The Indocile Artisan Embodied Knowledge and the Migration of Silk Technology across the British Atlantic

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On occasion of the king's birthday, in 1735, Queen Carolina wore a dress made of a very fine silk from the British colony of Georgia. When the founder of the colony, James Oglethorpe, presented her with the silk, Carolina could barely believe it really came from across the Atlantic. The high quality of the threads convinced her that the material had to be Italian. Or, more exactly, Piedmontese. It was indeed Piedmont, part of the Kingdom of Sardinia, in the northwestern part of the Italian peninsula, that produced the finest silk threads. So fine, in fact, that they defined the standard against which silk threads produced elsewhere were evaluated. As Oglethorpe explained to the queen, the silk threads from Georgia were as fine as those produced in Piedmont precisely because the silkworm seeds came from Piedmont, just like the experts who had worked the silk in the new colony.

The silk presented to the queen materialized the ambitious visions for the colony of Georgia embraced by Oglethorpe and the Georgia Trustees. As explained in Benjamin Martyn's 1733 pamphlet, *Reasons for the Establishment of the Colony of Georgia*, silk played a major goal in the colonial project. Because of its climate, Britain could not produce raw silk: white mulberry trees, on whose leaves silkworms fed, did not grow at that latitude. Silk threads constituted an important negative entry in the British balance of trade, with almost half of the amount going off

to Piedmont. In Oglethorpe's design, empire would enable what climate hampered. Settlers would receive free land if they planted a certain amount of mulberry trees. Women, children, and servants would be employed in breeding silkworms and producing raw silk to be finished in Britain. In order for the plan to start immediately, Oglethorpe and the Georgia Trustees recruited Piedmontese silk experts, who supervised the initial stages of Georgian sericulture and laid the foundation for the industry to take off.

The Trustees' hopes were, however, short-lived. As various scholars have shown, the Georgia silk industry never quite took off and it certainly never delivered according to the visions of the first colonists. However different the approaches and the explanations, the numerous studies almost never fail to mention the baffling role played by Mary Jane Camuse (or Maria Giovanna Camuso), the spinner from Piedmont whose experienced hands worked the silk for the queen's dress. Brought to Georgia in July 1733, Camuse soon opposed her own strong will to the imperial projects of the British crown, refusing to cooperate as the Trustees and her local superiors expected. Although it would certainly be an exaggeration to say that she caused the failure of the silk industry in Georgia, her obstinate lack of collaboration certainly slowed down and put to the test the imperial dreams concerning colonial raw silk. Camuse was eventually replaced, but her story offers opportunities to reflect on the role of migrant artisans in the attempts to transfer technological systems across different geographical, political, and economic contexts. Studies of industrial espionage and technology transfer have included the migration of skilled artisans among the key ingredients that allow for the successful circulation of technologies. Yet, the migrant artisan is often a nameless figure, who contributes to the successful relocation of machinery, techniques, and know-how. Michel Foucault introduced the notion of "docile bodies" to discuss how eighteenth-century coercive institutions, in particular

the prison, but also the military and schools, subjected bodies to processes of discipline and control. Forms of domination and power acted upon docile bodies, which were willing to be "manipulated, shaped, trained." Studies of technology transfer implicitly assume that migrant artisans acted as docile bodies, who unproblematically resumed their impersonal function in the new location. In contrast, Camuse's apparently whimsical attitude reveals significant disconnects between the know-how that as a skilled migrant she brought along with herself and the expectations of the historical actors who engineered her migration with the goal of stealing technological secrets. Influential studies in the history of science have underscored how scientific controversies unveil tacit assumptions about the production of natural knowledge and provide unique insights into the various factors that shape the certification of experimental protocols. Similarly, this paper focuses on Camuse as a historical actor that, by not conforming to her expected role, exposes tacit assumptions about the migration of highly skilled labor and the value of embodied knowledge.

By resisting her expected behavior, and therefore disrupting at least the scheduled timeline of the silk colonial project, Camuse's name made it into the historical records. These sources, however, do not offer any insight into her motivations, beyond the interpretation given by her superiors in Georgia. This paper aims to break this archival silence. I argue that in order to understand Camuse's attitude to colonial authorities we need to move beyond the history of colonial Georgia and embrace a transnational perspective. By following her trajectory across the Atlantic, I employ the fine-grained lens of local and micro history, combined with the larger scale of transatlantic and colonial studies, with the goal of giving lived reality to the concept of embodied knowledge and to return agency to the figure of the highly skilled migrant artisan. I show that what has been portrayed as an outrageous behavior made in fact much sense from the perspective

of a highly skilled spinner who arrived in Georgia from Piedmont. Beyond the specific details of Camuse's story, this extraordinary case offers rich opportunities to reflect on the value of embodied knowledge from the point of view of artisans themselves.

Piedmont Silk and the British Empire

The migration of highly skilled workers is a recurring episode in the history of eighteenthcentury silk technology. Piedmont acquired its undisputed superiority in the production of silk threads through small innovations in machine design and labor organization over the course of the seventeenth and eighteenth centuries. But the beginning of this spectacularly successful industry was an episode of industrial espionage, occurring in 1664, when Gianfrancesco Galleani, a silk expert from Bologna, a city in the Papal State, brought to Piedmont the necessary knowledge to build the hydraulic silk mill. This was a piece of ingenious engineering that mechanized delicate operations for finishing raw silk into threads for weaving. The thread that was employed for making the warp, called organzine, was the result of a double process of twisting that made it distinctively resistant and shiny. Organzine from Piedmont was regarded as the finest available on the European marketplace and, especially with the introduction of annual fashions in the eighteenth century, was in high demand. Attempts at "stealing the secret" of Piedmont organzine abounded, yet no other state managed to combine quantity and quality in the same way as Piedmont. One of the most remarkable attempts at "stealing the secret" of Piedmont's organzine was the legendary operation of industrial espionage carried out by John Lombe in 1716. Lombe brought information concerning the silk mill and a few skilled artisans to Britain, and in a few years established a manufacture of organzine at Derby. Lombe and his

brother Thomas obtained a patent from the British crown that granted them a monopoly on the production of British silk threads for fourteen years.

Silk connected the concerns of the British Empire with the small kingdom of Piedmont. While British organzine satisfied local weavers and was a commercial success, the silk mill operated on raw silk that, for climatic reasons, could not be produced domestically. Crucially, the hydraulic silk mill required high-quality raw silk, of the kind produced in Piedmont. Silk of lower quality resulted in more labor time because the threads broke more often during the twisting process, and so the workers had to stop the mill and tie the extremities of each broken thread. It also resulted in more waste. With Asian silk still too expensive, Britain had no choice but import raw silk, mostly from Piedmont. Even after 1724, when the king Piedmont, in response to Lombe's espionage, issued a ban on the export of raw silk, Lombe's mills at Derby operated mostly on raw silk smuggled from Piedmont.

When James Oglethorpe laid out his design for the colony of Georgia, Lombe's patent had just expired and new entrepreneurs were eager to start new silk mills beyond Derby. In 1732 Lombe petitioned for a renewal of his patent, and gained Oglethorpe's support. Although Lombe's petition was ultimately rejected, Lombe and Oglethorpe forged an alliance that proved fundamental for the future of Georgia. Situated at the same latitude as cities on the Southern Mediterranean and Persia, Georgia would became, in Oglethorpe's plan, the place that would make the production of British raw silk possible. Experiments carried out in Carolina gave reasons for optimism: decades earlier, mulberry trees had been planted there, silkworms raised, raw silk produced. In 1732, the Trustees for the colony of Georgia invited Lombe to examine raw silk from Carolina and offer his opinion on the project of raising silk in the new colony of Georgia. Lombe, who welcomed the idea of high quality raw silk at lower cost, declared that the

silk from Carolina had "as much strength and beauty as the silk of Italy and... by many experiments ... it may be made to answer the same purposes". He reminded the Trustees of the considerable sums that Britain spent every year for purchasing silk from abroad, and strongly supported the silk project in Georgia. Silk became so tightly associated with Georgia that one side of the Georgia seal represented a silkworm breeding on mulberry tree leaves.¹

Labor Migration and the Colonial Project

Martyn's *Reasons for the Establishment of the Colony of Georgia* portrayed the colonial project as a combination of economic imperatives and philanthropic pursuits. Its premise was that the wealth of a nation consisted in the number of employed inhabitants. A powerful empire could count on a numerous, productive population, so Britain should use its American colonies as an additional reservoir of industrious hands. The caveat of course was that "wise governments, like bees, should not suffer any drones in the state," a Mandeville-inspired metaphor meant to explain that since the unemployed poor constituted a "dead weight" for the nation, they should be relocated where they could be useful to the commonwealth. Since Georgia would provide Mediterranean products such as wine and silk to the motherland, the related productive activities would perform philanthropic and economic functions: employment of the domestic poor and increase of British population. The latter goal was to be achieved by encouraging the migration of persecuted Protestants from various European countries. Indeed, Martyn's pamphlet indicated in its subtitle that the colony would offer support for "a great number of our own poor, as well as foreign persecuted Protestants."

¹ Ben Marsh, "The Meanings of Georgia's Eighteenth-Century Great Seals," *The Georgia Historical Quarterly* 96, no. 2 (2012): 195–232.

Britain had already benefitted from the persecution of Protestants in Catholic countries. As is well known, in the aftermath of the revocation of the Edict of Nantes in 1685 numerous silk weavers from France relocated in Spitalfield, London, sparking the British crown's interest in domestic sericulture. Yet forced emigration was not the only sources of foreign skilled labor. Protestants in Catholic countries did emigrate even during times of relative tolerance. This was the case with the silk workers from Piedmont that the Georgia Trustees recruited for their colonial projects. In the years following the revocation of the Edict of Nantes, Protestant communities in Piedmont faced persecution and expulsion, but at the turn of the eighteenth century the king Vittorio Amedeo II sanctioned a more tolerant regime that, albeit still discriminatory, allowed non-Catholic to live and work in the area. Protestants, particularly wealthy Huguenots from Switzerland, engaged in the silk business, acting as entrepreneurs or merchants/bankers. Protestants from the lower classes found employment as silk workers. The 1730s, however, were years of economic crisis that affected in particular the silk trade and that resulted in a sharp decline in the number of Protestants living in Piedmont. In spite of all the risks involved, the prospect of relocating in America was a tempting opportunity for non-Catholic silk workers. Following the departure of the Camuse family, numerous other Protestant silk workers from Piedmont assembled at Rotterdam in the hope of boarding the next ship to America.

There was nothing specific to Camuse's expertise that brought her across the Atlantic. She was a highly skilled spinner like many other in Piedmont and in the original plan she would not have been the only one in Georgia. She was one of the various pieces that made up the "scheme for raising silk" developed by the Trustees with the help of Paul Amatis, a member of a Piedmontese family of silk merchants, Oglethorpe, and Lombe. Paul was one the first Georgia settlers, who

arrived on the ship *Anne* with Oglethorpe in February 1733. His expertise concerned the cultivation of mulberry trees and the breeding of silkworms. While Oglethorpe supervised the building of Savannah, Amatis took a house in Charles-Town where he started to grow mulberry trees for Georgia and experimented with silkworm breeding. He settled in Savannah in September 1734, where his official function was to take care of the nursery of mulberry trees and to carry out agricultural experiments.²

The silk scheme must have been a hurried one, as Oglethorpe sent to the Trustees the details of his agreement with Amatis while aboard the *Anne*. Amatis had arranged for his brother Nicolas to act as a middleman: he would travel to London and bring to the Trustees silkworm eggs, one complete machine for throwing silk, and two men and four women "who understand the whole of the silk business." Nicolas would receive a certain amount to cover all the expenses related to the journey of people and things, plus an additional sum for each migrant. Oglethrope alerted the Trustees that these silk experts should spend as little time as possible in London because "every body knows their industry" and the risk that other people would attempt "to seduce them" was high. ³ Oglethorpe, Paul Amatis, and the first settlers on the *Anne* reached the American coast in February 1733, while Nicolas Amatis arrived in London with Giacomo Ottone, a maker of machines for throwing silk, and one family of silk experts whom he described as his servants: Mary Jane Camuse, her husband Jacob Lewis, and their three sons. He immediately started the negotiations with the Trustees. After a couple of weeks of meetings, the parties agreed that Ottone should build one machine for winding silk to be sent to Georgia and one to keep in

 $^{^2}$ CRG Vol p.152 Amatis to trustees, 12 jan 1735, Charles town, p.159 dobree to trustees 15 jan 1735, P210 Amatis to Oglethorpe Jan 1735.

³ CRG20p.3-4 Oglethorpe to the Trustees, 2 Nov. 1732)

London (presumably as a model), without relocating in America. Amatis and the Camuse family, instead, would all board immediately. The Trustees covered their voyage, provided Amatis with a house and a hundred acres of land, and all the equipment necessary to make raw silk. Amatis received also a salary of twenty-five pounds per year for four years, a fixed amount for each machine he would build, and permission to profit from his labor. He agreed to disclose" the secret of making raw silk to such persons as shall be appointed for that purpose."⁴ The deal was much less advantageous for the Camuses, who would become indented servants: Jacob would be entitled to fifty acres of land at the expiration of his service (presumably five years as for other indented servants) and provisions for one year. There was no indication that they would receive a salary. The relocation of the Camuse family and the entire silk scheme was initially conceived as an experiment: should it fail, the Trustees would cover the Italians' journey back to Piedmont, or anywhere else.

The closed-door negotiations between the Trustees and Amatis, however, did not include the Camuses. They depended entirely on Amatis's mediation and on the information that he conveyed to them. They understood that they would relocate in America and work as they used to do in Piedmont. The advantage that they certainly envisioned was the relocation in a Protestant, French speaking community. French Huguenots had settled at Santee, in Carolina, since the seventeenth century, and mentions of a church in the area date back to at least 1701. It is possible that Nicolas himself might have been led to believe that they would settle at Santee as, soon after his arrival in Georgia, he and his brother Paul had violent arguments, which culminated with Nicolas going back to Europe and destroying silkworm seeds and machines. During their first year in America, the Camuse family joined Paul Amatis in Carolina, while he

⁴ CRG vol.2, p.27

was conducting experiments with the goal of starting the silk manufacture in Savannah. It is likely they worked for him at Charles-Town and also at Purrysburg, a new town founded by the Swiss Protestant Purry where Amatis bred silkworms.

The Camuse family thought Carolina was their destination and it was to their dismay that they found themselves in Georgia, in January 1735. After a nighttime journey, they found out that they were part of a different plan. Paul Amatis admitted that he had deceived them:

I brought them here by surprise, for I made them understand that I was taking them to Santee for the purpose of making there the cocoons. I gave the pass-word to the master of the periogue, and during the night we took the route for this place.⁵

Mary Jane made there the raw silk that would then be organzined in Lombe's mills and presented to the Queen. But the Camuses did not like the new environment. Not even one year after their arrival in Savannah, Paul Amatis reported to the Trustees the "trouble and chagrin" he went through with them and his brother after arriving in Savannah, and explained that he barely managed to stop the Camuse family as they attempted to escape and secretly return to Europe.

There were certainly several reasons for the Camuses not to enjoy their new life in Savannah. Like other settlers, they were uncomfortable with the local authorities' abuse of power. A few months after arriving in Savannah, Amatis denounced to the Trustees the gratuitous cruelty of his colleagues, who ordered two men accused of conspiracy to be tied at the whipping pole. One of them received one hundred and one lashes, and uttered "such cries & groans that I could not bear to hear him. The other had 21 lashes, was a poor sickly fellow who was not yet received of a feaver (sic) & could hardly crawl." Amatis explained that he had never seen "so much Barbarity

⁵ vol.20 p 210 A to Oglethorpe, Jan 1735

& cruelty." Furthemore, Jacob Camuse expected to be compensated for his work, while the Trustees had agreed only on a salary for Nicolas Amatis. Four years later, in 1739, he complained with the Trustees that he had never been paid for his work since his arrival in 1732. The situation became particularly tense after Oglethorpe's return to Britain. Amatis started to argue with the local authorities, frustrated with the Trustees' lukewarm responses to his requests for money and materials to expand the scale of silk production. In 1736, Amatis died, leaving the Camuse family without their connection with the Trustees in London. Meanwhile, Oglethorpe, who had supported the family's requests to the Trustees, engaged in military activities away from Savannah. In 1736, the Trustees appointed a secretary, William Stephens, with the task of checking on Oglethorpe's doings in Georgia. Stephens and Camuse clashed spectacularly. Stephens' diary created the image of Camuse as a whimsical, demanding, greedy, and possibly alcoholic, woman whose extravagant requests threatened the smooth materialization of Oglethrope's plan.

The Indocile Artisan

By 1741 Stephens had already profiled Camuse as a "moody" and "high-spirited woman," but his exasperation escalated as she advanced what he regarded as exorbitant requests and refused to train apprentices. In 1744, Stephens reported, Camuse assaulted him with "such a parcell of scurrilous words, and abusive language as [he] h[ad] scarcely ever heard." She clapped her hands, clinched her fist, and screamed in French and Italian, "giv[ing] vent to her Passion," for over an hour. The range of qualifiers he used to describe her expanded accordingly. He thought she was "exceedingly clamorous and ill conditioned," "a woman come out of Bedlam," with "a

perverse temper" and an "obstinate and untractable humor," who could cause "the loss of a Manufacture always designed by their Honours as a Staple of the Country.⁶

Issues of gender and class clashed in an explosive mix. Stephens could not come to terms with Camuse's resistance to perform her duties as demanded by her superiors. She was a woman, a non-English speaking immigrant, and a simple worker. In Stephens's view, it was incomprehensible that she should stand her ground in such a forceful way. The Trustees' paternalistic attitude to colonial women, and in particular Stephens' own difficulties with outspoken women, have been discussed. There was certainly something distinctive in Camuse's approach to colonial authorities. Women did not usually enter negotiations directly, if there were men in the family. Camuse instead presented her requests personally to the local authorities, who eventually called her in to discuss the Trustees' responses and reach agreements. The possibility that a woman could be her own advocate was so foreign to Stephens that he initially believed that Camuse's attitude was fomented by the local opponents to the Trustees. But it was not only her gender that inflected his perception of Camuse. Her fierce attitude appeared to him particularly inappropriate because of her status. He admitted to being shocked by the fact that is was "in her power to set what value on her self she please; & without remorse, usurp the quality of a mistress [female master artisan?], where a gratefull obedience as a servant, who has been oblidged by so many and great favours, would better become her."⁷

Imperial projects relied on what Michel Foucault termed "docile bodies," disciplined subjects that became one and the same thing with their expected function in the machinery of power. Simon Schaffer has extended Foucault's analysis to science and technology, arguing that nascent

⁶ CRG, vol. 4s, pp. 248-49; vol6. p. 86

⁷ CRG, vol. 24, p. 187.

industrial systems relied on automata-like workers. Whether soldiers, prisoners, or factory workers, docile bodies were entirely deprived of individuality. It is obvious, from the quotes above that for colonial authorities Camuse should have been just that.

If docile bodies were nameless and voiceless, however, Mary Jane Camuse was relentlessly outspoken. Indeed, her name recurs much more often in the colonial records than any male member of the family. She requested to discuss her requests interrupting Stephens' dinner, entered negotiations directly with the President and Assistants to the Trustees, and plainly burst out in rage fits when her demands were not met. Stephen could barely hide his outraged surprise at her behavior, which defied tacit rules of good manners based on gender and class. Stephens bitterly admitted that it was "a melancholy consideration to think it in the power of such a Dame to put an intire (sic) stop to such a manufacture whenever she pleases."⁸

The keyword in Stephens' statements, here and above, was power. It was the power that she had in virtue of her embodied knowledge and in spite of her gender and social status that baffled Stephens. It was soon evident to him that Camuse should be replaced, just like a faulty piece in a larger machine.

Replacing a highly skilled worker, however, was not so easy in these initial stages. The Camuse family was the only one in Georgia that knew all the steps for making raw silk. Mary Jane, in particular, was the only highly qualified spinner. As part of his duties to check on Oglethrope's doings in Georgia, Stephens had made a point of assessing Camuse's skill. He had the amount of raw silk she produced from a given weight of cocoons weighed, and submitted her raw silk to the

⁸ CRG, vol.4suppl., p. 249

Trustees for evaluation in London. As with Lombe's assessment, the new evaluation complimented Camuse's spinning skill. Stephens too admitted that she produced half the waste of any other spinner. It proved incredibly difficult to convince other women settlers to engage in reeling silk: Stephens complained repeatedly about the local women's laziness in this matter. Because of her embodied knowledge and the impossibility to find equally skilled spinners, Camuse seemed to literally hold in her hands the power to stop the colonial project. However reluctantly, and in spite of all his pejoratives, Stephens always supported her requests as necessary evil toward a larger good to come.

Nonetheless, Camuse's refusal to act as a docile body urged the colonial authorities to look for alternatives. In 1741 the opportunity presented itself, thanks to the migration of a large community of German Protestants to Georgia. Their spiritual leader made it clear to the Trustees that his parishioners would engage in all sort of labor, including the operations that were usually reserved to enslaved people. This new labor force included young women with some spinning ability that could be initiated to the art by Camuse. This changed scenario induced the Trustees to request that Camuse train apprentices.

Camuse's demands were characterized as excessive by Stephans and the Trustees, and this judgement, so powerfully present in the colonial records, has never been interrogated. When we change perspective and examine the colonists' requests from the point of transnational, rather than local, history, the picture becomes much more complicated. The transnational perspective, combined with an appreciation for the nitty-gritty details of the production of raw silk, offer rich opportunities to problematize the one-sided version of Camuse's attitude offered by Stephens. Although the approach I propose cannot compensate the archival silence on Camuse's own

perception of her situation in Georgia, it suggests that the gap between her expectations and the reality that she found in Georgia was significant.

Docile spinners

Visiting Piedmont on a secret mission on behalf of the French government in 1749, the physicist Jean Antoine Nollet recorded useful information concerning the production of raw silk. He noted, in particular, various details concerning spinners' work. These women worked fourteen hours a day and received a respectable daily salary. So respectable, indeed, that Nollet remarked that "a young woman from the countryside is certain to find a husband if she can spin. It is a little income that constitutes a dowry for her."⁹ What did this mean to Camuse in Georgia?

From Nollet's accounts, we also know that spinners decided on various issues concerning the buying and selling of cocoons. In particular, they selected the commissioner who would purchase cocoons and negotiate their price from peasants in the countryside, a role that seems very alike the function initially played by Amatis in Georgia and Carolina. If this was indeed the case, her relationship to Amatis would have been different from that of a servant. But, more importantly, spinners received a daily salary that was independent from the quantity of silk they produced. Every day, a spinner received a certain amount of cocoons and, at the end of the day, she returned the raw silk she made, together with remaining cocoons and wastes, to the owner of the silk manufacture. This system of retribution was introduced in order to encourage spinners to focus on quality. The Piedmontese method for making raw silk was more tedious for spinners and required a lot of manual ability. In order to ensure that spinners would work at the best of

their ability, the king of Piedmont implemented a highly regulated system of supervision, inspections, rewards, and punishment. The performance of individual spinners was assessed on the ratio between the weight of cocoons and the raw silk produced every day, and comparisons among spinners were made in order to identify and reward the best, and fine or fire the worst. Owners of silk manufactures were fined if their silk failed to meet specific features that defined quality, so, in turn, they fined spinners who did not work as expected. Economic historians have written widely on the several reasons for Piedmont's formidable success in the production of high quality silk threads. What is important to emphasize for our purposes is that the quality of raw silk was tightly linked not only to the spinners' skill and expertise, but also to the regimented nature of work and the availability of numerous workers. Spinners were docile bodies in the Foucaultian sense: they could be easily replaced if they failed to perform as expected.

This oppressive system of surveillance was not in place in Georgia. Camuse worked as an indented servant, with the promise of land owning after five years and an allowance for living expenses for the entire family. At the end of the indenture, she negotiated an annual salary that, initially, did not depend on the quantity of silk she produced. This was a good deal for her. Indeed, when we compare her performance with that of an average spinner in Piedmont, it becomes evident that both in terms of wastes and time she was less productive then she would have been in Piedmont. From her point of view, moving to Georgia to work as a spinner as she did in Piedmont, yet without the inspections and the pressure to improve productivity, was a good prospect - in addition to any religious reason that might have contributed to her choice. She left Piedmont as a docile body in the service of the British colonial project. As Foucault writes, docile bodies need to be receptive and malleable to the controlling forces. Camuse was ready to

benefit from the seemingly advantageous conditions. So why she did not conform to her role? What made her become an indocile artisan?

The Value of Embodied Knowledge

Camuse stopped performing as a docile spinner at the end of her indenture, when the Camuse family negotiated a relatively high annual salary from the Trustees. The Trustees responded favorably to their requests, but the Camuses had to face the despotic attitude, and mismanagement, of local officials, who were in charge of dispensing salaries and de facto redetermined amounts and frequency. Jacob Camuse denounced the situation to the Trustees, while Mary Jane voiced her complaints with Stephens. This attitude, on the part of a woman worker, surprised Stephens, who noted her "spirited" nature. Yet, their clash happened over a specific request that Camuse firmly refused: the demand that she took apprentices.

The request to train apprentices was an obvious demand from the point of view of the Trustees and their design to expand the scale of raw silk production in Georgia, especially with the influx of German Protestants who were eager to engage in the silk business. But from the point of view of a spinner, it was a completely different matter. The training of apprentices was a rite of passage in the artisanal world. It was through apprenticeship that the "secrets of the art" passed on to the next generation. These "secrets" often consisted of techniques and bodily gestures that required several years of practice to master. In the case of the making of raw silk, apprenticeship usually lasted three years. The child-apprentice started by carrying out different tasks, which familiarized her with important processes of silk making, including the selection and sorting of cocoons based on their size and appearance, and maintaining the working environment clean.

The future spinner initially worked as a wheel-turner, a tedious but important function that allowed the close observation of the spinner's hands and it constituted an important phase of the training. Wheel-tuners learned when to stop the machine if the thread broke, and many other tricks that the spinner used to make sure the thread, however thin, would be resistant and clean. In Piedmont, a spinner would train no more than two apprentices at once.

When one considers carefully the organization of labor within the spaces for the production of raw silk, it becomes evident that some of the demands placed on Camuse were simply impossible to satisfy. The Trustees' request that Camuse train ten apprentices revealed their simplistic understanding of the making of raw silk. Camuse eventually accepted to take two apprentices, but they impatiently complained that she gave them simple tasks without training them on the art. The fact that such complaints were recorded by Stephens is further evidence of this naïve approach to apprenticeship and technical knowledge: as we have seen, cleaning a tidying were tasks that apprentices were expected to carry out. Yet, it was not the Trustees' lack of appreciation for the details of the art or the number of apprentices they demanded that troubled Camuse. The very request to train apprentices was an abrupt change in the terms of the agreement that had brought her and her family across the Atlantic. While Amatis had agreed to pass on the secrets of silk making, Camuse had been recruited as a spinner, when the Trustees' design was still in the experimental phase. She would essentially continue to work as she did in Piedmont, lending her skill in exchange for money and land. Training apprentices was an entirely different matter, as Camuse herself made clear. To the Trustees' new request she responded that they "must not think her such a fool as to bring up any in her art of winding silk" (CRG, vol. 4s, p. 248) and explained that doing so would be like "breeding up young birds to pick up her eyes" (CRGvol.23, p.344). If Stephens took this declaration as proof of her greediness, Camuse was in

fact expressing a commonplace from the point of view of any migrant artisan isolated from their community. So common, in fact, that when Stephens brought to Savannah from Carolina another Piedmontese spinner, she too refused to train apprentices.

Embodied knowledge was capital that artisans shared within their community. It was around their embodied knowledge and ritualized apprenticeship that artisanal communities forged their professional identities. Artisanal communities shared tools and practical know-how and, when organized in guilds, were bound by oaths of secrecy. The history of silk technology was punctuated by exemplary punishments conferred to individuals who had divulged secrets and who had become symbol of disloyalty and betrayal. Sometimes, such punishments were symbolic, a fact that underscores the shared understanding of artisanal loyalty and bounds to secrecy. A puppet representing the man that had brought the silk mill from Bologna to Turin hung for decades in the main square of Bologna as a spectacularly public warning against such actions. In Piedmont, disloyal spinners (spinner who migrated abroad) were punished, if caught, with a fine and prison time. Camuse may have been lying when she told Stephens that in Piedmont disloyal spinners were sentenced to death, but by doing so she emphasized how significant the new function that the Trustees now asked her to perform was to her.

In spite of all measures to prevent artisanal migration, it is a historical fact that highly skilled workers migrated in the face of the harshest laws. The bounds to secrecy applied when a community was in place, to protect such community. As the only Piedmontese spinner in Georgia, Camuse accepted to practice her art, but maintained secrecy about it, concealing tools and gestures from the gaze of aspiring apprentices. In exchange for her embodied knowledge she demanded a different contractual agreement, which Stephens and the Trustees deemed outrageous. They could not see a spinner other than as a docile body in the service of the larger

machinery of empire. When she became indocile, they accepted to negotiate temporarily, as with a faulty gear that cannot be immediately replaced. Eventually, though, she was replaced by one of her wheel-tuners, who saw enough of Camuse's gestures to start reeling silk in the way of Piedmont soon afterwards. Camuse was dismissed by the Trustees in 1746, moved to Purrysburg to join the French-speaking community and work as a spinner, and died there soon afterwards.

Epilogue

The silk industry in Georgia never took off according to the hopes of Oglethorpe and the Trustees. A filature was however established, and production reached a peak of several hundred pounds of raw silk that, again, was praised by British experts. The question why the industry de facto failed has been variously addressed by scholars and it is beyond the purposes of this paper. It is nonetheless worth emphasizing a few elements that this story highlights. In the first place, the production of raw silk in Piedmont was highly regulated and meticulously organized. When we compare the numerous professional figures examined in Giuseppe Chiccho's detailed study of the silk industry in eighteenth-century Piedmont with the Amatis brothers and the Camuse family, the experimental nature of the colonial project concerning silk becomes much more perceptible. The Trustees' approach to silk manufacture in Georgia lacked the careful planning that distinguished, for example, the French state's attempt to "steal the secret" of Piedmont's silk and it certainly did not take into account the highly regulated nature of silk-related labor in Piedmont. Piedmontese historical actors interrogated their own success, identifying several elements that contributed to the extraordinary success of the silk industry. The combination of social, economic, legal, and technical factors that they identified was difficult to replicate elsewhere. Samuel Pullein, the author of influential texts on colonial sericulture, shared with the

Royal Society of London his reflections on the reasons for the disappointing results of the silk industry in Georgia. He highlighted the difficulty of persuading spinners to work in the style of Piedmont, a result that the Italian state had achieved through a system of regulations and surveillance that, he explained, was incompatible with the British legal system. "Our happier constitution doth not admit such rigorous laws as that of Piedmont," he remarked, and so the only way to encourage "common people" to engage in the making of raw silk was to device machines that would be easier to use. He mentioned the example of Jacques Vaucanson, the French inspector to the silk industry. In 1745, Vaucanson designed a machine for making raw silk in the style of Piedmont that made the skill of spinners like Camuse redundant. Involved in the French attempts to challenge Piedmont's superiority in silk technology, Vaucanson had experienced first hand the power of indocile workers. One year earlier, he had presented a plan for reforming the system of silk production to silk workers in Lyon who had reacted so violently against it as to induce him to flee the city disguised as a monk. Vaucanson was convinced that it was easier to automatize complex artisanal operations than educate a spinner, a point that Pullein also make in his remarks to the Royal Society. Vaucanson's machines transferred skill from the body of the artisans to the machines themselves, rendering spinners more easily replaceable than any piece of his complex inventions.

Inventors like Vaucanson and Pullein studied artisanal gestures in order to transfer skill from the body of workers to the machine, a deskilling process that scholars have already discussed. But these machines also deactivated the power that artisans had in virtue of their embodied knowledge. As the story of Camuse shows, embodied knowledge was more than a set of skills, intended as expertise in performing specific tasks. It included a non-verbal understanding of materials, processes, gestures, and functions, which was preserved and transmitted within

artisanal communities. This non-verbal, embodied knowledge was an identifier for each artisan, symbolically and practically. It defined them individually and as members of an artisanal community. As such, embodied knowledge could not be confused with the skills that artisans routinely - docilely - put in the service of their superiors in exchange for money or other material benefits. From the point of view of artisans, embodied knowledge constituted a form of power to be jealously guarded. Training apprentices was the process through which artisans made sure their art would survive, but it was also a legacy that each artisan left to the next generation. Not surprisingly, Camuse accepted, however reluctantly, two apprentices only when the Trustees promised to support her, should she become unable to work for any reason.

Historians of early and pre-modern science have called attention to the artisanal world as a context of knowledge production that crossed social boundaries and deeply affected the contents and the methods of the new empirical sciences. This paper has investigated yet another dimension of the artisanal world, the value of embodied knowledge and what it can reveal for the history of technology. If from the point of view of colonial power the skill of specialized workers was an essential ingredient for the successful import of foreign technologies, just like tools and machines, the bodies of artisans could prove remarkably resistant to perform expected functions. The indocile artisan was like a malfunctioning cog that, being difficult to replace, threatened the working of the entire machine. As historians, we can choose to study machines and think of the workers that operated them as docile bodies that provided mechanical force. By focusing on the indocile artisan, my goal here has been to foreground embodied knowledge as a form of silent, yet tangible, power.