

# Loriot, Pellechet, Jurine: the secrets of pastel<sup>1</sup>

NEIL JEFFARES

**A**T THE SALON of 1763, Jean Valade exhibited four pastels, of which the attention of the critics<sup>2</sup> (apart from Diderot, who wilfully chose to ignore Valade altogether) was focused on no. 103 (fig. 1):<sup>3</sup>

*M. Loriot, Ingénieur méchanicien.* M. Loriot a trouvé le secret de fixer la Peinture en Pastel; une moitié de ce Tableau est fixée y compris partie de la tête, pour prouver qu'il n'y a aucun changement dans la couleur entre la partie fixée et celle qui ne l'est pas.

Every appearance at a salon is an exercise in publicity: self-promotion for the artist (and often the lender if the work has already been sold), while for portraits, the sitter has a claim. But the prospectus here was for a process – one that, as we shall see, strode a tightrope between industrial secrecy and mass marketing. For the abbé de La Porte, in the *Mercure*, the pastel –

qui représente M. Loriot, Ingénieur méchanicien, mérite l'attention particulière des Amateurs du pastel, en ce qu'une moitié seulement de ce Tableau est fixée par le secret qu'a découvert M. Loriot, & que l'on n'aperçoit aucune différence ni altération entre la partie fixée & celle qui ne l'est pas.

For Mathon de La Cour,



Fig. 1 [Zoomify](#)

M. Loriot est Ingénieur Méchanicien; il a trouvé le secret de fixer la peinture en pastel; la moitié de son Portrait est fixée, y compris partie de la tête; on n'a remarqué aucun changement dans la couleur entre la partie fixée et celle qui ne l'est pas. Ainsi voilà le pastel à l'abri des injures du temps. Cette découverte devroit, ce me semble, réveiller l'émulation des Peintres qui travaillent dans ce genre. Il faut à présent qu'ils s'efforcent de faire des ouvrages qui méritent de passer à la postérité; ce secret seroit le plus important, et il ne me paroît pas qu'il ait encore été trouvé. Quelle obligation nos descendants auroient-ils à M. Loriot, si son art ne servoit qu'à leur conserver quelques Portraits insipides? A quoi servi l'Imprimerie, si on n'avoit jamais fait que des bouts-rimés?

The anonymous critic in *Avant-Coureur*:

Nous avons annoncé dans le temps l'admirable découverte de M. Loriot

<sup>1</sup> This essay first appeared in 2014. It may be cited as Neil Jeffares, "Loriot, Pellechet, Jurine: the secrets of pastel", *Pastels & pastellists*, <http://www.pastellists.com/Essays/Loriot.pdf>.

<sup>2</sup> For full bibliographic details of these and all other abbreviated references, consult the online *Dictionary*: [www.pastellists.com](http://www.pastellists.com), the bibliography is at [pastellists.com/Bibliography.htm](http://pastellists.com/Bibliography.htm). Full texts of the salon critiques are in [pastellists.com/Misc/Exhibitions\\_1751-75.pdf](http://pastellists.com/Misc/Exhibitions_1751-75.pdf), while many early treatises on pastel and fixing technique are at [pastellists.com/Misc/Treatises.pdf](http://pastellists.com/Misc/Treatises.pdf). A list of suppliers and inventors of fixing methods is at [pastellists.com/Suppliers.html](http://pastellists.com/Suppliers.html) (many of whom are not discussed in this essay). Good recent surveys of fixing pastels are in Burns 2007 and Sheller 2011. See also Reuter 2015 in which the methods known to Caroline Luise are analysed.

<sup>3</sup> Pastel on paper, 80x70 cm, oval (Saint-Quentin, musée Antoine Lécuyer, inv. 1991.9.1). Full details on provenance, literature etc. will be found at [pastellists.com/articles/Valade.pdf](http://pastellists.com/articles/Valade.pdf).

sur le pastel. Nous avons inséré dans nos feuilles les certificats que l'académie de peinture lui avoit donnés en conséquence de sa découverte. Dans un de ces certificats, il étoit dit que *le sieur Loriot avoit présenté à l'académie de peinture un pastel de Mlle Rosalba, fixé à moitié, sans que l'ail pût distinguer la partie fixée d'avec celle qui ne l'étoit pas*, tant le secret de M. Loriot s'allie & conserve le moelleux de cette manière de peindre. On pourra voir au salon le portrait de cet habile méchanicien come un échantillon de la bonté de son secret. Dans ce portrait, il y a une partie de la tête, une partie des mains, une partie de la draperie fixée. On laisse aux spectateurs à deviner où, & à les distinguer. Ce portrait est dans le fond du côté de la fenêtre sous le n° 103.

The correspondent of the *Journal encyclopédique* confirmed that “il n'est pas possible de décider qu'elle est la partie où les couleurs ont été fixées.”

When the pastel was next exhibited, at the famous Paris exhibition of *Cent pastels* (1908), two of these dimensions had disappeared: the work was presented as by<sup>4</sup> Maurice-Quentin de La Tour, *nem. con.* – although it is fair to say that it was so badly hung that there were complaints that it could not be seen properly – and so the significance, and success or otherwise, of the process was ignored. It was not until Georges Wildenstein's 1928 catalogue of La Tour that the attribution was questioned, the alternative of Valade being suggested (Wildenstein had noticed that there was a Valade portrait of Loriot in the 1763 salon, but he concluded that “la question reste ouverte”). Only later was the picture firmly returned to Valade, of whose authorship there can be no possible doubt. Modern works on pastel technique now reproduce the work for its original purpose. And careful examination today reveals no difference across the surface. We shall return to that – and to the owner of the pastel in 1908.

But first let us consider this *mécanicien du roi* and inventor. Antoine-Joseph Loriot (1716–1782) is frequently confused with, or stated to be the younger brother of, Louis-Adam Loriot, de l'Académie d'architecture, while another modern source<sup>5</sup> tells us that his great-uncle was Guillaume Loriot, sgr d'Étrabonne (1629–1694), an important magistrate in Besançon. Neither of these claims is supported by a detailed examination of his genealogy.<sup>6</sup> Although all these branches of the Loriot family originated in La Rivière, a village near Pontarlier, the legal branch attained nobility in the sixteenth century with Guillaume's grandfather François. Of humbler origins, Loriot's grandfather was illiterate, while his great-uncle, another Guillaume Loriot (c.1650–1733), was in fact a miller in the nearby village of Bannans. It is hardly fanciful to conjecture that the child was fascinated with the ropes and pulleys turning the stone that produced the village's bread. The eldest of at least five children, Loriot was apprenticed in Pontarlier, and he was still there in when he was a witness at his brother's marriage in La Rivière in December 1743.

Loriot's own marriage took place, in Courtemâche, Jura, 2 October 1746. His bride was Anne-Marie Pellechet, whose great-great-nephew was the architect Auguste Pellechet who owned the pastel in 1908. Loriot's relationship with this family was close (much later, in 1777, he was godfather<sup>7</sup> to his wife's great-nephew Antoine-Joseph Pellechet, sous-intendant militaire): Mme Loriot's brother was Jean-Antoine Pellechet, ingénieur, inspecteur des travaux en ciment des maisons royales. Jean-Antoine was born in Vercel in 1721 to François Pellechet and Marguerite Roch (a François Pellechet, possibly Jean-Antoine's brother, was curé in Courtemâche). He married Anne-Denise Guyon in Pontarlier c.1743; the male descendants included four generations of architects and inspecteurs des bâtiments. After Pellechet's early death, in 1758, Anne-Denise was admitted to the merchants of the town of Portarlier. But while he was alive, Pellechet's expertise in cement was no doubt communicated to his brother-in-law, and would

<sup>4</sup> The pastel has been mentioned as a self-portrait by Loriot in Jacob Jonas Björnstråhl, *Reize door Europa en het Oosten*, Utrecht, 1778, I, p. 147.

<sup>5</sup> The otherwise excellent study by Liliane Hilaire-Pérez, *L'Invention technique au siècle des Lumières*, Paris, 2000, p. 173. For genealogies of the families discussed here, see [Loriot](#) and [Pellechet](#).

<sup>6</sup> I am most grateful to Yvette Muneaux (private communications, .ix.2014) who has inspected all the parish records in La Rivière and drawn my attention to other records in the region, including J. T. de Mesmay, *Dictionnaire historique, biographique et généalogique des anciennes familles de Franche-Comté*, 2006.

<sup>7</sup> The baptismal record of Antoine-Joseph Pellechet (Versailles, 15.VII.1777) is the only record that identifies Loriot's precise relationship with the Pellechet family.

later contribute to Loriot's invention of a waterproof cement known as *mortier Loriot*, with various uses, including the repair of broken statues.<sup>8</sup> It is unlikely that the Pellechet and Loriot pastel procedures were developed independently or without an awareness of the chemistry of solidification of powdery substances.

Jean-Antoine's son, Marc-Augustin Pellechet (1743–1764), enrolled as an élève at the École de l'Académie royale, initially under the protection of Challe, later of Cochin; the register shows him living “ché M. Lorio machinier du roy, son oncle, au Louvre, pres l'atelier de M. Amedée Van Loo.” Augustin died in the rue Guénégaud, described as a “dessinateur”, his pauper's funeral at Saint-André-des-Arts was unattended by relatives (fichier Laborde).

For the extraordinary range and number of Loriot's inventions we have an unusually detailed description in a letter by Pierre Patte, architect to the Herzog von Zweibrücken, published in two successive issues of the *Mercure de France* in 1778:<sup>9</sup> there is no need to repeat them all here. Loriot's earliest invention was made while he was still in Pontarlier: a new method of making the tin-plate which French users had had to import from Germany. Paris offered more scope for his skills, and he arrived in the capital around 1745. Sources differ as to whether he went there because of lack of recognition in the Franche-Comté, or, on the contrary, because the local intendant talent-spotted him and helped launch his career.<sup>10</sup> Presumably his educational background prevented his following the normal path of enrollment at the Ponts-et-Chaussées (Loriot published few of his inventions, and the accounts of those that were printed may not have been written by himself), but instead relied on ingenuity, patronage and growing celebrity to build his career.

A clever loom for making ribbons excited the enmity of the ribbon-makers of Lyon, who successfully obtained an injunction to prevent its manufacture. For the comte de Caylus he developed a method of silvering mirrors: he must have been aware of the comte's interest in encaustic painting, an attempt to rediscover painting in burnt wax as mentioned by Pliny. While this may sound very different from pastel, for Johann Heinrich Müntz, whose treatise on *Encaustic* appeared in English in 1760, “the method of painting with and fixing of the crayons comes not only within the sense of encaustic, but is the very self-same thing.” In both processes, to a canvas prepared with a wax coating are applied colours, whether dry pastel or paint, which are then heated until the wax melts and fixes them. The practical difficulties, such as allowing for the colour changes in the firing process, ensured that this system never took hold, although it would be revived and reinvestigated from time to time, including by artists such as Bachelier and Roslin (see below).

Loriot's method of fixing conventionally made pastels was made famous at the Salon of 1763, but in fact developed at least ten years previously (while Pellechet was still alive). He initially revealed it to the marquis de Marigny, directeur général des Bâtiments du roi,<sup>11</sup> and Loriot's most devoted patron from his arrival in Paris. The process was advertised in the *Annonces, affiches et avis divers* for 3 October 1753 (where Loriot's address was given as château des Tuilleries, avant cour des Princes).

The undated manuscript report by François-Bernard Lépicié (1698–1755), secrétaire de l'Académie, contains the following summary:<sup>12</sup>

<sup>8</sup> A *Mémoire sur une découverte dans l'art de batir, faite par le Sr. Loriot* appeared in Paris in 1774; a rather lengthy extract even appeared in Dodsley's *Annual register for 1774*, pp. 105–17.

<sup>9</sup> Pierre Patte, *Mercure de France*, i.1778, pp. 181–89; ii.1778, pp. 187–94. This is the basis of all subsequent accounts such as Michaud (although only the second part is referenced).

<sup>10</sup> Hilaire-Pérez, *ibid.*

<sup>11</sup> On the background to the Académie royale's susceptibility to methods of preserving pastel at this time, see Burns 2007 and Shelley 2005, p. 112f.

<sup>12</sup> ENSBA, Ms.231.1–3; repr. Ratouis de Limay 1946, p. 140.

La sécheresse détache à la longue le pastel; l'humidité occasionne des moisissures dans plusieurs de ses couleurs: en y plaçant la glace bien jointe, le pastel d'ordinaire s'y contre ses couleurs: en y plaçant la glace bien jointe, le pastel d'ordinaire s'y contre-épreuve ce qui enlève la fleur et altère le tableau, le mouvement dans les transports en fait tomber une partie au bas de la bordure, ce qui arrive même étant placé à demeure dans les appartements par le seul ébranlement occasionné par les voitures; enfin les couleurs paraissent perdre insensiblement de leur éclat, de sorte qu'aucun peintre ne saurait se flater que ses tableaux puissent passer à la postérité.

The method was approved by the Académie a few days later, and certified again 1 December 1753. These stages were recorded in the proceedings:<sup>13</sup>

*Approbation donnée au Sr Loriot pour son secret de fixer le Pastel.* — Le Sr Loriot, qui a trouvé le secret de fixer la Peinture au pastel, sans toucher dans le mat et sans en ôter ny la fleur ny la fraîcheur des couleurs, s'est présenté à l'assemblée et lui en a montré différentes épreuves. L'examen fait, la Compagnie a jugé ce secret d'autant plus utile que, sans la moindre altération, il semble devoir perpétuer la durée des ouvrages au pastel et des dessins; que de plus l'Académie atteste que, de toutes les tentatives qui ont pu être faites jusqu'ici pour découvrir un pareil secret, il n'en est venu, à sa connaissance, aucune qui puisse entrer en comparaison avec la réussite dudit Sieur Loriot, qui paroît tendre au degré de perfection que l'on a toujours paru souhaiter. En conséquence de quoi, la Compagnie a chargé le Secrétaire de lui délivrer un extrait de la présente délibération comme un témoignage de l'estime qu'Elle fait de l'excellence de sa découverte.

*Procès-Verbaux*, 6.X.1753

En cette assemblée le Sr Loriot a rapporté le pastel de Mademoiselle Rosalba Carrera fixé, et a fait voir de nouvelles épreuves, qui ont été approuvées comme les premières. — *Note:* On s'est même aperçu d'un nouveau mérite dudit secret, c'est que les taches de moisissure disparaissent et qu'il fait revivre les couleurs qui ont changé.

*Procès-Verbaux*, 1.XII.1753

The inclusion of one of Carrera's pastels demonstrated the process's ability to treat mould and revive colour in a worn pastel. It is likely that the example chosen was her 1721 morceau de réception at the Académie, the celebrated *Nymph de la suite d'Apollon* (fig. 2), whose distressed state was explained in an anonymous letter by an "Amateur de province" to which we shall return.<sup>14</sup>



Fig. 2

state was explained in an anonymous letter by an "Amateur de province" to which we shall return.<sup>14</sup>

Un particulier de cette ville m'a objecté que le morceau de réception de la Rozalba qui est à l'Académie étoit totalement gâté. Cela se peut. Ce genre de peinture ne soutiendra jamais l'impression des différentes saisons dans un aussi vaste sallon. Ce tableau (si je m'en souviens bien) est placé dans une embrasure de fenêtre. L'hyver il y reçoit l'humidité de la premier main, & l'été la grande ardeur du Soleil, qui fait que la glace du tableau érant une fois échauffée, mange les couleurs avec plus d'apréte que le Soleil même. Quel tableau, même en huile, pourroit tenir à ces inconvéniens?

On the recommendation of Marigny, Loriot was awarded a pension of 1000 livres on condition that the process remain secret (decree of 27 October 1754).<sup>15</sup>

<sup>13</sup> The first report also appeared in the *Mercre de France*, XII.1753, pp. 162f. The report in the following issue (I.1754, pp. 156–58) also gave his prices for different sized pastels: these ranged from 6 livres for the smallest (toile de 6) to 50 livres for the largest (toile de 50). The price for one of the commoner portraits sizes, toile de 15 or 65x54 cm, was 15 livres, and the work would be done within 8 days.

<sup>14</sup> "Lettre d'un amateur de province sur le secret de fixer le pastel", *Journal économique*, II.1758, pp. 63–65.

<sup>15</sup> The year casts some doubt on the inscription "fixée le 4 Decembre 1754 par Loriot en présence de Monsieur le Marquis de Marigny" on the back of another Rosalba pastel, a tête de jeune femme, most recently sold London, Christie's, 5.VII.1994, Lot 46.

By 1758, the Amateur de province thought it unfair that Loriot should have an effective monopoly throughout France, to the detriment of provincial pastellists who were unable to send their work to Paris.

News of Loriot's discovery was rapidly disseminated throughout Europe, with comte Fredrik Sparre writing from Paris, 3 January 1754, to inform comte Tessin about it.<sup>16</sup>

M<sup>r</sup> Roselin est flatté autant qu'on peut l'être, de ce que Votre Excellence au eu la grace de me marquer du contentement, de ses Portraits. Il aura l'honneur d'en envoyer un a Votre Excellence, au printemps prochain, un pastel fixé comme il s'imagine, que Votre Excellence aura du plaisir a en juger par Elle même, de cette admirable decouverte faite dans ce Pais cy, par le S<sup>r</sup> Loriot, qui a déjà fait tant de bruit dans les nouvelles publiques, et que l'Auteur a poussé dans un aussi grand perfection, qu'il n'y peut avoir d'ouvrage en Pastel, qui après etre fixe, ne gagne encore infiniments.

It is worth recollecting why such a discovery would have interested Tessin so much. In 1747 Oudry sent an unfixed pastel (a precious landscape which he had exhibited at the Salon) to him as a mark of his friendship and esteem. In the accompanying letter he wrote:<sup>17</sup>

J'ai fait fermer la caisse et toutes les séparations avec des vis, parce que les coups de marteau detruisent entierement le pastel en le faisant tomber. ... Quand le tableau en sera tiré, il sera à propos de prendre un canif, de couper tout autour le papier qui est colle derriere pour tenir le pastel à la bordure, ôter le tableau, essuyer bien la glace, et remettre le pastel et aussi recoller les bouts de papier, parce que le transport détache toujours quelque partie qui s'attache à la place et ternit l'ouvrage.

Unfortunately the pastel was last recorded in the Swedish royal collection in 1911, and we cannot assess just how severe the losses were: but exactly the same concerns with moving pastels remain today. Roslin had arrived in Paris in 1752, and Tessin was one of his earliest patrons, commissioning him to copy pastels such as those from the Coypel sale, but in oil (fearing that pastel would be damaged by the sea journey to Stockholm).

An interesting account of the efficacy of Loriot's method compared with La Tour's ideas is provided by Antoine-Joseph Pernety at this time:<sup>18</sup>

M. de la Tour qui s'est rendu célèbre pas les ouvrages admirables qu'il a fait en ce genre, a imaginé de les mettre entre deux glaces, comme à la presse, ce qui met le pastel à l'abri de la grande sécheresse, & du tremoussement qui en détache la poussiere, & à couvert de l'humidité qui en ternit l'éclat. Cet Artiste a cherché long-tems un moyen de fixer cette poussiere sur la matiere où on l'a applique, & il a enfin trouvé une maniere de le faire. En ma présence il a passé deux ou trois fois la manche de son habit sur un portrait auquel il n'avoit pas encore donné la dernière main, & il n'en a rien effacé. Il faut cependant que sa maniere de fixer ainsi le pastel ne soit pas sans inconvenient, puisqu'il a jugé à propos, depuis l'invention de ce secret, de mettre ses tableaux entre deux glaces pour les conserver. M. Lauriot a fait la découverte du secret de fixer le pastel à peu près ou quelque tems avant M. de la Tour. Les expériences que M. Lauriot a faites ont réussi au gré du Public: les pastels qu'il a fixés se sont bien soutenus, & il seroit à souhaiter que son procédé fût connu. Je le sc̄ai, mais M. Lauriot est trop galant homme, pour que je le rende public sans son consentement.

Mariette<sup>19</sup> provides another perspective on this:

Il [La Tour] avoit entrepris le mien [portrait], et je crois qu'il lui auroit fait honneur. Il me fit souffrir, car il y employa un si grand nombre de séances que je n'ose le dire. Le malheur a voulu qu'il en ait fait choix pour essayer s'il pouvoit parvenir à fixer le pastel à l'imitation de Loriot, qui prétendoit en avoir trouvé le secret et qui refusoit de le lui communiquer. On m'a assuré que le tableau en avoit tellement souffert, que de dépit il l'avoit jeté au feu; je ne sais si l'on m'a dit vrai, mais il est certain qu'il n'en a plus été question entre nous, et de là je juge qu'on m'a dit vrai; ce n'est pas la seule fois qu'il en a agi ainsi avec ses propres ouvrages.

Loriot's expertise brought him to the attention of the famous financier Joseph Pâris Duverney, investor in the lead mining operations in Brittany for which the concessionnaire were the widow and son of the armateur Noël Danycan de l'Epine (1656–1735). Loriot invented some eight

<sup>16</sup> Riksarkivet, cited Lundberg 1957, III, p. 20, no. 64a. It is unclear if the pastel was sent, nor is there any plausible candidate among the Tessin collections.

<sup>17</sup> Uppsala Universitetsbibliothek, inv. F363.

<sup>18</sup> *Dictionnaire portatif de peinture, sculpture et gravure*, Paris, 1757, p. cxxvii.

<sup>19</sup> *Abécédario de P.-J. Mariette et autres notes inédites de cet amateur sur les arts et les artistes...*, 1854-1856, III, p. 71.

different machines to improve the mine, including a hydraulic hammer he devised for the extraction of lead ore. However the requirements for frequent maintenance interrupted production and led to protracted disputes with Duverney, with Loriot and the Danycan family on the same side. This close contact must have led to the marriage of Loriot's niece Marie-Françoise to Danycan fils, Noël-Hélène-François Danycan de l'Épine (1723–1763x75), capitaine de dragons, who lived at the château de La Ville-Fumée, paroisse de Plelo, in Brittany. The marriage, to which Loriot was a witness, took place on 4 June 1765 at Saint-André-des-Arts, Paris.<sup>20</sup> The groom was the (legitimate) son of Danycan père's second marriage, to his mistress, which incurred such disapproval from his family that the son was written out of the standard genealogies. The protracted litigation into the 1760s against Duverney left Danycan penniless, and after his death, his widow renounced his estate, although she obtained an order reclaiming her trousseau worth 945 livres 11 sous and a sum of 600 livres for mourning clothes.<sup>21</sup>

Pellechet had invented a proprietary method of preparing canvas or silk so that special pastel could be applied directly, analogous to encaustic painting with crayons but without the need to "fire" the result.<sup>22</sup> His widow Anne-Denise, already accepted as a merchant in Pontarlier, came to Paris to try to exploit the invention. No doubt with her brother-in-law's aid, she succeeded in obtaining the attention of the Académie royale: a remarkable feat (which must have been due to Loriot's influence), since there were endless streams of inventors offering such ideas who were rarely heard. There is an unpublished report of her progress in a letter of 4.XII.1764 to his son by Sr Favier, secrétaire de correspondance du prince Xavier:<sup>23</sup>



Fig. 3

Un homme vient de trouver le secret de faire des Pastels à l'huile. Louvrage quon fait avec ne se seiche qu'au bout de huit heures. La toile qu'il faut pour cela doit être du taffetas. L'inventeur l'imbibe d'un esprit ou liqueur, qui sans doute fait l'importance du secret. Halé de l'academie de Peinture et habile homme: a fait un portrait avec tout cecy: et ma dit mille biens de cette decouverte.

On 2 June 1764, a subcommittee consisting of Hallé, Bachelier, La Tour and Roslin reported on this method: "Le résultat est que ce pastel s'attache et prend toute la consistance d'un tableau peint à l'huile"; the procedure was easy to apply, and the results stable. A certificate was issued. Mme Pellechet wrote to Marigny, apparently in early 1767, offering to sell the invention to the crown; she enclosed a printed prospectus (21 August 1765) offering prepared materials giving chez Mlle Cellier as the address:<sup>24</sup>

Tendez une toile de telle grandeur que vous souhaiterez, ensuite colez-y une feuille de papier blanc avec de l'empois très-léger. Le papier étant sec, foncez-le pour le rendre plus uni, ensuite clouez le taffetas sur le chassis: le plus commode est le demi-Florence.

<sup>20</sup> The transcription appears in the Fichier Laborde (BnF), card 44612.

<sup>21</sup> Archives des Côtes-du-Bord, c.1780.

<sup>22</sup> Another variant of this was Reifenstein's process, developed while he was experimenting with pastels in Kassel early in 1753. Investigating the use of wax pastel applied directly to canvas prepared with a coating of ground glass rather than paper, he found that pigments mixed with deer fat and wax enabled stronger colours to be made with a consistency that could be used more satisfactorily than the normal recipes. For details of the method, see Le Pileur d'Apligny 1779, pp. 55–60, who however concludes that "l'ancienne peinture en pastel aura toujours la préférence". Reifenstein met Liotard in 1761; the Swiss pastellist had already experimented with using pastel directly on prepared canvas (rather than on canvas covered with paper) as early as 1753.

<sup>23</sup> Archives de l'Aube, Correspondance particulière du prince Xavier de Saxe, EE 001702, vue 102. I am most grateful to Catriona Seth for drawing this to my attention (PC 2020).

<sup>24</sup> "Façon de se servir du Pastel à l'huile de la Veuve Pellechet" 1767 AN O/1/1911, reprinted (by J.-J. Guiffrey) in *Nouvelles archives de l'art français*, IV, 1888, pp. 245–47. Duchesne's *Dictionnaire de l'industrie*, 1776, II, p. 421, states that the pastels "se faisoient & se vendoient chez M. Sellier, de l'Académie de Saint-Luc."

Qui veut faire deux originaux à la fois, mettra double taffetas, & aura soin de bien fondre & empâter son objet, & de finir le premier en huit jours, pour avoir la facilité de relever le premier sans endommager le second.

La veille du jour où l'on veut peindre, on prend de l'huile que la veuve indique ou fournit: on en imbibe le taffetas avec une éponge ou du coton, le surplus on le fait tomber sur une assiette, & on laisse son chassis à plat, jusqu'au lendemain : en cas que l'on quitte son objet, qu'il soit trop sec, & que le crayon ne se fonde pas, on prend un peu d'huile que l'on passe par-dessus.

Le pastel à l'huile de l'invention du Sr Pellechet se fait & vend aux Bains de la Seine, rue Guennégaud, près le Pont-Neuf, chez Mlle Cellier, à Paris. *On trouve dans ledit endroit des chassis tout préparés.*

Marigny sent the note to Cochin, 1 March 1767, asking for a report; Cochin responded on 14 March 1767, confirming that the artists' reports were favourable, La Tour in particular having tested the method; its principal use was for painters who wanted pastel studies to be passed among students for copying without damage. In view of veuve Pellechet's health, a pension for her and her five daughters was recommended:

Monsieur,

Il est vray que le secret de la veuve Pellechet nous a parû utile. M. Hallé, M. Bachelier, M. De La Tour, M. Roslin et quelques autres qui en ont fait usage en ont rendu un témoignage avantageux. M. De La Tour surtout s'en est servi davantage. Sa principale utilité seroit la conservation des études peintes que font les artistes pour parvenir à exécuter leurs tableaux et qui ensuite servent d'originaux aux élèves. Ces études n'étant qu'au pastel ordinaire s'effacent bientost; celles cy seroient vrayement à l'huile et ne coûteroient, je crois, pas plus de temps à l'artiste. Il pourroit de plus être utile aussi pour les portraits et aux amateurs qui veulent tenter de peindre et qui ne peuvent surmonter les difficultés que présente la peinture à l'huile.

Ce seroit donc un avantage que de pouvoir rendre cette invention publique, d'autant plus qu'il y a lieu de croire qu'elle seroit susceptible d'être perfectionnée, ce que cette femme ne pourra faire faute de lumières.

Ce qui paroist embarrassant, c'est la manière de la récompenser; elle est malade et paroist n'être pas éloignée de sa fin; tout ce qui l'inquiète, c'est le moyen d'empêcher ses enfans de tomber dans une misère absolue; ce qu'elle auroit à désirer, ce seroit des secours pour eux.

Voicy ce que je concevrois à cet égard (si vous jugés que Sa Majesté veuille bien avoir cette commisération, car c'est une vraye charité), ce seroit de donner à chacun de ces enfans (ce sont cinq filles) une petite pension viagère dont cependant la mère auroit la jouissance sa vie durant. Si vous daignés porter ces petites pensions jusqu'à 150 l. chacune, ce seroit pour les cinq 750 l. C'est un secours, sinon considérable, du moins pour pourvoir à l'exact nécessaire.

Je suis avec un profond respect, Monsieur, votre très humble et très obéissant serviteur,

Cochin.

Ce 14 mars 1767.

Marigny however did not grant the pension, perhaps because of the expense. Nevertheless the Académie's certificate was renewed on 6 December 1783 on the application of Pellechet's niece, Mme Danycan, who was able to demonstrate that the 1764 samples had not degraded.

The Mlle Cellier who was to retail the Pellechet pastels has hitherto been ignored, but her identity also illustrates how far Loriot and his relations benefitted from the support of the artistic establishment. As we can figure out from various sources, she was almost certainly Cochin's cousin Geneviève Sellier (1722–1789), daughter of Antoine Cellier ou Sellier, maître-sculpteur à Paris, after whose death Cochin was appointed her tuteur.<sup>25</sup> Many years later, after the death of Cochin's mother in 1767, she joined his household and took over the business of selling his prints. In 1787 she broke her right arm near the shoulder, and a year later broke it a second time; this, together with the gout from which she suffered, made it very difficult for her to look after herself, much to Cochin's consternation; he employed Eisen's widow to take care of her.

Bachelier and Roslin, two of the members of the committee appointed to investigate the Pellechet process, themselves experimented with oil pastel, probably using the Pellechet process or a minor variation; they displayed the results in the Salon de 1765. Roslin's submission, a portrait of a young woman sometimes said to be his wife, was carefully inscribed "Peint au Pastel a l'huile en 1763", suggesting that research into the Pellechet process had commenced some time

<sup>25</sup> Registres de tutelles AN Y4472, Sellier 6.x.1731; she was then aged 9. Antoine's niece Marie-Anne, Mme Daniel Horthemels was Cochin's mother-in-law; the Horthemels and Cellier families were both prominent dynasties of booksellers in Paris. For the relevant documents, see the entry on her in the online *Dictionary*.

before the 1764 report. An inspection of the result (fig. 3, now in the Nationalmuseum) shows that the method was not successful. Bachelier, who had experimented with wax painting as early as 1749, also exhibited three oil pastels, all now lost. Diderot, having initially supported the research into encaustic painting in the 1755 treatise *L'Histoire & le secret de la peinture en cire*, dismissed them: “M. Bachelier, laissez-là votre secret, et allez remercier M. Chardin, qui a eu celui de si bien cacher votre tableau, que personne que moi ne l'a vu.”

Among Loriot's numerous inventions is the hydraulic machine of which he presented models to the Académie des sciences in 1760 and 1763,<sup>26</sup> prior to constructing the working machine for Marigny at Menars in 1771. The model was preserved in Loriot's cabinet, and is perhaps that shown in the pastel by Valade – although Tourneux (1908b) thought the pastel showed the subject “tendant les fils et les bâtonnets d'un métier à rubans”. As that machine was rather earlier, and its commercial success had been blocked by the industries it sought to supplant, this seems historically surprising, although the multitude of threads make the suggestion visually plausible.

Somewhat later Loriot was engaged by Marigny to work at Menars, but, in 1767, had to interrupt his work to develop the mechanical “flying table” for the Trianon (which allowed the royal party to be served without the intrusion of servants).<sup>27</sup> Although this is the invention for which Loriot is probably best remembered today, it cannot (as has been suggested) be the device shown in Valade's pastel, as this was exhibited four years before the work.



Fig. 4

An advertisement in the *Annonces, affiches, nouvelles et avis divers de l'Orléanois*, 12 June 1772 informs us that—

M. Loriot, Ingénieur — Mécanicien, Pensionnaire du Roi, Inventeur du secret de fixer la peinture au pastel, approuvé par l'Académie, & annoncé au Public dès l'année 1753, étant invité par des Curieux & Amateurs de cette Ville, de vouloir s'y arrêter en allant à Menars pour fixer nombre de tableaux qui méritent de passer à Postérité, donne avis qu'il sera à Orléans Dimanche prochain 14 Juin, où ceux qui auront des tableaux au pastel, & même des dessins à faire fixer, pourront les faire remettre chez M. Laperche, Marchand Bonnetier, rue Royale.

Le secret du Sr. Loriot réunit au mérite de son utilité particulière celui d'ôter les taches de moisissure & de faire revivre les couleurs qui ont changé, comme le bleu qui a noirci, le rouge qui a perdu sa vivacité, &c. tellement qu'il les rend, avec leurs coloris, aussi frais que si l'ouvrage sortoit de la main du Peintre, & sans rien altérer de ce certain duvet qui fait le mérite de ce genre de Peinture, au point qu'il est impossible de distinguer un tableau fixé d'avec un qui ne le seroit pas; & ainsi que la dépences à laquelle

on croitoir s'exposer ne retienne pas les Personnes qui desireroient profiter de ce moment de loisir & de bonne volonté dudit Sr. Loriot, la table suivante indiquera ce que chaque objet pourra coûter.

	Hauteur.	Largeur.	Prix.
Pour une toile de 4 à	12 pouces sur	9 pouces,	4 liv.
Une toile de 6	15 p.	12 p.	6 liv.

<sup>26</sup> Its approbation was recorded in a resolution of 5.IX.1761.

<sup>27</sup> The model for this was lot 750 in Marigny's posthumous sale, Paris, Basan, Joullain, 16.III.1782 & seq.

Une toile de 8	17 p.	14 p.	8 liv.
Une toile de 10	19 p.	17 p.	10 liv.
Une toile de 12	22 p.	18 p.	12 liv.
Une toile de 15	24 p.	20 p.	15 liv.
Une toile de 20	27 p.	22 p.	20 liv.

Presumably one of those “curieux” was the connoisseur Charles Le Normant du Coudray (1712–1789): it was evidently on this visit that Loriot fixed Perronneau’s portrait of him now in the musée Cognacq-Jay (fig. 4).<sup>28</sup> Loriot followed this up on 10 July 1772—

M. Loriot, de l’Académie des Sciences, n’ayant pas eu le temps de fixer tous les portraits au pastel qui lui ont été présentés, donne avis qu’il se rendra à Orléans sur la fin de cette semaine; on peut juger actuellement que l’on a des épreuves sous les yeux, que son secret bien loin d’altérer les couleurs, ne fait qu’en relever l’éclat. Son second séjour dans cette Ville, qui sera de peu de durée, est pour satisfaire les personnes qui n’one pas pu profiter, pour leur tableaux, de son talent.

Just two months later, the pastellist Marguerite-Thérèse Leprince, Mme Laperche (1743–p.1798, *q.v.*) and her relative (probably her brother) Leprince, whose address Loriot had offered and who presumably had witnessed him at work, stole the secret and offered it at half the price:<sup>29</sup>

Le Sr. Leprince, possédant le secret de fixer la peinture au pastel, offre ses services aux Personnes qui ont des tableau à conserver; sa maniere de les fixer, outre le mérite de ne point les brunir, ni de les altérer aucunement, réunit celui d'enlever toutes les moisissures, de les en garantir, & de conserver leur fraicheur naturelle, sans craindre que jamais le pastel ne tombe, ni ne change. Pour faire jouir le Public de tout l'avantage de son secret, il ne prend que la moitié du prix du Sr Loriot; scavoir, pour une toile de quatre, portant 12 pouces sur 9, 2 liv. celle de six, portant 15 pouces sur 12, 3 liv. celle de huit, portant 17 pouces sur 14, 4 liv. ainsi des autres à proportion de leur grandeur; il fixe aussi les dessins de toute espece, à bien moins prix que les pastels. Sa demeure est chez *M. Laperche, Marchand Bonnetier, rue Royale, à Orléans*.

A number of other works successfully fixed by Loriot are known, among them another fine pastel by Perronneau in Chicago (the “enfant Lemoyne”).<sup>30</sup>

Loriot was hugely prolific as an inventor in an age where “scientific” inventions attracted huge interest. The young Swiss inventor Sébastien Jurine (1722–1779) also submitted some of his engines to the scrutiny of the Académie des sciences in Paris around this time, notably his machine for uprooting trees (it was nothing more than a clever set of levers, but more neatly designed than anything else available). This he would advertise in London, and later the machine was sent to Russia in search of patrons.<sup>31</sup> The son of a passementier who had settled in Geneva (where he was granted habitation in 1726), Jurine was trained as a guimpier before becoming a machiniste and inventor (not only of watch mechanisms). Whether directly or not, it seems fairly clear that he learned of the Loriot pastel process by the early 1760s: the process was no longer really secret. He was recommended by Liotard to the Earl of Bessborough for fixing pastels “as well as Loriot” (letter 28 June 1763): in the three months prior to the letter, Jurine had fixed nine of Liotard’s pastels, three for the collector William Chaloner which Liotard had previously painted, and more than 60 other portraits in Geneva.

Jurine was probably already in London at that stage. On 17 August 1763 he wrote to the Society for the Encouragement of Arts, Manufactures and Commerce concerning his method of fixing crayons. Consideration was postponed until the November meeting of the Polite Arts committee. Jurine presented some specimens at that meeting, but the committee asked Francis Cotes to investigate the expense of obtaining two pastels to be copied after Rosalba to be used in a fixing experiment. Cotes reported back that the charge would be 8 guineas with hands, 6

<sup>28</sup> This is clearly evidenced by the lengthy inscription on the back of the pastel of Le Normant du Coudray, completed by the beginning of 1766, exhibited in 1769 and, according to the sitter, “J’ai fait fixer ce portrait par le sieur Loriot qui avoit ce secret, le 23 juin 1772.”

<sup>29</sup> *Annonces, affiches, nouvelles et avis divers de l’Orléanois*, 18 September 1772.

<sup>30</sup> Art Institute of Chicago, inv. 1995.283, bearing an undated inscription *verso* “Ce pastel a été fixé par Loriot”; it is no longer believed to be the pastel shown in the Salon de 1747, but if so it provides no evidence that Loriot was active as early as that, since the fixing might have taken place later.

<sup>31</sup> The archives of the RSA contain two letters from Jurine, both from 1764 (RSA/PR/GE/110/16/136, 137), one about the machine for uprooting trees, the other about a machine for cleaning harbours. The unpublished minutes of the meetings in 1763 and 1764 in which his pastel method was considered are also in the RSA archives. I am grateful to Eve Watson for locating them for me (November 2014).

without (the copyist was not named); on 16 December 1763 the committee authorised the expenditure of up to 16 guineas. At the same time, several other applications were considered (apart from John Keyse's wax crayons,<sup>32</sup> which were recognised as a different category): Katherine Read, and the anonymous AB and JD. AB's samples were subjected to brushing and having water poured over them. On 23 March 1764 the committee met with Jurine in attendance: they inspected a "Picture by Rosalba fixed by him" (it is unclear if this was one of the copies Cotes had been authorised to acquire), and resolved that Jurine's method "will prevent the colours from falling or being Shaken off" and that it was their opinion "that by this Method Crayons are better fixed, than by any other hitherto known to have been practised in England." However Jurine then asked for authenticated copies of the minutes, with a view to advertising his method: on 4 May 1764 the committee considered the request, but thought it prudent first to ask Cotes's advice. A week later they resolved that it was *not* in the Society's interests to grant such a certificate: the reasons were not clear, and Jurine received no premium or bounty.<sup>33</sup>

Eight months later he placed a judiciously worded advertisement in the London *Gazetteer & new daily advertiser* on 28 January 1765:

Sebastian Jurine continues to fix Pictures in Crayons, to the entire Satisfaction of all who put such Paintings in his Hands: His Method not only prevents the colours from falling or fading, or being easily rubbed off, but likewise takes out every Spot of Mouldiness, and hinders the forming of others. I need not enlarge on the Utility of fixing Pictures drawn in Crayons, their aptness to be spoiled when not thus secured, in a sufficient Proof of the Value of my Discovery, and the Certificates of several persons of Distinction now in my Hands, and which I am ready to produce, will remove any Doubt concerning the Efficacy of this Method; I shall here mention only few of them, namely, the Countess of Bolingbrooke,<sup>34</sup> the Earl of Besborough, and General Conway, but I shall readily shew several more to such as are desirous of seeing them. As my Affairs require my Presence in other Countries, my stay here will not exceed three Months more at most: I continue to lodge at Mr Brochet's, Jeweller, in Suffolk-street, near Charing Cross. P.S. I fixed for that celebrated Painter, Mr Coste, one half of a picture in Crayons, without at all touching the other Half; it was exposed to public View in the Great Room belonging to the society of arts, etc. in the Strand: No one could distinguish the Side which was fixed, from that which was not. I am always to be met with at my Lodgings at One o'Clock till the Evening every Day, Saturdays excepted.

None of the Liotard pastels fixed by Jurine has been identified to date,<sup>35</sup> and it is far from clear that Liotard used any form of fixing apart from the three items he told Bessborough Jurine had fixed for him. But there are two candidates for the pastel by "Coste" [i.e. Francis Cotes]<sup>36</sup> exhibited in 1764, and it seems likely that both were fixed. (It is possible that Cotes in fact used two of his own pastels rather than making copies of Rosalbas as the Society had requested.) One, no. 21, is the portrait of General Keppel now in the National Army Museum. Careful examination reveals a background offering a completely different appearance to normal Cotes pastels, with a distinctive, furry surface and in places a rust-coloured hue; losses of the gouache highlights seem worse than in similar Cotes pastels. The other, very likely to have been the unidentified man exhibited as no. 20, was the pastel of William Chambers, surely the version now in Edinburgh (fig. 5).<sup>37</sup> We know this from this account given in John Russell's 1777

<sup>32</sup> Keyse was awarded a bounty of 30 guineas for his wax crayons, but in contrast to the Académie royale's approach, payment was conditional on his disclosing the secret. The only surviving example, dated 1763, appears to have darkened considerably.

<sup>33</sup> Three years later, in 1767, a certain Robert Stanley was awarded a bounty variously reported as of 10 or 20 guineas "for a new method of preparing crayons", the chief merit of which seems to be that they were cheaper than Stoupan's and sold individually.

<sup>34</sup> Better known as Lady Diana Beauclerk.

<sup>35</sup> It seems probable that the differences between the surface textures of two Bessborough portraits, R&L 274 and 275, is due to Bessborough's own version being fixed by Jurine.

<sup>36</sup> Evidently Cotes. The only pastels that can be meant are the two male heads exhibited in 1764, nos. 20 and 21. The latter was identified by Walpole as of General Keppel. The pastel of Lieutenant-General William Keppel (1727–1782) in the uniform of colonel of the 56<sup>th</sup> Foot is now in the National Army Museum; it was sold at Sotheby's, 23.XI.2006, Lot 182 where it was confused with the 1755 portrait of the Earl of Albemarle (Lot 183).

<sup>37</sup> It is unclear how the pastel in Edinburgh was acquired by General Sir Redvers Buller in the nineteenth century. It does not seem to appear in any of the Bessborough sales, nor in the lists of pastels at Roehampton compiled by Sir William Musgrave in 1785 (BL Add MS 6391, ff199–200), although nine Liotards are listed. Perhaps Bessborough had disposed of the pastel by then. The Rev. Daniel Lyons (*The environs of London: county of Surrey*, London, 1792, 1, p. 433) noted at Roehampton "in the breakfast room are several [portraits] in crayons of English gentlemen, principally in Turkish dresses, by Liotard", but did not mention the Cotes. There is no mention of the owner in the legends either on the 1771 engraving by Houston, or on that made later for the *European magazine* (to accompany a biographical note on Chambers in March 1796).

treatise,<sup>38</sup> which also explains Jurine's connection with Cotes (through Bessborough – who also provides the link with Chambers: the architect designed Parkstead House, Roehampton for the peer around 1758, while Chambers and Cotes were both closely involved in the foundation of the Royal Academy a few years later):

Mr Cotes painted a portrait of Sir William Chambers, which is in Lord Besborough's collection. An ingenious foreigner had discovered a method of fixing crayon pictures, so that they would not rub or receive an injury if any accident happened to the glass. The Society for the Encouragement of Arts had before offered a premium to any one who should discover so valuable a secret, for which premium he made application. Mr Cotes being eminent in his profession, was desired to lend a picture for the trial, and give his judgment, which was made on this portrait of Sir William Chambers. The crayons he indeed so perfectly fixed as to resist any rub or brush without the least injury, which before would have entirely defaced or spoiled it: but the picture, which before had a particularly warm, brilliant, and agreeable effect, in comparison became cold and purple; and though in one sense the attempt succeeded to the designed intention of fixing the colours, yet the binding quality of whatever fluid was made use of in the process, changed the complexion of the colours, rendering the cold teints too predominant.

Russell may have known a little more about this than he tells us: he was an apprentice in Cotes's studio for five years from 1762, and it is here suggested that he is responsible for the pastel copy of the Edinburgh pastel which was made for Chambers's assistant, Thomas Hardwick, and is now in the RIBA collection (fig. 6).<sup>39</sup> The technique, quite unlike Cotes's, is characteristic of Russell's established œuvre, although there are few known examples from this early.<sup>40</sup> The contrast between Russell's colours and the pastel in Edinburgh may have been exaggerated by Russell to make his point, but the rich iconography of this sitter, with paintings by Sir Joshua Reynolds, John Francis Rigaud and Carl Frederik von Breda and a miniature by Jeremiah Meyer, all support Russell's paler complexion as the truer version.



Fig. 5



Fig. 6

Although leading to slightly different effects in each case, Jurine's method was not successful with these pastels. (This may not have been immediately evident: the chemical reactions may

<sup>38</sup> *Elements of painting with crayons*, London, 1777, pp. 18f; the passage (which was not in the first, 1772, edition) was reprinted without acknowledgement in the anonymous *The artist's assistant: or school of science*, Birmingham, 1801, pp. 116f. The Russell passage was quoted in the Edinburgh 2008 exhibition catalogue where the pastel was exhibited (no. 42).

<sup>39</sup> Inv. POR/CHAM/1.

<sup>40</sup> The label on the frame of the Chambers pastel, giving it to Francis Cotes, suggests that it was probably made while Russell was still an apprentice, i.e. before 1767. However this was the year in which the young Hardwick (1752–1825) joined Chambers as an apprentice, and it seems more probable that he acquired the portrait (perhaps from a third party) later.

have needed time to take effect.) It seems likely that when Cotes's advice was sought by the Society of Arts in May 1764 regarding the issue of a public certificate, he had become concerned with the effects of the method. Jurine's advertisement did not claim that he had fixed Cotes's pastel to the artist's satisfaction.

Did any of these methods work?<sup>41</sup> Even Liotard, who had apparently endorsed Jurine's method, seems not to have used it, as emerges for example from Grassot's letter of 1777 complaining that a pastel Liotard had made in 1770 was already showing extensive deterioration. One of the best discussions was included in Jérôme de Lalande's account of his trip to Italy,<sup>42</sup> where he encountered the polymathic (or at least multifaceted) Raimondo di Sangro, principe di Sansevero (1710–1771), scientist, inventor, esotericist, soldier, freemason and man of letters. Lalande gives an account of his preparation for Naples Yellow, and of his method of fixing pastels, but he also explains the difficulties with the existing methods. While fixing mixtures were well known (most included fish-glue, alcohol and water) the real difficulty was how to apply it. The mixture cannot be brushed onto the surface without destroying the pastel.<sup>43</sup> Immersion was not an option (although it was the method recommended by various authors<sup>44</sup>): some pigments would become detached on contact, while others would tarnish and darken. Exposing the pastel to a heated vapour failed, because the adhesive constituents didn't evaporate at the same temperature as the other parts of the mixture. Loriot's technique was simply to use a brush and a metal rod to

spatter the liquid over the surface. It required patience and great skill to do so with uniform results, and while some examples seem to have succeeded, there were other failures (La Tour's famous self-portrait in Saint-Quentin, fig. 7, may well be one of these<sup>45</sup>). Lalande even goes so far as to challenge Loriot's claim that the pastels exhibited half fixed, half not were fairly prepared: acknowledging that all fixing changes colours, he believed that Loriot had treated one half with the proper mixture, but had applied a similar water–alcohol mixture without the fixative to the other half to conceal the inevitable discolouration.<sup>46</sup> It is difficult to judge today: the Valade shows no discernable difference across the surface, which in itself is puzzling: if only half were fixed, wouldn't some degradation of the unfixed part be expected over 250 years – wasn't that the whole point? Of course it is possible that Loriot may have completed the fixing after the Salon; or that he used



Fig. 7

<sup>41</sup> Among the numerous artists whose claims to fixing pastel are not discussed here are Barat, Bréa, Cunningham, Dachon, Dinglinger, Frey, Hickey, Huquier, Johnston, Langlois, Longastre, Maugé, Pourvoyeur, Villebrune and Vincent de Montpetit; see the respective entries in the *Dictionary*.

<sup>42</sup> *Voyage d'un François en Italie, fait dans les années 1765 & 1766*, Venice, 1769, vi, pp. 397–406; nouv. ed., Yverdon, 1769, vi, pp. 262–70.

<sup>43</sup> Except as an intermediate layer during the artistic process: see Shelley 2005. Such layers are likely to have been applied directly, probably with a brush – and therefore fall outside the scope of this essay.

<sup>44</sup> For example, Le Pileur d'Apligny 1779. Mayerne and Hoogstraeten (see Burns 2007, p. 147f) described similar processes for chalk drawings that are unlikely to have been suitable for pastels. There is an excellent survey of various methods of fixing in the anonymous 1790 *Secrets concernant les art et métiers, par une Société d'artistes*, Paris, 1790; this includes a method of rapid immersion for no longer than a “coup d'œil.” In his 1794 manuscript treatise on the manufacture and use of pastels, *Onderriging in het maaken van pastel, crayon en de manier, hoe daar medde te werken en wat daartoe behoord* (Rijksmuseum Research Library, MS 310K), Rienk Jegelerhuis describes a method of impregnating a sheet of paper with glue or varnish before drawing on it, then floating it on a bath of hot water so that the glue melts and causes the pastel to bond with the paper. Not only is this difficult to use in practice, but most surviving Jegelerhuis pastels show the oxidised tidemarks one would expect from such immersion (see Leeuwen & al. 2012).

<sup>45</sup> See however the excellent discussion in Shelley 2005 (and note above): the construction of La Tour's pastels is often more complicated than appears at first sight. La Tour himself was a great experimenter, searching for permanence for his works with a wide range of techniques, many of which were unsuccessful. Unlike the processes discussed in this article, his methods were undocumented. But it is noteworthy that in the 1810 La Tour sale after the death of his brother, the catalogue explicitly noted that “Tous les Tableaux en pastel sont fixés par l'Auteur, et sont d'une fraîcheur comme s'ils venaient d'être peints” (v. Brière 1932a, p. 86f).

<sup>46</sup> Perhaps Jurine was aware of that suspicion when he used the phrase “without at all touching” the unfixed part.

so little fixative that it had no effect.

Lalande endorses Sansevero's alternative, which uses essentially the same mixture, but is applied to the reverse of the canvas; the alteration of colours was "insensible". This might sound like a good idea, until you read Lalande further: again some of the pigments do not absorb the fluid, and so after the treatment the artist has to go over the surface of the pastel with his finger to recompress the loose parts. This was evidently never going to catch on.

Yet another method of fixing pastel was invented by a Swedish soldier and topographical artist, Abraham Fischer, and published in the *Journal des savans* just after Lalande's book appeared.<sup>47</sup> He seems to have been completely overlooked in the modern literature. Detailing the weaknesses in the Loriot, Sansevero and other methods (to which he claimed the superiority of his undisclosed procedure),<sup>48</sup> Fischer suggested that the demonstration pastels be cut in four pieces, of which only two would be entrusted to the operator, to avoid cheating. But his method also required retouching when applied to normal pastels. Even less is known of the process invented by Bernard Stoupan of Lausanne, involving an atomised mixture of strong vinegar and egg white.<sup>49</sup>

Another significant contribution to this search was made by Giuseppe San Michel, known as the chevalier, or comte, de Saint-Michel, peintre du roi de Sardaigne. By 1772, he was in Paris, having invented a method of fixing pastel, which he submitted to the Académie for approval on 7 June 1772. The report (again by Bachelier and Roslin) was not published, but the following notice appeared in the *Journal encyclopédique*, under the heading *Arts utiles & agréables*.<sup>50</sup>

La peinture en pastel est si agréable; elle a tant d'avantages sur la peinture à l'huile, pour les portraits & les sujets gracieux, qu'elle seroit généralement préférée, si elle n'étoit sujette à l'inconvénient de s'effacer par le plus léger frottement, & de recevoir les impressions de l'humidité, ou d'une grande chaleur. On a bien trouvé en France, le secret de fixer le pastel; mais bien des personnes assurent que cette fixation n'a pas toute la solidité de la peinture en huile; & que d'ailleurs les traits des figures sont altérés par l'opération, & qu'en outre, on ne peut point fixer les peintures en pastel sur velin. M. de Saint-Michel, gentilhomme piémontais, Peintre du Roi de Sardaigne, & de L.A. Mgr le Prince & Mme la Princesse de Carignan, a trouve le secret de fixer les tableaux en pastel, de maniere a ne point altérer la peinture, a la rendre aussi solide, aussi durable que la peinture à l'huile, & susceptible d'être retouchée par le Peintre après la fixation; les tableaux fixes n'ont rien à craindre, ni des cahots

des voitures dans les voyages des plus longs cours, ni des frottemens, ni de la température des saisons. Il a inventé de plus la composition d'un pastel supérieur à tout ce qu'on a dans ce genre, d'une douceur très-agréable dans toutes les teintes; il a soumis des découvertes & ses épreuves à l'académie royale de peinture & de sculpture de Paris, qui lui a délivré un certificat très-avantageux, & que nous rapporterons.

M. de St. Michel, dans la vue de contribuer aux progrès des arts, veut faire part de ses secrets au public. Jusqu'ici il en a profité pour lui-même; la beauté & la bonté de son pastel, jointes à un talent supérieur, lui ont procuré une quantité très-considérable de portraits, soit dans les pays étrangers, soit en France.

Il leur propose une souscription de mille billets, pour chacun desquels il sera payé 72 liv., qui seront remise à M. Collet Notaire, à Paris, rue St. Denis, au coin de la rue aux ours, & dont il donnera quittance. Les souscripteurs donneront leur nom, demeure & qualités, pour être enregistrés par ordre de souscription. Elle sera ouverte depuis le 1<sup>er</sup> Septembre 1772, jusqu'au 1<sup>er</sup> Janvier 1773, auquel tems on donnera aux



Fig. 8

<sup>47</sup> *Journal des savans*, XLIX, .XI.1770, pp. 253–62.

<sup>48</sup> Lundberg's pastel of Herman Petersen (Stockholm, Bukowskis, 27.V.2009, Lot 279) may be one of those Fischer cites as having fixed 15 years previously; if so it appears to have lasted well.

<sup>49</sup> We have only Reifenstein's report to Caroline Luise von Baden (v.1761) that he had seen a pastel by Handmann fixed with it.

<sup>50</sup> *Journal encyclopédique*, .IX.1772, pp. 476–78.

souscripteurs un livre, contenant la composition des différentes couleurs principales, telles que le bleu de Prusse, carmin, stil de grain, & autres qu'il est nécessaire de sçavois composer soi-même, pour donner aux pastels la perfection qu'on desire. M. de Saint-Michel a exposé dans la galerie du Luxembourg à Paris, un de ses tableaux, qu'on peut voir les mercredi & samedi, afin qu'on puisse juger par soi-même que les teintes ne sont point dégradées par la fixation du pastel, & que la fraîcheur du coloris n'est point altérée. Voici le certificat que l'académie de peinture lui a donné.

*Je soussigné, Secrétaire perpétuel de l'académie royale de peinture & sculpture, certifie que plusieurs membres de l'académie ayant examiné les crayons de pastel de la composition du Sr. de St. Michel, ils les ont trouvés très-beaux; & qu'ayant pareillement examiné sa maniere de fixer les tableaux en pastel, ils ont reconnu qu'elle peut être très utile aux Peintres en pastel, en leur donnant les moyens d'attacher le crayon, & pouvoir retoucher après. En foi de quoi je lui ai expédié le présent certificat, pour lui servir & valoir ce que de raison. Fait à Paris, ce 7 Août 1772.*

*Signé COCHIN.*

Chaperon (1788)<sup>51</sup> was rather scathing about Saint-Michel's subscription project, doubting if it was successful, implying that his secret was well known and that Saint-Michel's wares were offered at too high a price, and he indicated that the artist would try to sell them elsewhere. Saint-Michel did so (like Jurine, he tried his luck in Russia and England), but there is something special about his method which seems to be the synthesis between the Pellechet–Loriot ideas, using specially prepared support and pastels which harden into a cementitious surface that retains much of the special luminosity of normal pastel. Moreover, unlike the other processes discussed in this paper, a significant body of his work remains by which its efficacy can be judged today: fig. 8 shows an unidentified man, 1769, executed on silk (private collection). The main limitation seems to be have been the need to use only specific pigments: initially this does not seem restrictive, but they become recognisably repetitive to a Saint-Michel specialist.

Despite all these experiments, no real answer to the problem of fixing pastel ever emerged. Perhaps the last word should be given to the anonymous correspondent in the *Journal économique* (1758).<sup>52</sup> His careful analysis drew attention to the uneven results on different colours, with the inevitable change in colour balance; he thought portraits of men more suited to the process than those of pretty girls, the damage to whose complexions he likened to inoculation; it was safer to fix backgrounds and drapery than faces. His charge that when fixed pastels were examined they could not be compared with their previous state may have led to the half-fixed, half-not experiments of Loriot and Jurine. In any case, the damage done by fixing was likely to outweigh its limited advantages, for example, for travel.

Despite the wealth of contemporary literature concerning the methods of fixing, the extent to which these were applied in practice remains uncertain: modern scientific techniques are rarely applied to investigating pastels, which have attracted far less attention than old master paintings. There is limited microscopic evidence of the presence of particles of fixative;<sup>53</sup> currently work is underway to investigate the organic materials using hyperspectral imaging. While sophisticated immunological techniques have been developed which are capable of identifying the specific type of fish-glue that might have been used, the pastels so far investigated have shown no traces of its presence.<sup>54</sup>

By 1780 discussions had taken place with Loriot and the académie royale about the publication of his pastel secret (which was probably quite widely known by then, not just to Pernety and

<sup>51</sup> Chaperon's own method involved applying the fish-glue liquor through a silk cloth resting on the surface of the pastel. He recognised however that this left the colours darker, in particular the whites; he recommended allowing for this by using lighter tones when executing the pastel (§303).

<sup>52</sup> "Lettre d'un amateur de province sur le secret de fixer le pastel", *op. cit.*

<sup>53</sup> Shelley 2005 provides a detailed analysis of pastels by Perronneau and La Tour, including photomicrographic evidence of their use of fixatives, which however were applied by the artists during the execution of the works rather than as a separate fixing process of the kind considered here.

<sup>54</sup> Schultz & Petersen 2011, which presents the results of enzyme-linked immunosorbent assay applied to several Liotard pastels in the Rijksmuseum. I am grateful to Cécile Gombaud and Leila Sauvage for drawing this paper to my attention. Practical problems with this approach include the degradation of the proteins over time and the difficulty of distinguishing fixatives from the possible use of fish-glue in preparing the surface before painting (a practice of Liotard and others) or even its incorporation in the pastel sticks themselves (as in the earliest recipe for pastel by Petrus Gregorius, and later treatises such as the anonymous *Arts companion, or A new assistant for the ingenious*, 1749). A further complication is that fixatives could be applied from the front or back of the work, or as an intermediate layer.

Leprince). On 5 February 1780 Loriot wrote to the new directeur général des Bâtiments du roi, comte d'Angiviller, enclosing a draft memorandum describing the process in detail:<sup>55</sup>

A Paris, le 5 février 1780.

Monsieur le Comte,

J'ay cru ne pouvoir mieux reconnoître les bontés dont vous m'honorés, inssi que la grace que vous m'avet fait accorder de montrer mes ouvrages à Sa Majesté qu'en cherchant à coopérer à vos vues pour le bien des Arts. C'est dant cette intention que je me suis déterminé à faire jouir le publicque de mon secret pour fixer le pastel. En conséquence, j'en ai développé tous les procédés, le 8 du mois dernier, à l'Assemblée de l'Académie royale de peinture et de sculpture, laquelle a paru y prendre beaucoup d'intérêt et les a fait inscrire sur ses registres. Comme on m'en demendoit avec empressement la publicité et que M. Pierre m'a dit que vous désirié faire imprimer vous même ma découverte, c'est pourquoi je prant la liberté de vous-en adresser tous les détails que j'ay fais en sorte d'éclaircir, de façon que chacun puisse soi-même fixer les peintures au pastel sans autres secors; trop heureux si je puit par mes travaux mériter de plus en plus l'honneur de votre protection.

Je suis avec le plus profond respect, etc.

Loriot.

D'Angeviller responded a few months later, no doubt with advice from Pierre:

19 avril 1780.

Je reçus, Monsieur, dans son temps la lettre par laquelle vous m'informiez du dessein où vous étiez de coopérer à mes vues, en publifiant votre secret pour la fixation du pastel. M. Pierre s'étoit trompé en vous disant que j'avois dessein de le faire imprimer au nom de l'administration des Bâtimens. J'ai toujours pensé qu'il seroit encore plus convenable, pour lui donner toute sorte d'authenticité, que l'Académie royale de peinture le fit imprimer elle- même. C'est à quoi elle vient de se déterminer et elle m'a même communiqué la feuille qui contiendra les détails de ce secret, au préambule duquel je me suis borné à faire quelques additions et changemens. Je me fais en ce moment un plaisir de vous marquer toute ma satisfaction du sacrifice que vous venez de faire au bien public et des arts, en dévoilant cette invention.

Je suis, Monsieur, votre...

The following day, on 20 April 1780, the *Secret de fixer le pastel, inventé par M. Loriot*, signed by the Académie's secrétaire perpétuel Antone Renou, was issued by the Académie. This eight-page memoir was printed in 600 copies, of which 200 were for Loriot.<sup>56</sup> It was on sale in the colonades du Louvre,<sup>57</sup> and was reprinted in scientific journals.<sup>58</sup>

Of all these inventions that of Loriot was and remains the most celebrated. Writing much later, Mme de Genlis names it as one of the two most important artistic discoveries under the reign of Louis XV.<sup>59</sup>

Loriot had a logement in the Louvre “près l'atelier de M. Amedée Van Loo” from the early 1760s, when his nephew Augustin was recorded there (v. supra). From at least 1770 he was at no. 7 (between Montucla, censeur royal and premier commis des Bâtiments du roi, and La Tour), where the pastellist Anna Rajecka, later Mme Gault de Saint-Germain, stayed with his widow<sup>60</sup> in 1783 before the apartment was reassigned to Montucla (who, as censor, had previously approved for publication Loriot's 1774 treatise on waterproof cement). After Loriot's death his son Claude-Antoine Loriot sold the cabinet de machines to the crown for a pension of 700 livres, later converted into an annuity (decree of 11 Floréal, an II). Valade's beautiful and intriguing monument to the inventor remained in the family until the twentieth century, and now finds its home among the great collection that houses so many of his rival's masterpieces.

Neil Jeffares

<sup>55</sup> Reprinted in *Nouvelles archives de l'art français*, IV, 1888, pp. 247–48.

<sup>56</sup> Procès-Verbaux, 5.II.–29.IV.1780.

<sup>57</sup> Roze de Chantoiseau 1782–92, p. 58.

<sup>58</sup> e.g. *Observations et mémoires sur la physique...*, XV, i.1780, pp. 448ff.

<sup>59</sup> “Les annales de la vertu”, in *Oeuvres complètes de Madame la comtesse de Genlis*, Brussels, 1829, VII, p. 145.

<sup>60</sup> Née Marie-Thérèse Gilles: she must have married Loriot just before his death, as his first wife, Anne-Marie Pellechet, was buried at Saint-Germain-l'Auxerrois 11.IV.1781.