made by Brolliet in two hours (see the letter from Hellot to Boileau, translated in full in this article, with the original French text in Appendix II).

88 Brongniart, Alexandre, *Traité des Arts Céramiques ou des Poteries considérés dans leur Histoire, leur Pratique et leur Théorie...*, 2 volumes and 1 atlas, Paris, 1841-1844, pp. 368 and 377 of Volume II. The kilns of the other German factories were similar to those at Meissen, and no French soft-paste kiln is known to have been circular either.

89 Folio 129. My translation is again probably too literal, but the meaning of every word matters here. Some names are underlined in the French text, and this has been reproduced.

90 Actually written by Hellot in brackets.

91 The Church Lane premises were apparently relinquished only after Brolliet's return to France in January 1759. See Adams, Elisabeth, 'The Sites of the Chelsea Porcelain Factory', *Ceramics*, I, December 1985, pp. 55-62 (published in London), and the same author's 'Nicholas Sprimont's Business Premises', *Trans. E.C.C.*, Vol. 13, part 1, 1987, pp. 1-17.

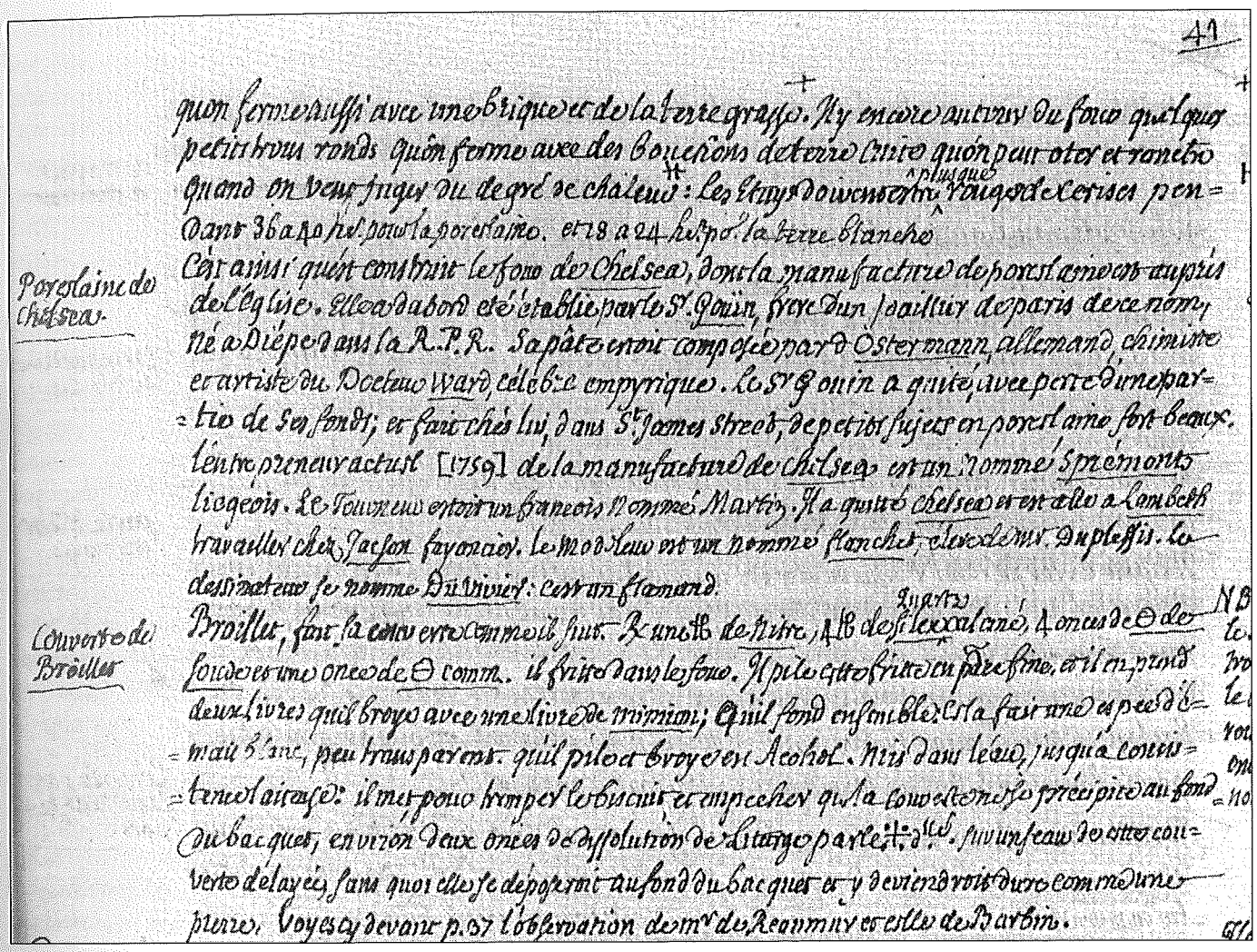


Figure 2 Detail of folio 129 of Jean Hellot's manuscript, mentioning the Chelsea factory and Charles Gouyn. *Bibliothèque Centrale de la Ville de Caen, Manuscrit in-quarto, 171, Volume I.*

quite near the church, and the fact that Brolliet knew this gives further credence to his story, and suggests that, at least, he visited the premises.

Until now, only the famous advertisement in the *General Advertiser* of 29 January 1751 (new style)[92] stated that the jeweller Charles Gouyn had at one time been 'Proprietor and Chief Manager of the Chelsea-House'. Moreover, the extent of his involvement has been seriously minimised by some scholars. We know for certain that Gouyn had a jewellery business 'at the Turk's Head' in Bennet Street, St. James's,[93] and the rate books confirm his presence there from December 1735 until 1783[94]. At the time of his death, probably in January 1785, he lived in King Street, Soho.[95] From Brolliet we learn that he was born at Dieppe, the northern Normandy port, and that he had a brother in Paris who was engaged in the same trade. In a file at the Archives Départementales du Calvados, in Caen, there are legal documents (concerning the successions of two of his brothers), from which some further information on the family can be gathered[96]. They formed a real dynasty of wealthy traders and jewellers, and the father, Richard Gouyn, had owned at least two shops in Dieppe. Seven of his children, from two marriages, reached adulthood. They were, from the first wife: Richard Philippe, jeweller in Paris, David, *bourgeois* of Rouen, and Marie Anne (who married the

92 This newspaper was in fact printed with the date 29 January 1750, because it adhered to the old style, which considered 24 March as the end of the civil year.

93 Valpy, Nancy, 'Extracts from Eighteenth Century London Newspapers', *Trans. E.C.C.*, Vol. 11, part 2, 1983, p. 128.

94 Throughout the years his name was spelt both 'Gouyn' and 'Gwyn', and it might be worthwhile to bear this in mind when searching for him in English archives.

95 *Transactions of the English Porcelain Circle*, No. 2, 1929, p. 24, and Valpy, Nancy, 'Extracts from the Daily Advertiser and Additional Manuscripts, Department of Manuscripts, British Museum', *Trans. E.C.C.*, Vol. 14, part 1, 1990, p. 109.

96 Caen, Archives Départementales du Calvados, Série E, sous-série 68F16. Photocopies were kindly provided by the curator, Mr. Louis Le Roc'h Morgère.

Paris jeweller Jacques Dubusc); and from the second wife: Jean Louis, '*ancien marchand*' (died in Paris, on 15 August 1766), Louis, also jeweller in Paris (died 22 June 1783), Charles (our London jeweller), and Marguerite Thérèse (who married the Dieppe trader Louis Legrand). Charles Gouyn was actually in the French capital at the time of the death of his brother Jean Louis. The seals were affixed to the property of the deceased the same day.[97] When his brother's inventory was drawn up, Charles was noted as ordinarily residing '*à Londres, rue Bennet, paroisse St. Jacques*'.[98] From the family documents in Caen, it would appear that Charles Gouyn's usual London solicitor was one Josué Ogier.[99]

In the much quoted '*Case of the Undertaker of the Chelsea Manufacture of Porcelain Ware*'[100], dated after 1752 from internal evidence, Nicholas Sprimont (then running the factory, and to whom this appeal is attributed) said he had been tempted to make experiments 'from a casual acquaintance with a chymist (sic) who had some knowledge in this way'. There is no mention of Charles Gouyn at all, but it is hardly surprising that Sprimont should have ignored the role of his former partner or even employer, if their separation had not been amicable, and if Gouyn was by then supplying a competing retail outlet, the shop of Mr. Stables in St. James's Street.[101] The question remains as to the exact relationship between Gouyn and Sprimont, who actually enrolled the chemist, and when the first trials were made.

The factory was producing commercial wares by early 1745, judging from the emphatic notice which appeared in the *Daily Advertiser* dated 5 March 1745 (new style).[102] Its singular reputation had already spread abroad by 24 July 1745, when it was mentioned in the Vincennes factory privilege as '...a new establishment which has just been formed in England, of a porcelain manufactory which seems finer than that of Saxony, by the nature of its composition...'.[103] The point I would like to make is that the Vincennes undertaking itself did not operate commercially before 1746, and yet we know experiments had begun there by 1740.[104] Similarly, Cicaire Cirou who had set up at Chantilly in 1730, was probably not producing saleable wares much before 1735, when he obtained his letters patent.[105] Would it be too far-fetched to suggest that Sprimont and Gouyn had likewise started experimenting several years before the beginning of regular production in 1745? There is no known record of Gouyn's name in connection with any Chelsea property, but Elisabeth Adams has shown that Sprimont was paying insurance there by September 1744.[106] However, either of them might conceivably have conducted the early trials at some other London location, in the company of the mysterious chemist – tentatively identified in the past as Thomas Briand by several scholars, while more recently Elisabeth Adams suggested the name of Anthony Supply.[107]

The Leading Workers at Chelsea

According to Brolliet, it was Gouyn himself, who started the factory, and his paste was prepared by a German called d'Ostermann, himself previously attached as 'chemist and artist' to Dr. Ward, the famous quack (1685-1761). The latter's chief claim to fame are his miracle antimony 'pill and drop' which made him rich, and his life–size statue by Agostino Carlini, sold in 1991 by the Royal Society of Arts to the Victoria and Albert Museum.[108] The Dictionary of National Biography mentions that 'he made attempts to manufacture porcelain', but the source of this information has not yet been discovered.[109] In

97 A.N., Y 13668. '...*Charles Gouyn, négociant demeurant à Londres, étant de présent à Paris, logé chez le Sieur Delacorbière négociant rue St. Honoré vis à vis la rue de l'Arbre Sec, héritier pour un sixième de son frère...*' Jean Nicolas de la Corbière was married to one of Gouyn's nieces, and was '*marchand orfèvre*'.

98 A.N., M.C., VII, 367. Jean Louis Gouyn lived in Paris, but owned the two Dieppe shops, later sold for 12,000 *livres* (according to one legal document in Caen).

99 In one document, Gouyn's executors were named as Jean Jacques Le Jeune and David Georges Jacmar, both '*négociants à Londres*'.

100 British Museum, Lansdowne MSS. n°. 829, folio 21.

101 See the advertisement mentioned earlier, at note 92.

102 Valpy, Nancy, 'Extracts from the Daily Advertiser, 1745-1756', *Trans. E.C.C.*, Vol. 11, part 3, 1983, p. 196.

103 Repeatedly quoted since Marryat in 1868. Although Chelsea was not actually named, it seems that no other English factory could have been referred to.

104 See Préaud, Tamara, and Albis, Antoine d', *La Porcelaine de Vincennes*, Paris, 1991, pp. 14-25.

105 Le Duc, Geneviève, 'The Porcelain of Chantilly: the collections of the duke and duchess of Bourbon-Condé and the inventory of the factory in the middle of the 18th century', *The International Ceramics Fair and Seminar, Catalogue*, 1993, p. 8.

106 'The Sites of the Chelsea Porcelain Factory', *Ceramics*, I, 1985, pp. 55-62.

107 See her book, *Chelsea Porcelain*, London, 1987, pp. 13-14.

108 Trusted, Marjorie, ''A Man of Talent': Agostino Carlini (c. 1718-1790)', Part I, *The Burlington Magazine*, Vol. CXXXV, no. 1077, December 1992, pp. 776-784.

109 Stephen, Sir Leslie, and Lee, Sir Sidney, *Dictionary of National Biography*, Oxford, 1917, Vol. XX, p. 784.

1749, Dr. Ward took out a patent for preparing sulphuric acid, which he then manufactured. He was also noted for his great benevolence. D'Ostermann, if he really was the chemist originally hired by Gouyn or Sprimont, remains a mystery, as no trace of him has been found anywhere in England, and Brolliet gave no indication as to how long he may have stayed at Chelsea. It is however not impossible that 'd'Ostermann' was a distortion of the name Clostermann. A chemist, named Jean Baptiste Clostermann, born in 1705, joined the Vincennes factory in March 1753. His entry in the staff register reads: 'As he is a foreigner, he speaks very badly the French language. Before entering the factory he worked in Paris for various chemists'.[110] In 1767, he asked the French authorities to intervene in a legal battle he was having in Brussels, concerning his father's inheritance.[111] He died at Sèvres two years later. I have not been able to ascertain whether the two men were the same person, or even at all related.[112]

Several other skilled men working at Chelsea were named by Jacques Louis Brolliet, in his conversations with Jean Hellot, early in 1759. Next to Nicholas Sprimont himself (called 'Sprémont', and described as the 'undertaker' of the factory), Brolliet cited a turner, the Frenchman Martin, who had left Chelsea by then. Hellot wrote about him to the director of the Sèvres factory,[113] saying he could produce 1,000 to 1,100 cups in one day, and that Brolliet might be able to lure him away. Moreover it was specified that he worked '*sur le tour à guillocher*' (the rose engine). No early porcelain has been published as having been worked with such a machine, but John Mallet advised me, in written communication, that there were a few Chelsea plates (circa 1757-58) which he believed to have been executed by this method.[114] This Martin is probably the one mentioned in the anti-Brolliet memoir of 1772 discussed earlier.[115] By the time Brolliet left England, Martin was no longer at Chelsea, but worked at Lambeth, probably for the delftware manufacturer William Jackson, who ran the pottery at Norfolk House from 1747 until 1762.[116] Martin's presence at either factory is otherwise unrecorded.

Just as puzzling as 'd'Ostermann' is the alleged name of the Chelsea head modeller, 'Flanchet', a pupil of the famous Duplessis. Born in Turin, Jean Claude Ciamberlano or Chambellan, called Duplessis *père*, was a goldsmith and gilt-bronze founder, who became the leading designer of vases and wares for the Vincennes-Sèvres factory, from 1748 until his death in 1768. No pupil of his, with a name even faintly resembling 'Flanchet', has been traced. However, it then occurred to me that by changing only the first letter of that name, one obtained 'Blanchet', and also (phonetically) 'Planché'. In view of the number of minor errors in the spelling of both place and persons' names in the Hellot document, it is not impossible that when saying 'Flanchet', Brolliet was in fact talking of Planché, the well-known early Derby 'china-maker'. Incidentally, 'Blanchet', a common French surname, may have been Andrew Planché's original family name, since his baptism in London was recorded as that of 'Endré Blanchet', born on 14 March 1728 (new style), the son of Paul Blanchet, a coffee merchant.[117] Can we seriously consider the proposition that Planché actually worked for Sprimont after he left Derby? An additional problem is that we already have a head modeller at Chelsea in the person of Joseph Willems (active circa 1749-1766), who certainly is no myth! Why is he not mentioned by Brolliet? I can offer no answer to these questions, and await with interest the opinions of English scholars. As a kind of compromise, one might hazard that 'Flanchet' only modelled wares and vases (like Duplessis at Vincennes and Sèvres), while Willems was responsible for figures.[118]

It is known for a fact that Andrew Planché was apprenticed to the London jeweller Edward Mountenay from 1740 until 1747,[119] and several authors have suggested that he subsequently travelled to the Continent. If he was 'Flanchet', this is when he could have worked under Duplessis in Paris. Pushing

110 M.N.S., Y8, folio 22. Clostermann specialised in the preparation of enamel colours.
111 M.N.S., D1, liasse 2, dossier Clostermann.
112 One Pierre Cloostermans, perhaps another relation, was chemist at Limoges from 1784 to 1787, and thereafter headed the Spanish Alcora factory where he died in 1797 (Albis, Jean d', and Romanet, Céleste, *La Porcelaine de Limoges*, Paris, 1980, pp. 39, 48 and 51). Porcelain, but also pottery in the English style, were manufactured at Alcora.
113 Appendix II. The letter is also translated in full earlier in this article.
114 In his later years, Josiah Wedgwood claimed to have been the first potter to use engine-turning (Mallet, John, 'Wedgwood's Early Vases, the collection at Saltram House', *Country Life*, June 9, 1966).
115 See text of the article at note 62, and the note itself. The memoir also alleges that Brolliet learnt most of his technical knowledge from that Martin.
116 Britton, Frank, *London Delftware*, 1987, pp. 52-53.
117 Bradley, Gilbert, *Derby Porcelain, 1750-1798*, London, 1990, p. 27.
118 Suggested by John Mallet in written communication.
119 Tapp, William H., 'The Earliest Days of the Derby China Factory', *Apollo*, Vol. XVIII, n° 104, August 1933, p.96. The jeweller's name is spelt 'Mounteney' in Bradley, Gilbert, op. cit., p. 27.

Figure 3 The famous 'Girl-in-a-Swing' figure, here attributed to the St. James's factory of Charles Gouyn, active circa 1749-1759. Height 6 ¼ in. (15.9 cm.) *Victoria and Albert Museum, London.*

the theory further, there is one person who might have introduced Planché to the famous designer: Louis Antoine Fournier, who worked as a sculptor for the Vincennes factory in the years 1746-1749,[120] and may have been related to Planché's mother, born Marianne or Marie Anne Fournier. Nevertheless, this may all be pure romance, because, judging from the Paris telephone directory, 'Fournier' is even more common a surname than 'Blanchet'! In any event, it is definitely the Vincennes modeller who was later also recorded at Chantilly (circa 1752-1759).[121] If Planché visited, or better still, stayed at the Chantilly factory, that might possibly explain the astonishing observation I made on touring the Victoria and Albert Museum's English porcelain galleries with John Mallet, in 1991. A pair of figures, the 'absinthe seller', and the 'vegetable seller', both labelled 'Derby Dry-Edge, circa 1750-1754'[122] appeared to me to have a tin glaze, one particular vivid green colour and some firing flaws, all similar to those I am familiar with on Chantilly porcelain datable to the 1745-1750 period.

The last man mentioned by Brolliet in connection with the Chelsea factory presents us with quite a different identification problem, principally based on dates. The Flemish 'draughtsman' named as 'Du Vivier' would naturally have been William Duvivier, had he not died too early, in March 1755. By '*dessinateur*', Brolliet and Hellot probably meant 'head

120 Préaud, Tamara, and Albis, Antoine d', *La Porcelaine de Vincennes*, Paris, 1991, pp. 82 and 206.
121 He was then in Copenhagen from 1759 until 1766, before finally returning to France. The Mennecy workmen named Fournier were certainly no relations, being from a local family of vine-growers (Duchon, Nicole, *La Manufacture de Porcelaine de Mennecy-Villeroy*, Le Mée-sur-Seine, 1988, p. 107).
122 Inventory no. C.408-1928 and C.409-1928.

of the decorating studio'. Another candidate might have been the famous decorator Fidelle (or Fidel) Duvivier, but he is thought not to have arrived in England from Tournai before the early 1760s. Mireille Jottrand, Chef de Section at the Musée Royal de Mariemont, and specialist of Tournai porcelain, believes the Duvivier family to have been quite large. At this stage, the most likely candidate is '*Duvivier l'anglois*', who is mentioned in a Tournai invoice of 26 September 1764,[123] and whose Christian name may have been Joseph.

The 'Girl-in-a-Swing' Factory

I have not yet touched upon the most controversial sentence in that vital paragraph, so full of fascinating information, but like the rest, it is both concise and factual: 'Mr. Gouyn left, with the loss of part of his funds, and makes at his house, in St. James's Street, very beautiful small porcelain figures'.[124] Anyone familiar with the early history of English porcelain will, I hope, be as excited as I was when I first read those words, several years ago. They give us, as I shall try to demonstrate, both the name of the owner and the precise location of the famous and hitherto mysterious 'Girl-in-a-Swing' factory, named many years ago after the white figure presented in 1922 by Lt. Col. Kenneth Dingwall to the Victoria and Albert Museum (Fig. 3).[125]

As early as 18 April 1746, Chelsea porcelain had been advertised as retailing in St. James's, at the shop of Mr. Stables, on the corner of Crown-and-Sceptre Court.[126] This was almost directly opposite Bennet Street, where Charles Gouyn had been established since December 1735. If Brolliet was right in saying that Gouyn had started the Chelsea factory, it seems natural that the jeweller should have looked for a retail outlet as close as possible to his own business. However, on 24 February 1749, an advertisement from the 'Undertaker of the Manufactory of China Ware' stated for the first time that 'Chelsea China' was not sold 'anywhere else than at the Manufactory at Chelsea', and it was signed 'N. Sprimont'.[127] From 9 April the following year, obviously very irritated by the competition, Sprimont regularly issued a much clearer notice, stressing he was not connected with the goods on sale at the 'Chelsea China Warehouse' in St. James's Street, which no longer belonged to him.[128] The reply from the other side came only in January 1751, inserted in a different newspaper.[129] In it, 'S. Stables' declared quite as clearly that he was supplied by none other that Mr. Charles Gouyn. Brolliet's statement, as relayed by Hellot for our benefit, fits in neatly with these several advertisements, and one can only admire Arthur Lane and Robert Charleston for their brilliant theory published in 1962. When in February 1749 Sprimont first announced that his porcelain was selling only at the factory, in all likelihood he had already given up his share in Mr. Stables's shop. Consequently, the quarrel between Gouyn and him had occurred probably before then, perhaps in 1748. So Gouyn withdrew from the Chelsea undertaking, losing part of the funds he had put into the venture. The dispute must have been very serious, because it was apparently still talked about when Brolliet was in London, exactly 10 years later. Sprimont does not seem to have suffered from the split: he already had another rich financial backer, Sir Everard Fawkener,[130] and soon embarked on transferring the main part of the factory to new buildings on the Lawrence Street site.

In late 1758 and early 1759, according to Brolliet, Charles Gouyn was still making beautiful small figures at his St. James's premises. We do not know exactly when he started there, and with whose help. Indeed, it is not impossible that, for a time, he used another location. There is at present no way of knowing if his workmen included the Staffordshire men who were quoted, by Simeon Shaw, as having left the Chelsea factory to start on their own, also in Chelsea.[131] As proposed by John Mallet, Gouyn was probably producing 'Girl-in-a-Swing' pieces by 1749[132] (either at some unknown location or already in St. James's),

123 Jottrand, Mireille, 'Tournai Porcelain and English Ceramics', *Trans. E.C.C.*, Vol. 10, part 2, 1977, pp. 130-135.
124 See the text of the article, between notes 89 and 90.
125 Inventory no. C.587-1922.
126 Valpy, Nancy, 'Extracts from the Daily Advertiser, 1745-1756', *Trans. E.C.C.*, Vol. 11, part 3, 1983, p. 196. According to the rate books, a Richard Stables was at that address from June 1737 until June 1755 (Adams, Elizabeth, *Chelsea porcelain*, London, 1987, p. 60). It must however be pointed out that the advertisement of 1751, mentioned in the text of this article at note 129, is signed 'S. Stables'.
127 Ibid., pp. 196-197.
128 Ibid, p. 198.
129 Already mentioned in this article at notes 92 and 101. See Lane, Arthur, and Charleston, R.J., 'Girl in a Swing Porcelain and Chelsea', *Trans. E.C.C.*, Vol. 5, part 3, 1962, pp. 134-135.
130 Benton, Eric, 'Payments by Sir Everard Fawkener to Nicholas Sprimont', *Trans. E.C.C.*, Vol. 10, Part 1, 1976, pp. 54-58, pl. 15.
131 Shaw, Simeon, *History of the Staffordshire Potteries*, Hanley, 1829, p. 167.
132 Mallet, J.V.G., in Charleston, R.J. (ed.), *English Porcelain 1745-1830*, London, 1965, pp. 32-33.

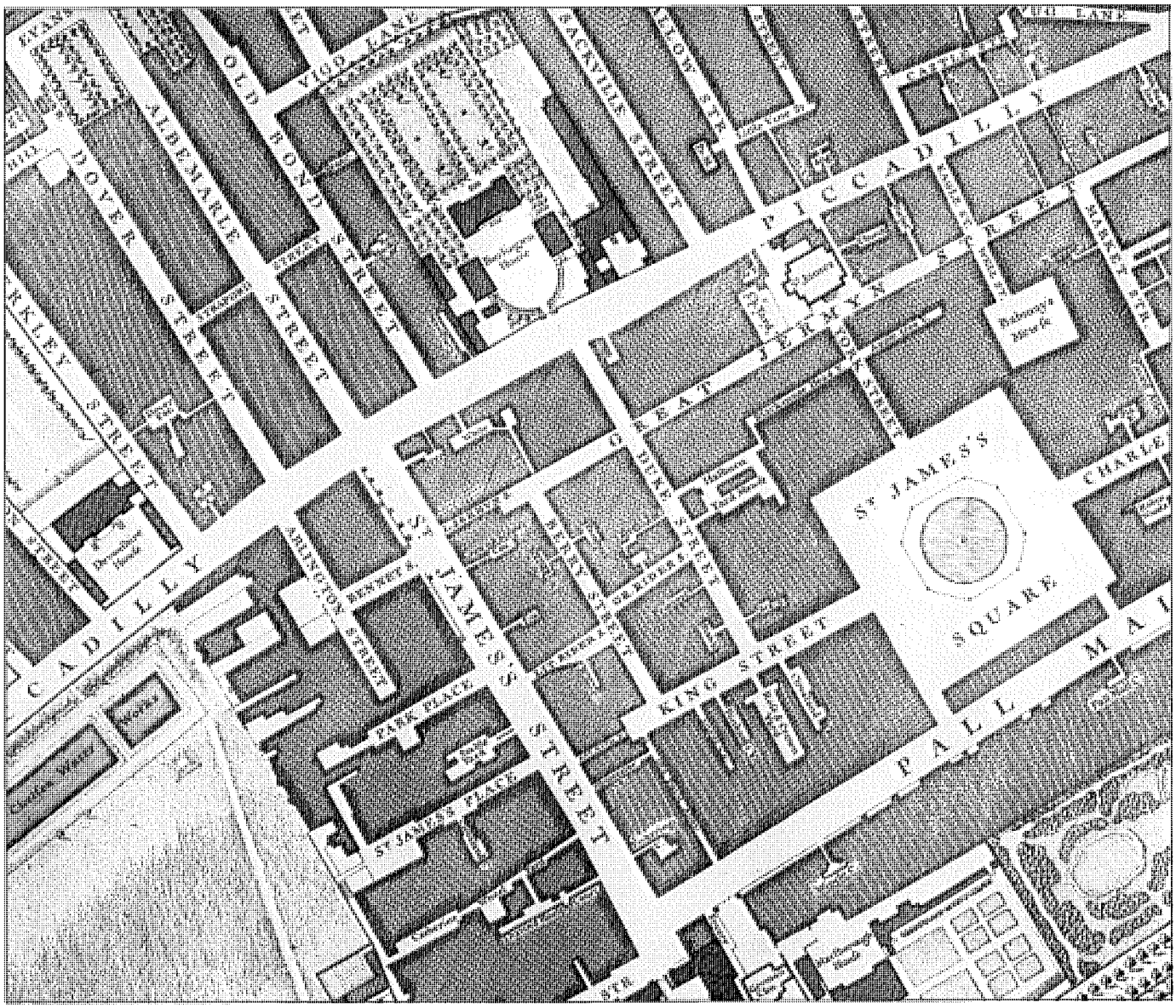


Figure 4 The St. James's area, from John Roque's map of 1746, showing Bennet Street where the 'Girl-in-a-Swing' factory was located. *Guildhall Library, City of London.*

and retailing them across the street through the Stables shop, in which he may have had some financial interest as well (see Fig. 4: the St. James's area, from John Roque's map of 1746). Gouyn did not mark his porcelain, and Mr. Stables's shop retained the name 'Chelsea China Warehouse', suggesting they were trying to capitalise on the reputation of the original Chelsea porcelain, and were selling their 'Girl-in-a-Swing' production as Chelsea.

'Very beautiful small figures' is quite a good description of the so-called 'Girl-in-a-Swing' toys (Scent-bottles, seals and the like) manufactured by Gouyn. We have no particular reason not to believe Brolliet when, in 1759, he used the present tense concerning that production. After being fairly unsuccessful at producing larger figures and groups, and some wares, Gouyn could have concentrated on the toys. His factory, with its central location, must have been quite small, and the output fairly restricted. Lane and Charleston had assumed that the auction sale of porcelain toys, announced by Nicholas Sprimont, and to be held at Mr. Ford's in December 1754, concerned 'Girl-in-a-Swing' stock acquired after the demise of that factory.[133] However, Mrs. Valpy found that another form of the advertisement spoke clearly of 'Chelsea Porcelain Toys', and it was very unlikely Sprimont would have promoted someone else's production.[134] On the contrary, having noticed the popularity of Gouyn's toys, Sprimont probably hastened to manufacture a quantity to be auctioned in

133 Lane, Arthur and Charleston, R.J., 'Girl in a Swing Porcelain and Chelsea', *Trans. E.C.C.*, Vol. 5, part 3, 1962, pp. 127-128.
134 Valpy, Nancy, 'Extracts from Eighteenth Century London Newspapers', *Trans. E.C.C.*, Vol. 11, part 2, 1983, p. 126.

time for Christmas. In this context, it is difficult to understand why Stables, at exactly the same time, decided to stop selling 'Chelsea' Porcelain (in fact Gouyn's production).[135] Perhaps the jeweller fell out with him, as he had with Sprimont some years earlier. One might even imagine Gouyn as the mysterious person with 'several years practice', and having 'a kiln and furnaces', who, in January 1755, advertised for a partner.[136] Could he have been trying to replace the failing Stables? Finally, Mrs. Valpy may well be right in wondering if Gouyn was involved in the 'Old Chelsea China Warehouse' opened in June 1760 (in the actual Piccadilly property given up by Sprimont in 1758).[137] There, Gouyn could have retailed his own toys concurrently with real Chelsea porcelain, probably purchased (directly or indirectly) at Sprimont's auction sales.[138]

The complete 'Girl-in-a-Swing' group of pieces will have to be re-assessed in the light of the much longer period of activity of the factory, lasting possibly over ten years, double what was previously thought. Such a study is outside the scope of the present article, and in any case, not of my competence. Suffice it to say that several scholars have already classified the 'Girl-in-a-Swing' production into separate groups (in view of differences both in the paste and the decoration),[139] and also have noted puzzling similarities in the decoration on 'Girl-in-a-Swing', some early Derby, and other pieces from a possibly independent workshop.[140] It does seem tenable that Gouyn did not have his own decorating studio, and had to farm out this side of production.

Following the discovery of Jacques Louis Brolliet's account (discussed above) of Gouyn's activities, and the way it complements earlier and contemporary newspapers advertisements, I would like to suggest here that the previously unidentified 'Girl-in-a-Swing' porcelain undertaking should be renamed 'the St. James's factory of Charles Gouyn, active circa 1749-1759'.

Other Brolliet Recipes

In Jean Hellot's document at Caen, the all-important paragraph on the Chelsea factory and Gouyn's own production is followed by further technical processes, and these are attributed to Brolliet himself, although they may really have originated elsewhere.[141] The first one describes the '*couverte de Broillet*', which is a lead-based glaze, presumably to be used on the '*porcelaine de Broillet*' given earlier in the same document.[142] The next recipe is for the '*dorure de Broillet*', and is basically the same as that used for gilding the edge of drinking glasses.[143] Indeed, that earlier recipe refers the reader to this one for the mordant, which is common to both. Interestingly, Brolliet used four layers of golf leaf, applied two by two. Once fired, this gilding did not need burnishing, but was easily polished to good effect. The same technique could be used to obtain a gold ground.[144] Gilding was obviously no great secret for Brolliet, who also gave Hellot two different recipes for powdered gold.

A surprising method of supporting pieces in the kiln is then described, and basically consists in putting the figure in the saggar on a bed of sand, and then filling the saggar entirely with calcined sand, making quite sure all the voids are filled. Brolliet said the same could be done for six or seven plates or dishes, provided they were well separated by sand. Although apparently simple, this technique does not seem to have been used in production anywhere. Naturally, it could only work for the biscuit firing, and it may also have had its own problems, not least the sheer weight of the filled saggars.

Transfer-Printing and Slip-Casting

Two additional decorating and manufacturing techniques, which were widely used in England, had been observed and probably practised by Brolliet.

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135 Valpy, Nancy, 'Extracts from the Daily Advertiser, 1745-1756', *Trans. E.C.C.*, Vol. 11, part 3, 1983, p. 200.
136 Ibid.
137 Valpy, Nancy, 'Extracts from 18th Century London Newspapers', *Trans. E.C.C.*, Vol. 12, part 1, 1984, pp. 62 and 65-66.
138 I find Sprimont's way of disposing of stock, at the same time as quickly raising a certain amount of capital, quite fascinating, because no 18th century French porcelain undertaking ever dared do so. In fact only Sèvres did, but in desperation and with the help of the dealer Daguerre, first in London in 1788 and 1790, and then in Paris in 1793. Unfortunately, each time the factory lost a great deal, so low were the prices obtained in comparison with their own manufacturing costs.
139 Foster, Kate, 'Chelsea Scent Bottles — 'Girl in a Swing' and another Group', *Trans. E.C.C.*, Vol. 6, Part 3, 1967, pp. 284-291, pl. 208-214.
140 Watney, Bernard, 'The King, the Nun, and Other Figures', *Trans. E.C.C.*, Vol. 7, Part 1, 1968, pp. 48-58, pl. 51-71.
141 Folio 129-129vo.
142 Folio 128. Discussed in this article at notes 85-86.
143 Folio 119vo. Given in Appendix III.
144 Gold ground was frequently applied at Meissen, but was never successfully done at Sèvres before the introduction of hard-paste in 1769-1770.

They contributed greatly to the success of English porcelain making, and appear to have been unknown on the Continent. Brolliet carefully explained them to Hellot in the greatest detail, and no aspect of each manipulation was omitted from the description.[145] First came transfer-printing, which must have been very tricky to execute, even if the basic principles were fairly straightforward, and one marvels at the men who took this invention to industrial proportions. There can be little doubt that Brolliet learnt all he knew on the subject from, or through, the distinguished engraver Simon François Ravenet,[146] whom he had befriended on arriving in London, according to the anti-Brolliet memoir of 1772. The Sèvres factory acknowledged the importance of the 'secret of printing', yet used it for giving outlines to painters only on some occasions, and apparently never for actual decoration.[147] The real reason was that they were not interested in cheap mass production, just like Sprimont at Chelsea.

The last manufacturing secret Brolliet committed to Hellot is slip-casting, and once again, the instructions were clear and precise. It was stated to be workable both for porcelain and pottery, which we know to be true. Three factories used that technique for figures from the earliest times: Chelsea, St. James's ('Girl-in-a-Swing') and Derby, and indeed, they may have had more in common than slip-casting and a Huguenot connection. In their 1962 article, Lane and Charleston had studied the history of this method of thinly moulding figures and wares by pouring liquid porcelain paste into a two piece plaster mould.[148] Gordon Elliot later showed it had been used in Staffordshire by the Elers brothers in about 1700,[149] and it is interesting to remember that Alexandre Brongniart, in his major treatise, had mistakenly dated its first appearance to circa 1784, at Tournai. Also fascinating is Simeon Shaw's statement in 1829 that plaster moulds (indispensable for slip-casting) had been introduced to Staffordshire by Ralph Daniel, who had learnt of them during a visit to a French porcelain factory.[150] Hitherto, slip-casting was not thought to have been used at any French factory before the end of the 18th century, but in discussion, John Mallet suggested that some early Chantilly porcelain, broadly dating from circa 1735 to 1750, could have been moulded in this way. Some delicately ribbed wares do have very thin walls, and the recent examination of a pair of tall white figures with baskets on their back, usually called '*hotteux*' or '*hottiers*', indicated that they had not been made by the usual method of pressing the raw paste by hand into the moulds.[151] Despite their size (27.5 and 28 cm.), they were light in weight, very smooth inside, and the average thickness of the walls appeared to be only about 3 mm. This is certainly not enough evidence to assume slip-casting was invented at Chantilly, but the question deserves much further investigation. Later pieces do not display any of the tell-tale signs of slip-casting, and it is therefore likely that the technique was discontinued around 1750-1760, for some unknown reason.[152] The true origins of slip-casting, and the way it spread from Staffordshire to the rest of England in the 1740s, will probably remain mysterious for some time to come, as will the role, if any, played by a man like Andrew Planché, who was tentatively mentioned earlier in this article, already in connection with the Chantilly factory.

Jean Hellot, a learned and respected French academic, and Jacques Louis Brolliet, an adventurous and well-travelled Swiss ceramist, were two very different men, but their encounter early in 1759 produced one of the most fascinating contemporary accounts of porcelain manufacture in England. The wealth of information first published here, while answering a few old questions, has also opened up many new paths which will have to be explored in the future. It must be hoped that this will bring us ever closer to those fascinating men who made the beautiful objects we so much enjoy today.

Any comments or queries will be welcomed by the author:

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145 Folio 129vo-130vo.

146 Mentioned earlier in this article at note 60, and discussed in that note.

147 Idem, at note 52.

148 Lane, Arthur, and Charleston, R.J., 'Girl in a Swing Porcelain and Chelsea', *Trans. E.C.C.*, Vol. 5, part 3, 1962, pp. 121-122.

149 Elliott, Gordon, 'Staffordshire Red and Black Stonewares', *Trans. E.C.C.*, Vol. 10, part 2, 1977, pp.84-94.

150 See note 148.

151 Examined in May 1993, this pair of figures had been auctioned at Sotheby's New York, on 19 October, 1987, lot 152. These models are usually dated circa 1745, but a pair was said to be listed in the 1741 post-mortem inventory of the duc de Bourbon's second wife, princess Caroline de Hesse Rhinfelds (Ballu, Nicole, 'Influence de l'Extrême-Orient sur le Style de Chantilly au XVIIIe Siècle', Cahiers de la Céramique et des Arts du Feu', No. 11, 1958). The only decorated pair recorded is in the Victoria and Albert Museum (inv. no. 392 and 393-1909).

152 Several changes of ownership may have led to the introduction of a cheaper and less workable paste (see Le Duc, Geneviève, 'The Porcelain of Chantilly: the collections of the duke and duchess of Bourbon-Condé and the inventory of the factory in the middle of the 18th century', *The International Ceramics Fair and Seminar, Catalogue*, 1993, p. 15-16 and 18). Cicaire Cirou himself had remained as technical manager, but he died in the Summer of 1755 (A.N., M.C., CII, 383).

APPENDIX I

Chelsea porcelain recipe, from Jean Hellot's first manuscript book.

M.N.S., Y 49, pp. 26-27. (The original spelling and punctuation have been respected).

Le 4 octobre 1751. Mr Woutters, arrivant d'Angleterre, m'a apporté Sur un papier ecrit en Anglois et que j'ai traduit, le sécret de la Porcelaine de Chelsey, établie depuis 2 ou 3 ans aux frais de [blank space]

Il est intitule <u>*Recept for China*</u>

Prenez[1] *10 livres de Flint glass: c'est le Crystal de Roche; mais icy ces deux mots veulent dire le gresil ou Crystal rompu de la Crystallerie de Londres; Pilez le, le broyez et le passez au tamis. Prenez*[2] *aussi 15 livres de chaux (silex calciné)*[3] *en poudre fine. Meslez bien ces deux matieres ensemble. Versez dessus une S. q.*[4] *d'eau pour en faire une pate. Laissez la macérer 3 ou 4 jours ou plus longtemps, ce qui n'est que mieux. les remuant chaque jour pour les incorporer ensemble. Lorsque cette pate a pris une consistence suffisante formez en des vaisseaux soit sur le tour, soit dans des moules. faites les secher tres lentement; car si vous les sechez trop vite ils sont sujets a se refendre et a se dejetter.*[5] *Quand ils sont secs parfaitement trempez les dans la couverte.*

Cette couverte est composée de 2 livres de chaux d'etain le plus fin, d'une livre de sel commun et de 10 onces de salpetre. On mesle bien ces trois matieres ensemble et on les met fritter pendant 30 ou 32 heures dans le four. On broye cette fritte, on la delaye dans de l'eau dont on ne met que la quantité necessaire pour lui donner la consistence du lait. Lorsquon y a trempé la porcelaine on la laisse bien sécher. alors elle è en etat d'etre mise au four, a moins que vous ne vouliez la peindre auparavant.

APPENDIX II

Letter from Jean Hellot to Jacques-René Boileau, director of the Sèvres factory, dated 3 February 1759

M.N.S., H 1, liasse 3. (The original spelling and punctuation have been respected).

Le nommé Broillet, qui m'a servi pendant 2 ans, estoit, Monsieur, un domestique extremement industrieux, quoi que Suisse du Canton de fribourg; il me quitta, pour entrer chez m^r^ de Montcalm qui la emmené avec lui au Canada, où il le servoit comme chimiste; car m^r^ de montcalm s'amuse à chercher des remedes. beaucoup d officiers ayant esté tués, vous scavés qu'on envoya du secours a Louisbourg, et broillet commandant un piquet de 50 hommes fut du detachement qui entra dans la ville, et y recut un coup de feu dans le col. la garnison ayant este prisonniere de guerre, il fut transporté en angleterre et réparti dans le canton de Cantorberi. Comme il avoit deja fait un voyage dans le païs et quil parle tres bien Anglois, allemand, holandois et italien, Il lui a ete facile de se déguiser et de s'introduire comme allemand, dans quelques fabriques, entrautres dans la fabrique de la poterie blanche que nous ne scaurions imiter, et qu'il avoit deja vüe dans un precedent voyage. Il a vu travailler aussi la porcelaine de Chelsea et peut en débaucher un nomme Martin, ouvrier habile, qui travaille sur la rouë et sur le tour à guillocher, où il fait par jour 1000 a 1100 tasses quil finit ensuite. Cet ouvrier y gagne une guinée par semaine. Quant à <u>*broillet*</u>*, il dore tres bien et fort vite la porcelaine avec feuilles d'or et avec Or en poudre. Son mordant n'est point connu a sevres, est différent de ceux qu'on y employe, et il la fait chez moi. Il peut peindre en camayeu, une vingtaine de cartouches dans un jour, ou toujours les memes, ou différens, quoi quil ne scache ni peindre ni dessiner. il ne lui faut que des planches de cuivre gravées. ce quil m'a proposé pour soutenir les pieces de pate, à parties saillantes, sans se servir de supports, me parroit vrai et doit les empecher de fléchir. Il peut, par le meme moyen, Cuire 7 a 8 assiettes ou plats dans un meme étui, sans quils puissent se voiler. il ma fait voir de petits essais de porcelaine, et de biscuit, ausquels a la verité il manque un peu de blanc, mais ils ont resisté sans se fondre ni meme flechir au plus grand feu de forge. Sa pate ne passeroit pas 4^S^. 6d. la livre, j'en ai ecrit la composition. Mais je doute quon put la cuire dans les fours de Sevres. Il faut celui de Meissen, qui est le meme que*

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1 *Abbreviated in the original as a symbol resembling* Rx.
2 Idem.
3 Written in above *chaux.*
4 Abbreviation for *quantité suffisante.*
5 *Se déjeter* means 'to warp'.

celui de chelsea. Il men a fait en 2 heures, un petit modele en Carton pour me le bien faire comprendre, et il ne lui faut que 3 a 400 briques et du Tuilleau pour en faire un petit de 3 pieds de haut qui serviroit a cuire les essais de sa pate. il pretend que les fours quarrés cuisent inegalement, le sien est rond, ou en tour voutée, environné de plusieurs foyers pour chauffer de tous cotés. comme je pense quil pourra estre tres utile a la manufacture, je le fais travailler chès moi et lui donne 30 sols par jour pour bien scavoir ses procedés; on me les rendra si on le juge a propos. Je ne crois pas qu'on puisse le fixer a Sevres a moins de 100 livres par mois. Il est allé le long de la Seine chercher l'espece de cailloux ronds qu'il lui faut pour sa pate, car je veux quil en fasse 2 livres devant moi. Je lui fournirai la terre a pipe qu'il employe. il frite son caillou et broye sa fritte a l ordinaire, mais non pas avec la terre comme Gravant. puis il les mesle dans une Cuve avec un arbre Vertical a ailerons comme en saxe. vous voila instruit Monsieur de ce que mon broillet scait faire.

Je profite de l'occasion pour vous assurer qu'on ne peut estre avec plus d'estime et d'attachement, Monsieur, votre tres humble et tres obeissant serviteur

Hellot
A paris ce 3. fevrier 1759.

APPENDIX III

Information on red glass, and gilding on glass, given to Jean Hellot by Jacques-Louis Brolliet, in January and February 1759

B.C.V. Caen, Manuscrit in-quarto, 171, Volume I, folios 119-120. The folio numbering has been done in pencil by a later hand. The original spelling and punctuation have been respected. However Hellot used a number of chemical symbols and abbreviations, which have been transcribed here, using a later anonymous table of them, found attached to one of his manuscript books at Sèvres (M.N.S., Y 51 bis).

Folio 119

Verre rouge par le cuivre:

de Broillet. faites calciner du cuivre rouge et en ramassez les ecailles; lavés les et les faites sécher, puis les [réduisez][6] en poudre fine. faites fondre du Plomb dans un creuset jettés dessus du Nitre bien sec; il y fulminera: quand il aura cessé de fuser, laisses le figer. retirés ce nitre fixé encore chaud, mettés le dans un autre creuset avec 13 grains des ecailles de cuivre calciné pour chaque once de nitre fixé, le tout précédemment meslé en pulverisant. faites fondre. Versés ce sel sur une assiette de terre. Piles ce sel encore blanc. mettes le dans un matras[7] et Versés dessus de l Esprit de soufre, digerés en remuant souvent; l Esprit de soufre prend dessus une belle couleur Cramoisie: decantés, remettés en d'autre jusqu'à ce qu'il ne se teigne plus: rassemblés dans un grand vaisseau de verre toutes ces extractions cramoisies, et y ajoutés beaucoup d'eau, la couleur Cramoisie disparoitra et il se precipitera une poudre blanche: continués d'ajouter de l'eau jusqu a ce quil ne se précipite[8] plus rien. N^ota^. quil se fait dans le commencement du melange de l'acide du soufre avec le nitre fixé, une grande fermentation: que quand elle finie, il se précipite au fond un sel moyen, de dessus lequel il faut décanter la liqueur teinte avant que de la noyer d'eau. cette eau ayant fait précipiter la poudre blanche de l extraction on la decante et l'on fait secher la poudre. On fait une fritte de 8 onces de minium 8 onces de sable et de ½ once ou 1 once de sel commun. ou dans l arche d'un four de verrerie pendant 24 heures, ou dans un creuset devant le souflet pendant ½ heure. On y ajoute avant que de fritter 13 grains de la poudre blanche pour la livre de frite. On repile cette frite pesant environ une livre et on la mesle avec 4 onces de nitre, 2 onces de sel de soude et au plus demie once de sel commun: puis l'on fond le tout devant le souflet. Vous aures premièrement un verre Vert dont on forme un vase à la canne. on le presente à la bouche de l'ouvreau pour le chauffer suffisament. on le retire, et en refroidissant il prend une Couleur rouge fort belle qu'il conserve toujours.

Nitre fixé par le plomb.

Tout autre nitre fixé est presque aussi bon.

Fritte.

Composition du verre

Autre verre rouge avec le cuivre.

Meslés 13 grains de la poudre d'écailles de cuivre calciné, sans y passer l'esprit de soufre, avec la matière de la fritte précédente. broyés cette fritte en la meslant avec les sels de nitre et de soude. puis fondés. vous aurés un verre Verd, qui montré au feu prend une couleur rouge: remontré au feu redevient verd, et cela

6 Added in by the transcriber.
7 A long-necked vase.
8 Barely legible abbreviation.

alternativement jusqu'a 3 fois, et enfin reste verd à demeure. Broillet.

Pour peindre a l huile avec le bleu d'azur il faut passer a l'...[9]

Verre pourpre par l'or et le plomb. broillet:

Prenez minium et sable pur aa lb;[10] *ajoutés y 24 grains d'or précipité par l'Etain. frittés a larche du four de Verrerie, ou pour aller plus vite devant le souflet. Pilés la fritte et y ajoutez 12 grains d'or fulminant sans etain, quantité suffisante de nitre et de sel alcali fixe sodœ.*[11] *fondés en creuset à bon feu.*

Folio 119vo

Mettre une bordure d'orée aux verres a boire.

Broillet nettoye bien les bords des verres de cristal avec de l'esprit de vin[12]*, puis il les essuye avec un linge net. il a une planche couverte d'une peau, qu'il a frottée légérement avec du Gyps calciné en poudre fine pour empecher les feuilles dor de s'y attacher: pour couper les feuilles d'or, il les enleve du Livret avec de longues pinces faites de lames minces de bois d'inde, ou d'ebeine, bien unies, clouées et rivées à leur extremite sur un morceau du meme bois épais de 2 a 3 lignes, il se sert d'une lame de nos roseaux ordinaires, longue d'un pied et suffisament ameincie, d'un coté pour estre coupante, sans cependant trencher le cuir de la planche; il appuie ce roseau trenchant sur la feuille, qu'il a estenduë sur le cuir avec la pince de bois cy dessus, et la divise en petites languettes de 3 à 4 lignes de large. avec la même pince, il porte ces languettes, qui sont coupées de 2 feuilles posées l'une sur l'autre, sur les bords du verre qu'il veut dorer, et les arrange le plus uniment qu'il est possible et hâle*[13] *dessus pour y faire adhérer les dites*[14] *languettes: l'exterieur du Verre etant fini, il pose de semblables languettes sur le bord intérieur et hâle de meme: puis il touche les bords de ces languettes dor, avec un pinceau trempé dans son mordant lequel s'insinue sous les feuilles d'or, les parcourre fort vite par dessous, et, en séchant, les cole au verre (Voyés ce mordant décrit cy apres a la page 41.)*[15] *il fait rouler sur la surface de l'ouverture du verre, pour le dedans le petit morceau de bois cy à droite, dont la pointe A trace un trait circulaire pour rendre la petite bordure d'or de hauteur égale en dedans, et ensuite l'autre petit morceau de bois B pour le revers de cette bordure; ce double trait etant tracé, il ote avec une pointe tout l'or qui excède ce double trait, alors la bordure, tant en dedans qu'en dehors, etant d'égale hauteur, et le mordant estant presque sec, il place le verre devant le feu, tant pour le chauffer, que pour achever de sécher le mordant. mais il laisse toujours le verre dans sa meme position, prétendant que s il le tournoit, il casseroit bien plus aisement, se contentant de l'approcher de plus en plus jusqu'a ce quil soit chaud presque à ne pouvoir le toucher. Alors il met de l'Esprit de Vin*[16] *dans une moyenne jatte de porcelaine: il pose dessus un couvercle de fer blanc, à bords rabatus d'un bon poulce, et ayant, dans le milieu, un bout de canon de fer blanc de près d'un poulce de Diamettre d'ou sort un lumignon de fil de coton de pareille grosseur, il verse de l'esprit de vin*[17] *sur ce lumignon pour l'humecter: puis il y met le feu. il ne faut pas que la jatte soit trop près de la cheminée parce qu'elle attire la flamme du lumignon qui doit estre droite, ou perpendiculaire. Ayant des gands à ses mains; d une main il tient la pate du verre et le tourne sur lautre main, qui le suporte par sa tige, sur la flamme de l'esprit de vin, ne cessant de tourner jusqu'a ce que le bord du verre soit rouge. Alors ce verre hape si bien l'or qu'on ne peut plus l'en detacher. il fait refroidir le verre, par dégrés. Etant froid, il polit l'or avec un chamois quil a frotté legerement de pierre pourrie d'angleterre, dont les horlogers se servent pour donner le poli vif aux pièces d'acier de leurs montres. l'or etant poli, il met, sur le premier or, d'autres languettes d'une feuille d'or double. Sa manoeuvre est en tout la meme que pour l'application du premier or. il cuit ce second or en faisant chauffer le verre par degrés, puis le tournant sur la flamme de la lampe a Esprit de Vin, jusqu a ce que les bords du verre parroissent rouges: il le fait refroidir comme Cy dessus, et ensuite il le frotte fortement avec le*

9 The symbol used here is not in the table mentioned in the introduction to this appendix. It consists of a 'V' with an 'S' above, and an 'R' attached to the right, and probably means *esprit de vin rectifié.* The information in this line seems unrelated to the rest of the page, and was possibly not obtained from Brolliet.

10 Clearly written *aa lb;* but incomprehensible to the transcriber. It may perhaps mean *à autant de livres...*

11 Probably for *sodé.*

12 The symbol used here is not in the table mentioned in the introduction to this appendix. However the actual words *Esprit de Vin* are used later in this page, and the actual text confirms the meaning of the symbol (see notes 16 and 17).

13 The meaning of the verb *haler* in the context is unclear. Although usually a nautical term, translating into 'to pull', 'to haul', it probably means here 'to blow'. See in Appendix IV Brolliet's similar process for gilding on porcelain.

14 Abbreviated to *d.*

15 Now numbered folio 129. See Appendix IV.

16 Written in full, not as a symbol.

17 Written as a symbol.

chamois legerement frotté de pièrre pourrie. Cette pièrre pourrie ressemble à l'exterieur a de la cendre ordinaire dont on auroit fait des pelottes, posée sur la langue elle ne happe pas comme fait une terre argilleuse, mais elle a un gout tres salé. on en vend rue de la barillerie a la flotte d'angletère. Broillet achette ses feuilles d'or rue St Denis vis a vis la rue aux ours a l enseigne du marc d'or. le livret de 25 feuilles y coute 40 sols. Cet or est plus beau et réussit mieux que celui de la Veuve bodasse[18] *vendu le meme prix.*

bateur d'or de Broillet

Comme les gobelets n'ont pas de pied par lequel on les puisse tenir sur la flamme de l'esprit de vin, il y supplée par du fil [de][19] *fer brulé dont il lie ensemble trois brins longs avec d'autre fil de fer plus fin. il écarte ces 3 fils de fer puis les recourbe en dedans, les lie ensemble, et ecarte de nouveau ces trois bouts liés pour poser dessus le gobelet renversé. il pose ces fils de fer portans le gobelet devant le feu. Lorsquil est chaud il en fait rougir les bords sur la flamme de l'esprit de vin. l'or quil y a placé s'y attache. il polit cette premiere couche avec le chamois et la pierre pourie et y met une 2e. couche d'or qu'il cuit de meme. 16. fevrier 1759. fait devant moi.*

APPENDIX IV

Information on ceramic manufacture in England, and details of personal techniques and recipes, given to Jean Hellot by Jacques-Louis Brolliet, in January and February 1759

B.C.V. Caen, Manuscrit in-quarto, 171, Volume I, folios 127vo-130vo. The folio numbering has been done in pencil by a later hand. The original spelling and punctuation have been respected. However Hellot used a number of chemical symbols and abbreviations, which have been transcribed here, using a later anonymous table of them, found attached to one of his manuscript books at Sèvres (M.N.S., Y 51 bis).

Folio 127vo

Il y a 6. fabriques de porcelaines en Angleterre scavoir selon Broillet
à Schtaffshire à 160 milles de Londres
à Darbschire à 110 milles
à Ousterschire. 80 milles
a Baw, à 3 milles
a Brumjohn à 120 milles
et a Schelsea, a 2 mille.

(In the document, this list is in the margin on the left of the following paragraph)

Broillet dit fribourg, revenant d'angleterre, où il estoit prisonnier avec le reste de la garnison de Louisbourg s'en est sauvé le 14 janvier 1759. Il a travaillé dans la manufacture de Porcelaine de chelsea et a vu faire la poterie blanche d'angleterre dans un voyage preced^t^.

Poterie blanche dite terre d Angleterre. Vid. p: 44[21]

Pour faire cette poterie, on fouille et tire de la terre à pipes, à un mille d'oxfort. On la lave dissout, précipite, puis on la fait sécher. On la remet en poudre, et on en mesle 4 boisseaux[20] *avec un boisseau de silex noir, dejà calciné et réduit en poudre blanche tres fine. On mesle le tout dans une cuve Cilindrique avec de l'eau. Un arbre vertical, ayant des ailerons, comme un mousson à chocolat, posant par le bas sur une crapaudine de fer, et mû par le haut fixé à une lanterne qu'engraine*[22] *une rouë, à dents, horisontale, donne à ce melange de terre à pipe et de cailloux, un mouvement tres rapide, sans que rien se sépare parce que les ailerons*

Terre à pipe et silex

18 The Widow Bodasse was the regular supplier of gold, in the form of leaves, to the Vincennes-Sèvres porcelain factory. This gold was then prepared by Frère Hippolyte le Faure, mentioned in Appendix IV, at note 46.
19 Added in by the transcriber.
20 A *boisseau* is a pre-revolutionary French measure of capacity, equivalent to about 13 litres.
21 Now numbered folio 130vo.
22 Technical verb now spelt *engrener*, meaning 'to connect', 'to engage' (toothed wheels).

touchent presque les parois de la Cuve. on laisse déposer. On retire le mélange qu'on laisse sécher au degré nécessaire pour en former des vases, plats, assiettes etc. Les pièces etant sèches on les arrange dans [des][23] *étuys qui sont fendus verticalement de distance en distance pour donner passage à la vapeur du sel marin, ainsi qu'il sera dit cy apres.*

Ces etuys sont composes de Gravier et sable de la tamise, bien lavé de sa terre et bourbe, calciné, grossierement pulverisé, et passé au tamis de Crin un peu lâche. on en mesle partie égale avec de la terre a pipe, grossiere-ment lavée. On les fait cuire. Ils servent en cet état; lorsqu'ils se fendent; on les lie avec une ficelle, et ils ne laissent pas que de servir en cet état; leurs fentes accidentelles, servent, comme les fentes faites exprès, à laisser passer la vapeur du sel, qui fait le vernis. Enfin, quand ils ne peuvent plus servir, on les pile, et leur poudre sert de Ciment à la place du gravier. on employe partie égale de ce Ciment et de nouvelle terre à pipe, pour former d'autres étuis. On met sur l'aire, pleine et non percée du fond du four, un pouce et demie à 2 poulces de sable pour mieux asseoir les etuys. on en place d abord deux vuides, et on arrange dessus en forme de colonnes les autres étuis

Etuys anglois

Folio 128

remplis de pieces à Cuire, et l'on chauffe le four par les six ou 8 bouches a feu qui sont exterieures. quand on juge par les montres[24] *que les pièces sont cuites. on anime le feu asses pour que le dedans du four parroisse, blanc; puis on retire tous le bois et les tisons pour empecher que la fumée du bois n'entre dans le four, quand on fait la fumigation du sel. Alors il n'y a plus qu'une braise tres vive. a chaque bouche à feu, on place un ouvrier qui a dans une corbeille environ demi boisseau de sel commun. Tous à la fois le jette sur la braise des 6 ou 8 bouches à feu; ce qui fait un tres grand bruit. la vapeur du sel entre dans le four par les bouches a feu, s'insinue dans les étuis par les fentes qu'on y a faites, et se répandant sur les pieces, facilite leur vitrification tant du dedans que du dehors. Ainsi on ne met point Ces pièces en couverte, comme on fait à paris et à Orleans. le four est aussi vitrifié en dedans.*

In the right-hand margin, next to the above paragraph, Hellot has written:

Au four qui sert a cuire la poterie blanche ou terre dangleterre on brule du charbon, Voyés cy apres page 40.[25] *il en a vu d'autres*[26] *servant au meme usage où l'on bruloit du bois comme pour la porcelaine.*

(Main text again)

dégraisser la terre a pipe

N.B. Avant que d'employer la terre à pipe, on la dégraisse, en l'agitant dans de l'eau bouillante qui en sépare un nuage, qui paroit gras, et qu'on Croit ferrugineux. On a soin de l'enlever. et l'on renouvelle l'eau de cette preparation tant que l'eau parroit graiseuse.

Porcelaine de Broillet. Fritte quil appelle Corps

Il fait d'abord une frite fort peu Composée et qui m'a paru fort blanche. Pour la faire il prend une livre de nitre de la 3e cuite encore purifié par un peu de soufre et 10 livres de cailloux ou Silex blanc, bien calciné, broyé à la meule dure, et bien lavée. Il prétend que s'il employoit le Silex noir, quoiqu'il se calcine tres blanc: Ses pieces de biscuit se fendroient en Spirale et en Vis; ce qui n'arrive pas quand on employe la chaux du caillou blanc. Il fait broyer au moulin à meule dure cette fritte et chaux de caillou en une poudre impalpable et qui ne craquette plus sous la dent y ajoutant une tres petite quantité d'azur des 4 feux.[27] *Pour donner du blanc il ajoute la terre de l'alun calciné. il la passe à l'eau*[28] *et dans l'eau au tamis de soye. Il fait sécher cette fritte.*

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23 Added in by the transcriber.
24 The word *montres* has here a purely ceramic meaning, which is 'small test pieces'. They are made of the same paste as what is being fired, and are placed about the kiln in order to check the degree of firing reached.
25 Now numbered folio 128 vo.
26 Referring to other kilns seen by Brolliet.
27 Not clear to the transcriber, but this ingredient is replaced by '*sel de soude*' the second time the recipe is given (in the margin of the same page).
28 Barely legible word.

Terre a pipe pour la Liaison

Il dissout, dégraisse, et lave la terre a pipe comme on l a dit et la passe au tamis de soye puis la fait bien Secher. Etant l'un et l'autre pulverisées. Il pese 4 livres de la frite, et 2 livres de la terre a pipe, ou 100 livres de l'une et 50 livres de l'autre. Il les verse dans l'eau de la cuve où est le moussoir tournant vertical. l'agitation mesle exactement la composition, qu'il n'est plus necessaire de Broyer, comme gravant[29] *broye tout son melange. on laisse déposer et l'on fait sécher cette pate, qui, dit-il, se tourne et se moule parfaitement. Il dit en avoir fait faire a chelsée une urne de 3 pieds de haut et une grande figure qui ont parfaitement réussi sans aucune addition.*

N.B. Il pretend que nos terres a pipe, au bol de france,[30] *valent mieux que la terre a pipe d'Oxford: et qu une francoise réfugiée, qui faisoit a Londres des fleurs de Porcelaine,*[31] *la preferoit et en faisoit venir de normandie. Il parroit qu'il employeroit de même la marne.*
Voyés sur les terres a pipe de france le Cahyer E page 1 et suivantes.

In the right-hand margin, next to the above two paragraphs, Hellot has written:

La porcelaine que Broillet a composée devant moi le 14 et le 15 fevrier 1759 est composee non de Silex mais de Cailloux quartzeux Roulés blancs; calcines, qui ne perdent rien de leur brillant a la calcination. il y ajoute 1/7 d'alun calciné, 1/12e dee nitre de 3 cuites et 1/24e de sel de soude. Il fritte le tout ensemble c'est a cette fritte qu'il donne le nom de corps. il a une fritte fort blanche; quil broye seule au plus fin. a deux parties de cette fritte il ajoute une partie de terre à pipe et mesle exactement a l'eau; laisse deposer. Il faut que la terre a pipe soit degraissée, lavée et passée par le Tamis de soye pour n'avoir que le plus fin. les 27 livres de pate coutent au plus 5 livres.

(Main text again)

Le four

Le four, dans lequel'on cuit (les anglois disent brule) la porcelaine à chelsea et la poterie blanche, aupres d'Oxford, est, dit il, le four de la porcelaine de saxe, qu'un allemand échapé de Meissen a apporté en angleterre. Ce four est rond et en tour. Il cuit mal la porcelaine quand il est quarré, et est sujet aux foucasses ou coups de vent. Pour 3 pieds de Diamettre on lui donne 6 pieds de haut: pour 5 pieds, 6. pieds et demi de hauteur, et pour 8 pieds de Diametre, 11. pieds de hauteur. Il est vouté en forme de calotte, qui a un trou rond.

Folio 128vo

au milieu, sur lequel on met une piece de terre cuite, en guise de petit toit, élevé de 8. 10. ou 12 poulces sur 4 petits pilliers; affin que la chaleur ne s'échape pas, aussi facilement, qu'elle feroit sans ce petit toit, et pour empecher aussi que la flamme ne s'elève trop haut et ne mette le feu à la charpente de l'atelier. à la meme calote, voute, ou dome, il y a par le bas autant de lucarnes, qu'il y a de bouches ou places a feu. Ces Lucarnes sont faites comme celles de plomb d'un toit couvert d'ardoises. Ce fourneau se construit à plat, mais avec fondation, sur l'aire de l'atelier. il n'y a ni voute inférieure, ou dessous de four, ni trous ou carneaus. L'aire ou plancher est plein et fait de briques. On fait autour six ou 8 petites portes ceintrées, suivant la grandeur du four, pour l'entrée de la flamme.
Chacune, placée verticalement sous la lucarne du Dôme. Ainsi, s'il y a 8 lucarnes, il y a 8 portes ceintrées. C'est ce qu'on nomme trous ou places à feu: devant ces petites ouvertures ceintrées, il y a, à chacune, un foyer, ou espece de caisse quarrée, découverte, batië en briques, dont les cotés, perpendiculaires au four, servent comme de chenets pour porter le bois, coupé de longueur convenable. Au four, qui sert a cuire la poterie blanche, ou terre d'angleterre, ces foyers exterieurs ont, chacun, une grille de fer, ayant de l'air pardessous, parce qu'on y brule du charbon de terre.

Sur la fumigation du sel

il y a aussi des grilles aux 6, ou 8 foyers ou places a feu, pour recevoir les tisons du bois, qui se divise en brulant, parce que si ces tisons tomboient dans la fosse ils ne fourniroient pas de chaleur au four. Ce seroit du bois employé en pure perte. Lorsqu'on a jetté le sel sur la braise bien alumée, on ferme les caisses quarrées et le

29 Louis-François Gravant, who obtained the monopoly for preparing the Vincennes paste in 1748, carrying on at Sèvres until his death in 1764.
30 Perhaps the name of a quarry or firm selling pipe clay. One of the meanings of the word *bol* is 'red or yellow clay'.
31 Probably Mrs. Voitine. See the text of the article, at note 61.

haut de l'ouverture ceintrée avec des pieces de terre faite exprès, pour empecher la fumée du sel de s'echapper en dehors, et l'obliger d'entrer dans le four sans se perdre. Sous chacun de ces six ou huit foyers, il y a une fosse quarrée d'environ 2 pieds de profondeur.

Au dedans du fourneau, devant chaque ouverture, ou bouche a feu, on construit une cheminée, demi cilindrique, qui monte presque jusqu'à sa[32] *lucarne du dome, pour y diriger la fumée du bois, ou du charbon, et l'empecher de se repandre trop abondament dans la capacite du four. mais la partie, demie cilindrique, qui saille en dedans du four, est percée, dans toute sa hauteur, de plusieurs trous quarrés, par lesquels la flame entre dans le four, pour y faire rougir les étuits, et cuire les pièces de Biscuit qu'ils contiennent. Il ny a point de ces cheminées dans le four qui sert à la poterie blanche; et les bouches à feu sont couvertes, chacune d'une voute faite en forme de hotte renversee, affin que la flamme excitée par l'air, qui est dessous la grille où l'on jette le charbon de terre, soit forcée d'entrer toute entière dans le four. à la partie anterieure, de chaque foyer et à 2 ou 3 poulces plus haut*[33] *que la grille il y a une ouverture ou porte par laquelle on met le charbon. et par laquelle on jette le sel. lorsqu'il est temps d'en faire la fumigation.*

On entre, dans l'interieur du four, par une porte ceintrée, assés large et assés haute, pour qu'un ouvrier y puisse passer. Elle est élevée au dessus du sol d'environ un pied et demi. C'est dans la place Vuide, que laissent entre elles les 6. ou 8 cheminées demi cilindriques, qu'on arrange les etuis a porcelaine en piles, ou colonnes, bien d'aplomb, sur deux étuis vuides, qui leur servent de pieds d Estal, ou socs:[34] *on finit chaque colonne en mettant un étui vuide sur le dernier étui rempli de pièces, pour servir de couvercle. le four estant rempli d'Etuis on ferme la porte d'entrée avec des briques et de la terre grasses: les anglois préfèrent celle qu'on ramasse dans les grands chemins. Outre la porte ceintrée pour entrer dans le four, il y [a]*[35] *quatre petites fenestres quarrées*

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qu'on ferme aussi avec une brique et de la terre grasse. ils servent a tirer les montres. Il y [a][36] *encore autour du four quelques petits trous ronds qu'on ferme avec des bouchons de terre Cuite qu'on peut oter et remetre quand on veut juger du degré de chaleur: ils sont au dessus de chaque foyer ou bouche a feu et servent a juger si le four est asses chaud car pour que la porcelaine soit cuite et ait sa demie transparence il faut que l intérieur du four parroisse blanc de feu et qu'on ait de la peine a y distinguer les étuys. Les Etuys doivent estre plus que rouges de cerises pendant 36 a 40 heures pour la porcelaine. et 18 a 24 heures pour la terre blanche.*

Porcelaine de Chelsea

C'est ainsi qu'est construit le four de Chelsea, dont la manufacture de porcelaine est auprés de l'église. Elle a d abord eté établie par le Sieur[37] *Gouïn, frere d'un joaillier de paris de ce nom, né a Diépe dans la R.P.R.*[38] *Sa pâte estoit composée par d'Ostermann, allemand, chimiste et artiste du Docteur Ward, célèbre empyrique. Le Sr Gouin a quité, avec perte d'une partie de ses fonds; et fait chès lui, dans St. James Street, de petits sujets en porcelaine fort beaux. l'entrepreneur actuel (1759) de la manufacture de Chilsea est un nommé Sprémont, liegeois. Le Tourneur estoit un francois nommé Martin. Il a quitté Chelsea et est alle a Lambeth travailler chez Jacson fayancier. Le modeleur est un nommé flanchet, eleve de Mr. Duplessis. Le dessinateur se nomme Du Vivier: c'est un flamand.*

Couverte de Broillet

Broillet, fait la couverte comme il suit. Prenez une livre de Nitre, 4 livres de silex (Quartz)[39] *calciné, 4 onces de sel de soude et une once de sel commun. il fritte dans le four. Il pile cette fritte en poudre fine, et il en prend deux livres qu'il broye avec une livre de minium; Qu'il fond ensemble: cela fait une espece d'émail blanc, peu transparent. qu'il pile et broye en Acohol.*[40] *Mis dans l'eau, jusqu'a consistence laiteuse: il met, pour tremper le biscuit, et empecher que la couverte ne se précipite au fond du bacquet, environ deux onces de dissolution de Litarge par le vinaigre distillé sur un seau de cette couverte delayée, sans quoi elle se déposeroit au fond du*

32 Probably in error for *la.*
33 Barely legible word.
34 Misspelt for *socles.*
35 Added in by the transcriber.
36 Idem.
37 Abbreviated *Sr.*
38 *La Religion Prétendue Réformée.*
39 Written in above *silex.*
40 Probably misspelt for *Alcohol,* yet the meaning of this word in the context escapes the transcriber.

bacquet et y deviendroit dure comme une pierre. Voyes cy devant p. 37[41] *l'observation de Mr de Reaumur et celle de Barbin.*[42]

Dorure de Broillet. Mordant pour l'Or. il mesle le +[43] *distillé avec le jus de citron.*

Avant que d'appliquer l'or en feuilles, il dégraisse la porcelaine avec l'...[44] *et l'essuye, puis il y passe du Mordant avec un pinceau. Son mordant est composé de jus de citron, de ...*[45] *d'oignons et d'ail pilés qu'il distille. C'est à peu près le mordant du frere hypolithe,*[46] *si ce n'est que broillet n'y ajoute point de Gomme (a)*[47] *quand le mordant a seché jusqu'a n'estre plus que hapant il y pose une feuille d'or batu et appuye dessus avec un petit pacquet de coton bien net pour faire prendre la feuille egalement. alors il donne a la piece de porcelaine recouverte de la feuille d'or un petit feu pour que cette feuille s'y colle encore mieux et que les petites souflures, s'il y en a disparoissent; mais pas assez fort pour faire haper*
l'Or par la couverte, parce qu'il faut qu'on puisse découvrir avec une pointe ou de fer ou de bois les fleurs ou compartimens qui doivent rester en blanc. quand ce dessein est fait et découvert et nettoyé de toutes les paillettes d'or detachées il remet le morceau de porcelaine sous la moufle. Sur 2 feuilles d'or deja cuites il en met 2 autres en faisant couler déssous son mordant a l'ail et les cuit alors la dorure est extremement belle:

In the right-hand margin, next to the above paragraph, Hellot has written this addendum (the insertion mark is at note 47) :

(a) Il applique l'or sur le blanc de la porcelaine, il soufle dessus pour faire prendre la feuille dont il y en a 4 l'une sur l'autre. les feuilles les plus minces sont les meilleures, il n'y a qu a les quadrupler. quand la feuille est prise, avec un pinceau il met aux cotez une goute du mordant qui dans l'instant s'insinuë sous la feuille et jamais dessus. il incline de tous sens pour le faire couler et fait tomber l'excedent. ensuite on fait secher la piece a une chaleur tres douce et la feuille s'applatit si bien qu'il parroit entrer dans les petits trous de la couverte. la dorure où il y a 4 feuilles est beaucoup plus belle que celle où il ny en a que deux. a 5 ou 6. feuilles l'or se refend, se fond et n'est bon a rien. mais pour dorer a 4 feuilles il dore deux fois, deux feuilles d'abord qu'il fait cuire puis il y applique les 2 autres feuilles, fait couler dessous quelques goutes de mordant et cuit de nouveau. Il pollit avec le chamois legerement frotté de pierre pourië d'angleterre.

(Main text again)

On n'est pas obligé de brunir cet or avec la sanguine, comme l'or en poudre mis au pinceau. il a conservé sa couleur naturelle, il suffit de le frotter avec un chamois et tres peu de blanc d'espagne, il se polit et prend un grand brillant; mais qui est partout le même, et l'on ne peut imiter dessus la Ciselure par de l'or mate et par de l'or bruni; comme a la dorure apliquée

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apliquée au pinceau, aprés qu'il est cuit.

camayeux a fond d'or

On peut faire par Cette facon de dorer, des camayeux en carmin, bleu, verd etc a fonds d'or. Il n'y [a][48] *qu'a peindre au pinceau ce Camayeu; et lorsqu'il est cuit, passer du mordant avec le pinceau sur tous les blancs; puis apliquer la feuille d'or, et lorsqu'elle y aura esté assurée par un petit feu; découvrir avec la pointe de buis, tout ce qui est peint en couleur, le bien nettoyer des paillettes, et donner, à la piece, son second feu pour rendre l'or adhérent à la couverte, ensuite le polir avec le chamois et le blanc d'Espagne, ou la pièrre pourië.*

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41 Now numbered folio 127.
42 See the text of the article, at note 33. François Barbin, early porcelain maker in Paris, and later founder of the Villeroy-Mennecy factory, had given some information to Monsieur de Réaumur, who then quoted him in his own notes.
43 The symbol of a cross is not in the table.
44 The symbol used here is not in the table mentioned in the introduction to this appendix. It consists of a 'V' with an 'S' above, and an 'R' attached to the right, and probably means *esprit de vin rectifié.*
45 Barely legible symbol, but probably a cross, which is not in the table.
46 Frère Hippolyte le Faure, a Benedictine monk, who perfected the Vincennes gilding process in 1748.
47 this (a) is in the document, referring the reader to an addendum in the right-hand margin, which will be given below.
48 Added in by the transcriber.

Il met des feuilles d'or dans un mortier de Verre, ou d'agathe et avec un pinceau dur il le divise et reduit en poudre grossiere en tournant dans le mortier en tous sens, puis il broye cette poudre d'or sur une écaille de mer comme fait le frère hypolithe en ajoutant de l'eau de gomme arabique clarifiée par depot pendant 15 jours en sorte qu'elle soit bien claire. quantité suffisante.

Or en poudre de Broillet

Il dissout de l'or fin dans l'eau régale. Sur un gros d or il ajoute 4 grains de cuivre rosette. La dissolution estant faite, il met sur la dissolution de ce gros d'or 4 pintes d Eau de puits, non de riviere, mais filtrée; puis il précipite avec le deliquium de tartre ou avec l'esprit de sel ammoniac volatile.[49] *Le cuivre l'empeche de fulminer. Avec un gros de cette chaux d'or il met 4 grains de fondant Cristallin, déja broyé à part. puis il les broye ensemble. on l'employe ou avec le pinceau, ou par impression avec le mordant de carab.*[50] *ou bien avec le deliquium d Aspic pour le brunir on se sert d'un brunissoir d'agathe ou de sanguine.*

par la chaux d'or et cuivre rouge

Broillet fait calciner du sable à grand feu. il met et pose la figure de porcelaine dans l'étui sur un lit de ce sable de crainte que la pièce ne se colle au fond de l Etuy. puis [il][51] *emplit l'etui du meme sable jusqu'au haut de la figure ou vaisseau à parties saillantes, en frappant a petits coups contre les cotés exterieurs de l Etui, pour que tout le sable se réunisse pour ainsi dire en une seule masse sans aucun Vuide. par ce moyen la pièce est soutenue de tous cotes et aucune partie saillante ne peut flechir, ni perdre sa forme. il n arrive d'autre change cl...ent*[52] *que celui que peut causer la retraite ordinaire de la pate: Il faut bien prendre garde qu'il y ait aucun sel avec ce sable. par le meme moyen, il peut Cuire dans un meme etui jusqua 6 ou sept assiettes, plats ou jattes, à la fois, sans qu'ils se dèforment, pourvû qu'on les garnisse bien de sable calciné entre deux, et entre les bords et les parois de l'étui Le sable ne fait point Corps. En retirant les pièces, on le remet aisement en poudre. Quand aux pices*[53] *s'il y reste du sable adhèrent, on le détache avec un couteau, et on enlève le reste avec un morceau de grais et ensuite avec un morceau de biscuit*
N.B. le meme sable peut servir pendant 10 ans, pourvû qu'on le conserve proprement, et éloigné de toute matiere saline. Sans quoi il se vitrifieroit et se coleroit à la porcelaine. Le silex noir bien calciné donne un sable qui fait encore mieux.

Cuire la porcelaine sans suport.

<u>Broillet</u>, pour imprimer sur la porcelaine ou sur une table de cuivre émaillée la contre epreuve d'une estampe quelconque; nétoye d'abord la planche de cuivre gravée avec de l'esprit de vin

Imprimer sur la porcelaine Broillet

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rectifié, et l'essuye avec un linge bien sec, pour ôter tout ce qui pourroit estre resté de gras dans les traits du Burin: puis il passe dessus un peu de son mordant dont il sera parlé cy apres, et le fait entrer avec un boudin de flanelle roulée extremement serré avec une ficelle fine: il l'essuye ensuite avec la paume de la main, qu'il essuye elle meme, à mesure, avec un cuir legerement enduit de blanc d Espagne, en la frottant dessus et l essuyant ensuite avec un linge blanc. lorsque tout l'exterieur de la planche de cuivre n'est plus gras. on applique dessus selon l'art de l'imprimeur en taille douce un papier humecté du matin et ayant chauffé la planche de cuivre on la passe et repasse deux fois entre les rouleaux ou cilindres de la planche qui sont garnis de flanelle. alors le dessein est imprimé en couleur rousse; qui est celle du mordant. On laisse secher le papier, s'il est humide d'eau: mais, pas assez pour que le mordant sèche aussi; car il doit rester happant: Sans quoi les traits de cette estampe rousse ne retien-droient pas la couleur qu'on veut qu'ils retiennent. On a de l'email ou couleur vitrifiée broyée a l'eau sur une glace avec une molette de Glace ou de Caillou, jusqua ce que la molette ne fasse plus aucun bruit en broyant et que l'émail soit comme de l'huile. On le laisse bien secher sur la Glace, puis on le detache avec le couteau à palette pour le tenir bien sec dans un papier. Avec un peu de coton bien net on prend de cette couleur en l'apliquant foiblement dessus, et on le porte sur l'estampe imprimée avec le mordant qui ne doit pas estre sec, mais happant. ensuite avec un autre petite portion de coton, qui n a point servi, on frotte tres legerement l'estampe pour en oter toute la couleur qui s'est mise sur les

49 Written as a succession of four symbols.
50 Probably for *carabé*, a kind of yellow amber.
51 Added in by the transcriber.
52 Illegible word.
53 Misspelt for *pièces*.

endroits qui doivent rester blancs. On nétoye et dégraisse, avec de l'esprit de vin, la pièce de porcelaine, sur laquelle on veut avoir la contre epreuve de cette estampe dont la gravure est coloriee, et on l'essuye avec un linge blanc. ensuite on applique cette estampe, le coté colorié en dessous, sur la porcelaine. on met par dessus un autre papier blanc, et avec un lissoir d'yvoire, on frotte un peu ferme sur le second papier; prenant bien garde de déranger l'estampe et de laisser aucun endroit sans l'avoir lissé avec le lissoir d'yvoire. au bout d'un quart dheure, on leve l'estampe et l'on trouve la porcelaine imprimée de la couleur bleuë, verte ou rouge qu'on a mise avec le Coton sur les traits roux de l'estampe. mais dans un autre sens, que l'estampe meme. on laisse sécher; prenant bien garde que rien n'y touche, car on emporteroit la Couleur, et le dessein seroit gaté. Ensuite on cuit ou sous la moufle, ou au four de peinture, Comme on cuit les autres peintures faites au pinceau. on voit que par ce moyen on peut multiplier sur la porcelaine tous les desseins qu'on aura fait graver sur des planches de Cuivre, puisqu'une planche neuve peut donner jusqu'à 1500 estampes; et jusqu'à 7 à 800 en la retouchant.

Mordant de Broillet pour les estampes a contretirer

il met dans une cornue de verre, placée au bain de sable, 4 ou 5 onces de Karabé ou succin[54] *concassé, il adapte un recipient et ferme les jointures avec des bandes de papier collé, il distille sans mettre de Dôme sur le fourneau. l'Esprit passe, puis le sel volatile, et enfin l'huile. les vaisseaux etant refroidis il décante l'huile sans y laisser passer aucune portion du sel alcali volatile. il met au Bain*[55]

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de sable dans une capsule de verre fort evasée l'Esprit et l'huile pour Evaporer l'esprit et concentrer l'huile. l'esprit bouillone en grésillant avec lhuile jusqu'a ce qu'il soit tout évaporé. il continuë de concentrer l huile jusqu a ce qu'en en mettant une petite goute avec une paille sur une assiète de fayance et la touchant avec le doigt, elle file, et que la goute refroidie se congele en forme de syrop fort cuit. alors il arrete le feu, retire la terrine du sable, et laisse tout refroidir. il verse alors son mordant dans un pot de fayance, ou [il][56] *reste tenace et tres peu coulant. on pourroit y faire dissoudre un peu de bitume de judée.*

mouler mince une Teyere de terre d angleterre ou de Porcelaine

Les anglois pour mouler une Téyere legere et tres mince de forme qui ne peut se former sur le tour, soit en porcelaine soit en terre d angleterre, avec desseins, en bosse, a l'exterieur. ils ont un moule de platre en 2 pièces, ou especes de coquilles, gravés interieurement en creux de tous les desseins relevés en bosse, qui doivent se trouver à l'exterieur de la pièce. ayant réuni les deux pièces ou coquilles du moule qui doivent joindre exactement, on verse dedans ce moule de la pate, réduite en bouillie liquide, jusqu'au haut du moule. on l'y laisse ainsi quelques minutes pour donner le temps au platre de boire la pate et d'en retenir la quantité necessaire et convenable à l'epaisseur, dont on veut avoir le vase. Si on l'y laisse plus de 4 ou 5 minutes le vase sera plus epais, et plus mince si on l y laisse moins. On verse dehors l'excedent de la paste encore liquide, et on laisse secher l'enduit de pate qui est resté adherent dans l'interieur du moule. Comme toute pate terreuse se retire en séchant, lorsque la piece est sèche, on la retire aisement, en ouvrant les deux coquilles du moule et les séparant. alors on trouve le vaisseau, teyère, ou autre, bien formé, mince et ayant tous les reliefs, dont on a fait les creux dans le moule de platre. Il n'y a plus, quand la piece est entierement seche, qu'a enlever la pâte qui marque les sutures des deux coquilles du moule. Si c'est une téyere, on y ajoute son bec creux et son ance avec de la barbotine faite de la meme bouillie de pate. Nota. qu'il y a des pâtes peu liées qui ne réussissent pas dans ces moules et qui s'y Gercent.

ou se fait la poterie blanche angloise

La plus belle poterie blanche d'angleterre vernie par la vapeur du sel se nomme Ware et se fait [en][57] *Schtaffshire a 110 milles de Londres, et à Brenforth a 7 milles.*

54 Yellow amber.
55 Abbreviated *B.*
56 Added in by the transcriber.
57 Idem.