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Making and Knowing Project

Annotation for BnF Ms. Fr. 640, fol. 131r:
“Molded letter paper”

BnF Ms. Fr. 640, fol. 131r

Normalized Transcription:

L{ett}re et papier moulé

Escriptes de quelque ancre bien gommée ou de quelque couleur qui aye corps et qui ne se d’efface point estant mouillé d’eau de vye, puy pose ton papier sur la plastre d’ardille & le mouille d’eau de vye, & gecte d’une part et d’autre.

Translation:

[NB: A proposed correction to the current online translation has been inserted into the text, underlined, and footnoted here.]

Write with some well-gummed¹ ink or any other color dye which has body, and which is not erased if dampened with brandy. Then put your paper on the sheet of clay, and dampen it with brandy. Cast both sides [of paper].

Annotation

The recipe “Molded letter paper” on fol. 131r explains in just one sentence the process of laying thick ink onto a piece of paper and casting it into clay.² The recipe is without exact precedent in previous written sources, and the recipe does not clarify its intended final product. While a reconstruction of this recipe sheds light on its possible outcome, the limited nature of the text suggests that the recipe was not a subject of careful experimentation. Rather, as this entry will demonstrate, this recipe likely represents a less-developed idea inspired by two broader

¹ “*bien gommée*.” In modern French the verb *gommer* is associated with the act of erasing, but in the sixteenth century, the past participle of this verb would have indication the addition of gum to a substance. In his French-English dictionary of 1611, Randle Cotgrave defines *gommé* as follows: “gummed, thickened, mixed, or seasoned with Gumme.” See the entry in Randle Cotgrave, *A Dictionarie of the French and English Tongues* (London: Adam Islip, 1611).

² Bibliothèque Nationale de France, Paris, Ms. Fr. 640 (henceforth cited as BnF Ms. Fr. 640), fol. 131r.

groups of recipes in the manuscript: those related to the casting of thin substances and those related to writing tricks.

The recipe begins by calling for writing that uses either well-gummed ink (“*encre bien gommée*”) or a colored liquid with body (“*quelque couleur qui aye corps*”). Immediately evident is the priority given to the viscosity of the writing liquid rather than its appearance, which implies that the paper onto which the ink is laid is a disposable byproduct of the making process. The recipe offers no indication of how to make “*encre bien gommée*,” although for a contemporary reader, this would have likely been a straightforward process.

As Jo Wheeler has noted, the majority of surviving Renaissance ink recipes are related to the making of iron gall ink, which was used since the twelfth century and involved a combination of iron salts with gall from animal or plant sources.³ A common source in which to locate such recipes are Renaissance books of secrets.⁴ The *De Secreti* of Alessio Piemontese (1555), for example, is filled with numerous ink recipes, each with different merits (cost-effective ink, white ink, etc.). One recipe, “To make ink to write that will allow you to make a large quantity, and very quickly, and at very little expense, and that will be perfect. And to make furthermore ink to print,” calls for the primary ingredient of fish gall, particularly that from ocean regions such as Venice.⁵ To improve an ink of simple fish gall, the *De Secreti* calls for adding dust of cuttlefish or dried fish, charcoal, glass, gall, and gum (*gomma*). The practice of varying the ingredients in ink to fit a desired purpose or writing surface was therefore common in this period. Recipes in numerous books of secrets call for some form of gum — typically gum

³ Jo Wheeler, *Renaissance Secrets: Recipes & Formulas* (London: V&A Publishing, 2009), 99.

⁴ On this genre, see especially William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Visual Culture* (Princeton, N.J.: Princeton University Press, 1994).

⁵ “*A fare inchiostro da scrivere che ne farete gran quantità, et prestissimo, et con pochissima spesa, et sarà perfetto. Et per fare ancora inchiostro da stampare.*” The cheapness of the recipe derives from one's ability to eat the fish and save the gallbladder. See Alessio Piemontese, *Secreti del Reverendo Donno Alessio Piemontese* (Venice: Sigismondo Bondogna, 1555), 188.

arabic — to be added to ink to adjust its viscosity.⁶ To render ink “*bien gommée*,” in turn, would likely have involved an increase in the amount of gum in the ink.⁷

The manuscript itself contains two recipes for ink within a larger recipe on fols. 51r-v for making prints using copper plates.⁸ The two recipes call for using linseed and walnut oil respectively and combining the oil with crushed garlic cloves and bread crusts. Because such ink was made expressly for the purpose of printing, in the reconstruction the decision was made to use a different ink. The primary properties of ink with which the author was concerned were its viscosity and its permanence when moistened. The recipe explicitly states that the ink must not run when wet with brandy,⁹ and in a marginal note for a later recipe the author again discusses the need to use waterproof ink when molding paper.¹⁰ In the reconstruction, two inks were used: a modern waterproof ink and an iron gall ink made to historical specifications by the Phoenix-based company “Old World Inks” [Figs. 1-2: **Waterproof Ink, Iron gall Ink**]. Selecting gum proved a greater challenge. Gum arabic seemed a natural choice, given the prevalence of gum arabic in this period, its use an ingredient for ink in many books of secrets, and its mention in numerous points of the manuscript.¹¹ In the reconstruction, however, a gum arabic solution was found to have a diluting effect when mixed with ink [Fig. 3: **Gum arabic solution**]. Rather than raise the letters, the surface of the ink remained flat, even when multiple layers of ink mixed with gum arabic were applied [Fig. 4: **Gum Arabic Text**]. It may have been that a solid form of the

⁶ Wheeler, *Renaissance Secrets*, 99.

⁷ A recipe in the manuscript on fol. 51r refers to the use of “*eau bien gommée*” to coat a stone on which to rub paper. This was presumably water with gum arabic added.

⁸ This recipe is titled “Cutters of printing plates.” It is unclear whether this recipe refers to the use of an engraved or an etched plate, and the process could presumably be used for either type of process.

⁹ “*qui ne se d’efface point estant mouillé d’eau de vye*”

¹⁰ In a marginal note to the recipe on fol. 142r for casting very thin objects, the author writes: “If you write on paper or on cardboard, and your piece of writing has been made with gum, the wetness of the clay pack or of the soaked sand for the *noyau* will moisten it [and] ruin it. Thus, write with cinnabar mixed with oil, on oiled and stamped paper.”

¹¹ For example, the manuscript calls for using gum arabic in the making of yellow varnish (fol. 74v).

gum arabic was needed, although the manuscript author references the use of gum in order to dilute paint pigments.¹²

In the reconstruction the decision was made to find a different gum to increase the ink's viscosity, and powdered tragacanth gum constituted with water was therefore used [**Fig. 5: tragacanth gum**]. A resin derived from the sap of an eastern Mediterranean plant, tragacanth gum was available in western Europe in the sixteenth century and was widely used by artisans. It is explicitly mentioned in Renaissance artistic treatises, often as a binding agent known for becoming hard with time.¹³ In the reconstruction, the tragacanth gum was mixed separately with both types of ink, forming a thick, gelatinous paste [**Figs. 6-7: Tragacanth gum mixed, Tragacanth gum and ink mixed**]. Initially applying this mixture with a calligraphy pen, the gum proved so dense that it was necessary to paint it onto paper with a brush. The sheet using modern ink was inscribed with "CRAFT" [**Figs. 8-9: CRAFT, frontal and side views**] the sheet using iron gall ink was inscribed with "ART" [**Fig. 10-11: ART, frontal and side views**].

After letting the ink dry over a period of several days, numerous changes took place. The ink shrank but remained thick and clearly raised above the surface of the paper. Despite applying the ink mixture to gelatin-sized sheets made of hemp and cotton fiber that approximated the qualities of sixteenth-century paper, the sheets curled up after the ink mixture hardened over several days [**Fig. 12: Curled-up Paper**].¹⁴ The curling of the paper may partly explain why the

¹² In a note adjacent to the recipe "Painting big figures" on fol. 65v, the author writes: "Illuminators who paint over sheets of paper, dilute their colors with gum. They mix gum with a bit of soap, this way colors run better."

¹³ Tragacanth gum could not only be used for making paints, but also for art objects that required greater volume, such as stucco and sugar sculptures. See Mary Merrifield, *Medieval and Renaissance Treatises on the Arts of Painting* (New York: Dover Publications, 1967), 1, 362, 484, 494; Marina Belozerskaya, *Luxury Arts of the Renaissance* (Los Angeles: J. Paul Getty Museum, 2005), 246.

¹⁴ Corresponding with Timothy Barrett at the University of Iowa's Center for the Book, we decided that the best type of paper to use for this recipe would be gelatin-sized sheets made of hemp and cotton fiber. These sheets are typically used in the care and conservation of rare books from the period, thus they

recipe calls for dampening the sheet with brandy, which allowed the paper to relax in shape, albeit causing small cracks in the ink as it spread out. Brandy with a high alcohol content (92 proof) was used out of concern that the tragacanth gum was partly water soluble. An important question was when to apply the brandy. As the sheet with writing was meant to be imprinted into flat clay [*plastre d'ardille*],¹⁵ one might expect to apply the brandy to both sides of the paper before imprinting it, as it would allow the paper to release from the clay more easily. The recipe however seems to call for the opposite order of operations: “*puy pose ton papier sur la plastre d'ardille & le mouille d'eau de vye.*” While the curved paper relaxed in shape after the brandy was added, the decision to apply the brandy to the reverse of the paper after placing the paper on the clay may have created problems [**Fig. 13: Laying Paper onto Clay**]. Both sheets were pressed hard against the clay by rolling them with a small marble cylinder [**Fig. 14: Rolling cylinder**], and when lifting the sheet using iron gall ink, the ink became stuck into the clay on two occasions and had to be forcibly pulled with the tip of a knife [**Fig. 15: Removing Ink with Knife**]. It may be that the author's ordering of steps was not meant to be followed verbatim, although this difficulty suggested that the recipe may not have been subject to careful experimentation by the author. Nonetheless, the ink created a clearly visible impression into the clay [**Figs. 16-19: Impressions of CRAFT and ART**].

Once the paper was pressed into the clay and removed, the reverse was also molded in adherence to the recipe's order: “*gecte d'une part et d'autre.*” While the flat side of the paper created a slightly visible texture in the clay [**Fig. 20: Reverse Molded**], the objective of the recipe remained unclear. The pieces of clay were left on a flat marble slab to dry for a period of

would have a comparable effect with regard to adherence to the ink. The sheets we received, according to Mr. Barrett's email correspondence, were “50-50 hemp and cotton, heavy weight for a book paper, and third quality.”

¹⁵ In his French-English dictionary of 1611, Randle Cotgrave defines *Ardille* as “clay, loame, tough mold.” See the entry in Cotgrave, *A Dictionarie of the French and English Tongues*.

several days, which caused them to warp slightly [**Fig. 21: Warped Clay**]. What was to be done next? Were the dry slabs of clay with an imprinted word the desired product? Their thinness made them brittle and impractical, causing one to break when handled [**Fig. 22: Broken Mold**]. It seems likely that such clay slabs would have been used as molds for a different substance such as plaster, which could simply have been poured onto the clay. The instruction to cast both sides of the paper may indicate that the author intended for the mold to be cast in two dimensions with the clay sheets pressed together. It may be that the clay was meant to have been inserted into a box mold or some other form. Such unknowns suggest that this recipe was not subject to rigorous experimentation.

It is noteworthy that the manuscript folio on which the recipe is found is very cleanly transcribed, with no cross outs in the main body of the text, a common feature of numerous other pages. Furthermore, the recipe should be considered in relation to the recipe immediately above it, which is entitled “Herbs difficult to burn in the mold” and offers one sentence of instructions to mold such objects “in two to three castings.” In the margin adjacent to the herb-molding recipe is written the word “*essayer*,” a likely derivation of the verb *essayer*, possibly in an antiquated version of its imperative form (*essaie* or *essaye*). This would indicate that the author wrote a reminder to himself to try the herb recipe, suggesting that he copied down these recipes from another source or without having actually executed them himself. This hypothesis is affirmed by the curtness of the recipes on this folio.

One might surmise, in turn, that the recipe for molding ink on fol. 131r was simply a “thought experiment,” an idea jotted down without empirical testing. The sources for such an idea are likely not textual, as no exact precedent for this recipe in printed books could be found. Rather, this recipe seems closely related first to a number of recipes related to writing found

much earlier in the manuscript. On fol. 19v is a recipe titled “To write on the left as well as on the right way,” which states: “Write in the best manner possible with some well gummed ink [*encre bien gommé*] on as many cards as many words you want to write and when your letter is full of ink, apply your paper and rub with a tooth the back of the cartel.” This recipe provides a nearly identical process to that described in the first half of the recipe on fol. 131r, using the properties of raised ink to create an imprint onto another surface. It is highly significant that on fol. 19v the recipe explicitly focuses on using this technique to reverse the direction of one’s words, as this same process obviously occurred when reconstructing in the recipe on fol. 131r. In the case of the recipe on fol. 131r, however, if something were cast into the clay, it would emerge with the writing again facing in the normal direction. This may indicate why the reversal of text was not explicitly discussed on fol. 131r.

The manuscript features an additional group of recipes related to writing that show the author’s broader concern with practical techniques related to this process. On fol. 46v is a series of such recipes, “Sulfur oil for the scribe” (used to clean a quill), “Shoemaker” (writing permanent text on shoes), “Erase lettering” (removing previously written text), “How to write without ink,” “How to make a letter on other material,” and at the end, “Black letter on stone.” All such recipes are composed of very brief descriptions with no cross-outs or marginal notes. It is difficult to know how thoroughly these recipes were actually tested, although a recipe interspersed among them indicating that the soot from used paper can heat boots indicates knowledge of the properties of the materials required. While such writing techniques may seem playful or even trivial, there are numerous examples of recipes in books of secrets for erasing ink, as well as for the production of invisible ink, for example.¹⁶

¹⁶ On the history of invisible ink since antiquity, see Kristie Macrakis, *Prisoners, Lovers, and Spies: The Story of Invisible Ink from Herodotus to al-Qaeda* (New Haven: Yale University Press, 2014).

In the case of the recipe on fol. 131r, the manuscript author's decision to connect paper with raised ink with making an impression in clay likely relates to his broader interest in molding very thin materials, which is borne out in numerous recipes on nearby folios in the manuscript. On fol. 142r the author gives the recipe for "Molding grasshoppers and other things too thin," which begins:

If you have a piece of written paper to mold, which is very thin, after you have made a first casting and it has taken, add a little thickness to the back of your paper with some melted butter, which is the most appropriate means there is, and [this method applies as well] for strengthening the wings of either a butterfly or grasshopper, or any delicate part of an animal for which you need to add some thickness.

The technique of adding butter to the back of paper recalls a similar recommendation by the manuscript author for the casting of rose petals.¹⁷ As this recipe and others suggest, the author has established a category of very thin objects that are (evidently) common subjects for casting, such as paper, flower petals and insect wings.¹⁸ The author is developing a set of techniques for casting such objects, such as widening them, as it is understandably difficult to make an impression when such objects have a very narrow thickness.¹⁹ As the reconstruction showed, fine clay would likely warp too much when dried to make an effective cast of paper. In turn, it is understandable that the author would recommend a shortcut for casting thin things, as he does in a separate recipe for molding a fly, noting that if its wings are imperfect, they can be made by cutting out a small piece from flattened metal.²⁰ In the case of the recipe on fol. 131r, however,

¹⁷ See fols. 154v-155r, as well as the "Annotation for BnF Ms. Fr. 640, fols. 129r; 155r; 155v: 'Molded Roses;' 'Molding a Rose;' 'Roses.'"

¹⁸ This recipe is itself likely related to that on fol. 131r, as a marginal note (reproduced above in note 8) specifically discusses the likeliness of ink mixed with gum to run when moistened.

¹⁹ For another recipe that discusses adding thickness to insects' wings before casting, see "Molding flies" on fol. 149r: "Large flies can be molded & cast. But you must grease them on top of their wings with wheat oil, which dries quickly and firms them up & gives them a little thickness. The same is done with butterflies, cicadas, grasshoppers & similar things."

²⁰ In the recipe on fol. 156v, "Moulding a fly," the author writes: "If it happens that you have some defects with your fly's wings, hammer some very fine tin, or gold or silver, if you cast it, and shape with scissors the amount you need for your wings."

such a shortcut would have been impossible, as the objective was to cast the impression of the lettering. With further experimentation, perhaps the author could have devised a more comprehensive recipe for casting raised writing on paper.

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