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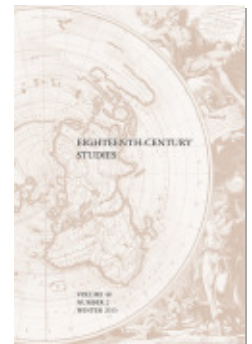
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## **Artisanal Knowledge, Expertise, and Patronage in Early Eighteenth-Century Paris: The Société Des Arts (1728-36)**

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# ARTISANAL KNOWLEDGE, EXPERTISE, AND PATRONAGE IN EARLY EIGHTEENTH-CENTURY PARIS: THE *SOCIÉTÉ DES ARTS* (1728–36)

*Paola Bertucci and Olivier Courcelle*

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In memory of Roger Hahn (1932–2011)

In 1728, a group of two mathematicians, two clockmakers, and a geographer constituted the Société des Arts, an assembly devoted to the promotion of useful knowledge through the improvement of the arts. The Société was active in Paris during the first years of Louis XV's reign. It obtained the patronage of the Comte de Clermont, a prince of the blood, and within a few years it attracted about two hundred members from all over Europe. In spite of its initial success, however, the Société ceased all its activities around 1736. Its ambitious program, together with its distinguished membership and the obscure reasons for its quick decline, have attracted the attention of several scholars of the French Enlightenment, who have invariably noted the connections between the Société des Arts and the early phases of Diderot and D'Alembert's *Encyclopédie*. As early as 1946 Franco Venturi pointed to the Société's programmatic combination of "science and technology, reason and labor" as an important precedent to the *Encyclopédie*. Grounding his analysis in the handful of sources then available, Venturi discussed the Société as a "bizarre" mixture of scientists, inventors, and artisans who cultivated the sciences and the arts with an undeveloped encyclopedic approach. It was not coincidental

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that Gua de Malves, the first editor of the *Encyclopédie*, was one of its members.<sup>1</sup> Almost half a century later, Roger Hahn built on Venturi's intuition, demonstrating a more explicit connection between the *Encyclopédie* and the Société des Arts's "encyclopedic ideology." Building on new sources, he showed that several members of the Société later contributed to the *Encyclopédie*: in addition to Gua de Malves, the mathematician Alexis Claude Clairaut, the surgeon and future physiocrat François Quesnay, the explorer and geographer Charles-Marie de La Condamine, the engraver Jean Baptiste Papillon, and the clockmakers Le Roy.<sup>2</sup> In Hahn's analysis the combination of scientists, inventors, and artisans in the Société des Arts was not bizarre; it was the kind of collaboration needed to accomplish the main goal of the Société: the improvement of the useful arts by a cooperation of practice and theory. Stating that Diderot's article "Art" and D'Alembert's *Discours Préliminaire* were much too similar to the Société's utilitarian program "to be mere coincidence," Hahn also pointed to the limitations of the Société's "encyclopedic" approach.<sup>3</sup> Because of the wide range of its interests, the Société failed to produce any publication or to significantly improve the arts by the collaboration of the sciences, which he suggested led to its closure only eight years after its foundation. Following the historian Joseph Bertrand, Hahn believed that the Société's failure was the result of the hostility of the Académie Royale des Sciences. The Académie was a state-funded institution that Colbert had entrusted with the publication of a monumental *Description des Arts et Métiers* in the late seventeenth century; in Bertrand's and Hahn's analyses, it did not tolerate any intrusion in the field of technical innovations.<sup>4</sup>

Thanks to Venturi and Hahn, and to other recent works, we are now able to place the *Encyclopédie* in a broader context, in which the description of the arts and crafts had a longer and troubled history.<sup>5</sup> The importance of the Société des Arts has been correctly emphasized in recent reframings of the history of the *Encyclopédie*. Nevertheless, the history of the Société has primarily been discussed in light of a number of dichotomies that this article, along with recent works in the history of science, will call into question. The distinction between science and the arts, savant and artisan, theory and practice, will be here treated as objects of historical analysis rather than as interpretative categories for understanding the goals of the Société des Arts. In discussing such polarizations as historical objects rather than as tools for interpretation, historians of science have challenged the association of savants with the world of learning and of artisans with the world of doing. They have shown that the artisanal world was a sphere of knowledge production where the ability to manipulate materials and to make things provided an intellectual foundation for the understanding of nature and its laws. Similarly, they have shown that natural philosophers and savants were fully engaged in productive knowledge.<sup>6</sup> By not taking such dichotomies at face value, this article shows that the Société des Arts was a cultural experiment by which a number of artisans tried to present themselves as a new kind of experts who combined practice and theory and whose knowledge was essential to the economic advancement of the French state. It explores the reasons for the Société's initial success, arguing that its program was based on an epistemology that, as Pamela Smith has shown, artisans had articulated centuries earlier. This epistemology was based on artisans' bodily engagement with matter, which erased distinctions between practice and theory or

between science and art (intended as *techné*).<sup>7</sup> In early eighteenth-century France such epistemology was embodied in the figure of *l'artiste*, or—as Pierre Richelet's dictionary explained—an artisan endowed with *esprit*; in other words, one whose ingenuity resulted from the combination of practice and theory and therefore differed significantly from the rote manual work of a mere craftsman.<sup>8</sup> *L'artiste* was a new expert who could contribute to the public good with his knowledge, grounded in the world of knowing as well as in the world of doing.<sup>9</sup>

The notion of expertise in the early modern period has been the subject of recent studies that have offered stimulating reflections on how expertise was constructed, legitimized, and institutionalized in various European states. The relationship between theory and practice, savants and artisans, as well as the role of the state, are central to such discussions.<sup>10</sup> The notion of expertise mobilized in this article is an analytical category informed by early eighteenth century French definitions of the *expert* as “the most learned and the most skilled in an art,” somebody who could “evaluate the quality of specific works,” and who could be called upon by state authorities to report on them.<sup>11</sup> Although not properly an actors' category, this notion proves useful in capturing the role of the *artiste* as a social and cultural actor in the France of Louis XV. After the debacle of the Law scheme and the end of the Regency, the *artistes* who formed the *Société des Arts* wanted the new king to realize that their intellectual and practical talents were crucial to the economic advancement of France. They strove to institutionalize their expertise, creating a new collective identity that could evaluate inventions and control technical innovations. They sought legitimation from the public and from the state by differentiating their knowledge and their work from that of other artisans and by approaching savants as potential interlocutors and collaborators.

In reassessing the role of the *Société des Arts* in French cultural history, as well as in the history of science and technology, this paper offers a new interpretation of the few documents on which previous analyses of the *Société des Arts* have been elaborated. It also offers a fresh discussion of a body of hitherto unknown documents recently surfaced in a private archive in Germany. The over 500 pages of minutes of the *Société's* meetings, lists of members, letters, and memoirs in this archive call forcefully for a revision of the relationship between the *Société des Arts* and the *Académie des Sciences*. This article argues that the *Société* should not be understood as the *Académie's* competitor, as has been done so far, but rather as an unintended consequence of the *Académie's* repeated failure to accomplish the utilitarian program that Colbert had envisioned for it.<sup>12</sup>

### THE CULTURAL ROOTS OF THE SOCIÉTÉ DES ARTS

The *Société des Arts* was one reiteration of several attempts to realize the Baconian ideal of useful knowledge by bringing together savants and artisans. These attempts dated back to the second half of the seventeenth century—well before the foundation of the *Société* and even before the establishment of the *Académie Royale des Sciences* in 1666.<sup>13</sup> The history of these attempts highlights a tension within the *Académie*, and more broadly within the learned elites of Paris, between the effort to present the new sciences as useful and the aspirations of individual savants to elevate their own social status through the pursuit of natural knowledge. There were questions likewise about the role that artisans should play within state-run

academic institutions: should they be allowed to hold membership or should they work as auxiliaries? The early history of the Académie Royale des Sciences was characterized by this tension. The institution was an offspring of Jean Baptiste Colbert's desire to secure the Sun King a monopoly over the cultural activities of the French state.<sup>14</sup> The project of an academy of sciences emerged not only from the ambition to emulate and surpass the models recently established in Tuscany and England, but also from the urban context of the French capital. In the second half of the seventeenth century, Paris could boast of a vibrant, multi-centric cultural life, comprised of a variety of informal groups that gathered periodically to discuss various subjects, including the sciences and the arts.<sup>15</sup> Among the many, Melchisédech Thévenot's group distinguished itself for its emphasis on practical experimentation rather than theoretical discussions. Thévenot belonged to the nobility of the robe and was interested in cartography, hydrostatics, and voyages of exploration. He hosted a small group of people who shared an interest in the experimental sciences, supplying instruments and machines for the group's activities. It was this group (which comprised the astronomers Adrien Auzout and Pierre Petit as well as the mathematician and natural philosopher Christian Huygens) that around 1664 elaborated the project of a *Compagnie des Sciences et Arts* aimed at attracting the attention of Colbert and the king.<sup>16</sup> The project, which Auzout described in a work dedicated to Louis XIV, spelled out Thévenot's utilitarian vision for the experimental sciences and the idea that the combination of practical and theoretical knowledge would benefit the French state: "Le dessein de la Compagnie est de travailler à la perfection des Sciences et des Arts, et de rechercher generalement tout ce qui peut apporter de l'utilité ou de la commodité au Genre humain et particulièrement a la France [sic]." [The plan of the *Compagnie* is to work towards the perfecting of the sciences and the arts; and in general to search for all that can bring usefulness or convenience to mankind and particularly to France.]<sup>17</sup>

The pursuit of natural philosophy, in the *Compagnie's* view, was immediately tied to the practical interests of the French state. The *Compagnie* would devote itself to making experiments and observations in the fields of astronomy, geography, chemistry, anatomy, and medicine and it would engage in the invention of new machines and new technical processes. All these sciences and arts would contribute to improving the French economy. Internal and international trade would advance thanks to the creation of new roads, bridges, ships, geographical maps, and tools for navigation. In addition, the *Compagnie* would collect information about mines, medical remedies, and other natural resources from foreign countries and would search for new methods to improve agriculture, drain marshes, and make rivers navigable. The collaboration of the best savants and artisans, skilled inventors, and experienced travelers would render the *Compagnie* a laboratory for the creation of new expertise: its members would examine how the various arts and crafts were practiced in France and abroad and would publish a description of the arts. The goal of such a work was to expose "artisans' and merchants' trickeries and deceptions" in order to protect the public from frauds and to induce laborers to work more honestly. The end result would be that "the King . . . will have a Council able to give him sincere and truthful advice."<sup>18</sup>

As Hahn demonstrates, however, the final project of the Académie Royale des Sciences did not embrace such principles, de facto excluding artisans from mem-

bership. Yet it did constitute itself as a learned body at the service of the state, one that would have consultative capacities in the domain of inventions and technical innovations. Most members of the Thévenot group were invited to join the Académie des Sciences, but the exclusion of artisans was emblematic of a dismissive attitude towards people whose knowledge and expertise derived primarily from the world of doing. This attitude characterized the life of the Académie well into the eighteenth century and it prompted learned artisans to find alternative forms of presenting their unique expertise to the public and the state.<sup>19</sup>

The Société des Arts was a manifestation of the inadequacy of the Académie des Sciences to fully engage with the mechanical arts. In his work on the Société, Hahn hints at the connection between the constitution of the Société and the repeated failures on the part of the Académie to take on a task that Colbert had entrusted to it as early as 1675: the production of a treatise on the arts and crafts that would include visual and textual descriptions of all the machines and tools employed in the various crafts practiced in France. This project was revived in 1692 by the abbé Bignon, the Académie's new director.<sup>20</sup> Bignon entrusted the task not to a sub-committee within the Académie, as Hahn and others state, but to a group of experts outside it whom he hosted in his own house. The fact that Bignon resorted to experts outside the Académie points to the lack of enthusiasm that the project of a description of the arts and crafts elicited within the institution. Bignon's parallel society did not initially include artisans: he selected Gilles Filleau Des Billettes and Jacques Jaugeon (two noblemen with active interests in the mechanical arts) and Father Sebastien Truchet, who had worked on the aqueducts at Versailles and distinguished himself as the tutor to the duke of Chartres. Very soon, however, Bignon decided to direct the group's attention to the reformation of the typesetting of the Royal Press and invited the collaboration of an engraver, a punchcutter, and the director of the Press (respectively Louis Simonneau, Philippe Grandjean, and Jean Anisson). These artisans, necessary to the completion of the project, were perceived as ad hoc auxiliaries: they were paid on the basis of their labor, whereas the other members received a respectable salary from the state. Regardless of such differences, the group—which called itself “Commission des arts”—worked intensely and produced a large amount of material, principally on papermaking, introducing the visual language for the representation of labor in the workshop that would ultimately characterize the *Encyclopédie*.<sup>21</sup>

The Commission worked in the 1690s and was incorporated within the Royal Académie des Sciences in 1699. It is therefore unlikely that this group was the same that gathered in the Galleries of the Louvres during the Regency and that called itself “Société académique des Beaux-Arts.” There are nonetheless several interesting connections between the Commission and the Société des Arts.<sup>22</sup> The Commission's professed aim was the perfecting of the arts by means of observation, description, and experimentation. In their work, its members showed connections and similarities between the arts, through a systematic study that they carried out through interactions with workmen and tradesmen. Contrary to the contemporary policy of the Académie des Science, the Commission advocated collaborative authorship and practical knowledge. Des Billettes was so convinced that the purposes and goals of the Commission differed profoundly from those of the Académie des Science that he advocated for the constitution of an independent society devoted

to perfecting the arts. He stressed that the new association would differ from the Académie des Sciences, “where everybody gets away with some work of the mind [*production d’esprit*] or experiment of no consequence or connection with the others;” the new association would produce instead coordinated, collective work, “which must be well digested, precise and complete.”<sup>23</sup>

The abbé Bignon attempted to integrate this project into his reform of the Académie des Sciences of 1699, offering membership to both Des Billettes and Jaugeon.<sup>24</sup> The move proved fatal to the Commission’s goals: the members of the Académie never prioritized the descriptions of the arts and maintained a dismissive attitude toward the work of Des Billettes and Jaugeon. Aware of this failure, in 1716 Bignon attempted to revive the project within the Académie by entrusting to his protégé René Réaumur the organization of an encyclopedic description of arts and crafts. As is well known, the work did not materialize until after the publication of Diderot’s and D’Alembert’s *Encyclopédie*.<sup>25</sup> A few years later during the Regency (1713–25), a Société académique des Beaux-Arts began to gather in the Louvre, under the protection of Bignon.<sup>26</sup> Although the reasons for the failure of this Société are unknown, there is evidence that the Société des Arts of 1728 comprised members from this earlier group.<sup>27</sup>

#### ARTISANAL EXPERTISE AND THE FOUNDATION OF THE SOCIÉTÉ DES ARTS

The initiator of the new Société des Arts was the clockmaker Henry Sully (1680–1729), who sought the collaboration of two other clockmakers, Pierre and Julien Le Roy, the father and son geometers Jean Baptiste and Alexis Clairaut, and the geographer and Royal Censor of Books, Henri Liébaux. An English émigré in Paris, Sully had won the favor of the Regent thanks to the memoirs on clockmaking that he read at the Académie des Sciences in 1716. After being denied mastership by the guild of clockmakers, he became involved in the Law scheme as the director of clockmaking manufactures first at Versailles and then in the Saint-Germain area. After the collapse of the Law scheme and a period of fluctuating fortunes, he settled in Paris where he started his collaboration with local clockmakers, including Julien Le Roy. It is plausible that his work in clockmaking manufactures informed his vision for the Société des Arts as an institution where the best *artistes* would interact without being constrained by the guild system.<sup>28</sup> The group that he gathered met regularly in the Saint-Germain area and made concrete efforts to reach out to other Parisian artisans.<sup>29</sup> Although he died unexpectedly in October 1728, by November of the same year the group had recruited a total of 25 members, comprising anatomists, geometers, engineers, clockmakers, and mechanics.<sup>30</sup> Among them were the would-be first editor of the *Encyclopédie*, the abbé Gua de Malves, and the future perpetual Secretary of the Académie des Sciences, Jean Paul Grandjean De Fouchy. Liébaux acted as the Société’s secretary. The newly constituted group sought the protection of the abbé Bignon, to whom Liébaux explained that the new Société des Arts was a “renaissance” of the Société the abbé had protected years earlier. Just as in the case of its antecedents, the goal of the Société was the perfecting of the arts and the production of written texts that would illustrate the tools, the techniques, and the processes, of all the arts that were practiced in Paris.<sup>31</sup> The fact that the members of the reconstituted Société addressed Bignon, a leading



member and former director of the Académie des Sciences, indicates that they did not believe that their work would in any way overlap or even challenge that of the Académie. Rather, it suggests that they presented themselves as an alternative group of experts who could complement the Académie's deficiencies in the task of perfecting the arts. The Société's members were self-conscious about the necessity of distinguishing their goals from those of other Parisian academies: "La Société doit choisir un objet qui la caractérise et la distingue de ces académies établies et qui convienne à la dénomination qu'elle a prise. Elle doit s'attacher à perfection[n]er les arts particulièrement ceux qui s'exercent à Paris." [The Société must choose a subject that characterizes it and distinguishes it from these established academies and that will be appropriate for the denomination that it has acquired. It must attach itself to perfecting the arts, particularly those that are practiced in Paris.]<sup>32</sup>

The fact that the subject was the "perfecting of the arts" indicates that, at least according to the Société, this goal had not been actively pursued by any other academic institution in Paris.

The Société des Arts wanted to be perceived as a body of collective expertise that could serve the state by advancing—in their words—the "public good." Its members would examine and encourage inventions in the fields of geography, navigation, mechanics, and civil and military architecture—all sciences and arts that were not cultivated as primary subjects in other academies. In order to "enrich France with all the discoveries on the arts that will be made outside the kingdom," membership was offered also to distinguished foreigners, who would report on the state of the arts in their countries.<sup>33</sup>

In constituting itself as a new space for the improvement of the arts and the pursuit of the public good, the Société did not admit any epistemological hierarchy between practice and theory: only "mutual assistance" between theory and practice would lead to improvement since theory alone could only satisfy idle curiosity, whereas practice without theory was only "skilled routine" that would never result in successful innovation. The Société's goal was to improve "the arts by the aid of the sciences," but it also emphasized that by producing better globes, celestial spheres, geographical maps, clocks (including astronomical ones), telescopes, microscopes, parabolic mirrors, quadrants, and other mathematical, astronomical, and navigational instruments, the Société would benefit sciences such as physics, astronomy, and geography.<sup>34</sup> The combination of theory and practice as advocated in this program would later be echoed by Diderot, who stated that "celui qui n'a que la Géométrie intellectuelle, est ordinairement un homme assez mal adroit; & qu'un Artiste qui n'a que la Géométrie expérimentale, est un ouvrier très borné" [a man who knows only theoretical geometry is usually not skillful, and an *artiste* who knows only practical geometry is very limited as a worker].<sup>35</sup>

Although the Société advocated integration of practical and theoretical knowledge, it shared an epistemology that artisans had articulated in mechanical treatises centuries earlier that, in fact, privileged practice over theory. One illustrious French example is the *Discours Admirables* (1580) by the craftsman and engineer Bernard Palissy, in which the author unabashedly attacked the value of erudition in the search for the secrets of nature, praising instead an approach based on learning by doing.<sup>36</sup> When the Société des Arts started its activities, artisans were still critical about the preference that state institutions such as the Académie



des Sciences accorded to theoretical over practical subjects. This was explicitly stated by one of Bignon's correspondents, the inventor Du Quet. Having heard that the mathematicians Clairaut and Saurin had been proposed for the position of adjunct mechanician at the Académie, Du Quet remarked that since neither had any background in mechanics or physics, they both lacked adequate qualifications. He added that if the interest of the state was to perfect the arts, then "it would be more advantageous to give the positions of geometers to mechanicians rather than let geometers take the positions of mechanicians."<sup>37</sup> A similar judgment was expressed in 1765 by a former member of the Société, Jacques Vaucanson:

Le public intelligent comprend sans beaucoup de peine qu'il est beaucoup plus aisé de faire des observations météorologiques, des démonstrations sur la glace, sur l'aimant, sur l'électricité, que d'inventer et de composer une bonne machine. Là, il n'est question que d'expliquer comme l'on veut les effets connus. Ici, il faut produire des effets nouveaux. Voilà pourquoi le plus grand nombre se jette dans la théorie plutôt que dans la pratique.

[The intelligent public understands without much effort that it is much easier to make meteorological observations, demonstrations on ice, loadstone or electricity than to invent and build a good machine. In the one case it is only a matter of explaining as one likes certain known effects; in the other one must produce new effects. This is why the great majority direct themselves towards theory rather than practice.]<sup>38</sup>

In line with Des Billettes's vision for the Commission des Arts, the members of the Société des Arts wanted to achieve a real collaboration among experts with different skills and literacies, but the combination of practice and theory that they advocated did not associate the former with artisans and the latter with savants. The expertise that they sought to define was grounded in the figure of the *artiste*, a learned artisan who was able to combine theory and practice for the benefit of the public and of the state.

Bignon's response to the group has not survived. We know, however, that at the end of 1728 the Société des Arts obtained the protection of the nineteen year old Louis de Bourbon-Condé, count of Clermont, a prince of the blood who is primarily remembered as a military officer who led a dissolute life and as the fifth Grand Maître of the Grand Lodge de France (1743–71).<sup>39</sup> It is possible that Bignon declined to offer protection to the Société because of his commitment to the Académie des Sciences, whose 1699 renovation he had masterminded. One of the outcomes of the reform was the revival of Colbert's earlier project of a treatise on the mechanical arts, which Bignon entrusted to the naturalist and academician René Réaumur. The patronage of the count of Clermont stirred a lot of enthusiasm, not only among the members of the Société but also among foreign visitors and the international reading public.<sup>40</sup> The count offered a room in his palace for the gatherings of the Société and revised the draft of regulations the original members had prepared.<sup>41</sup> The result was published in 1730 as *Règlement de la Société des Arts*.<sup>42</sup>

The *Règlement* consisted of 46 articles, twice as many as in the draft of regulations that had reached Bignon. It emphasized the protection of the count of Clermont and the approval of the king. It presented the Société as a mixed assembly whose mission was to "perfect the arts;" its members were people who devoted

themselves to the “practice of the arts” or to the “knowledge that can operate their perfection.” The regulations defined the composition of the society, which differed in significant ways from the hierarchical structure of the Académie des Sciences. Members held different roles according to their degree of expertise in their field and to their commitment to the society. They were divided as the “assiduous” who attended each meeting, and the “free,” who were not obliged to do so. Although the vocabulary was clearly borrowed from the guild system, the Société did not implement any mechanism of progression from assiduous to free. This difference is noteworthy, as it points to the Société’s self-presentation as an organization that, in spite of the large number of artisans among its members, had little or nothing to do with the guild system. Roles were determined only by the degree of commitment to the activities of the Société. There were also “respondant” members who were called on a case-by-case basis when expertise was needed from arts that were not represented in the Société, as well as foreign members who would contribute by correspondence.<sup>43</sup> Finally, there were honorary members (called “amateurs” in the draft) who were elected because of their social status and love for the sciences.<sup>44</sup>

The Société presented itself as a space for collaboration and collective knowledge. The regulations stipulated that it would comprise a total of a hundred members, variously distributed between the sciences and the arts.<sup>45</sup> The members were selected with the idea that they would work together on nine branches of practical knowledge: agriculture and economy, animal economy, manufactures (textile, dying, and leather tanning), military and civil architecture, buildings of ports and ships, measure of time and mathematical instrument making, optical glass making, metallurgy, and the fine arts. The regulations articulated a project-oriented program in which membership was functional to the accomplishment of specific goals. According to his expertise, each member would be assigned to one or more of the categories listed above, so that each project would be carried out by a group of people with different skills. In the context of glass making for optical instruments, for example, two optical geometricians would work with a physicist, a mechanician, a glass maker, two spectacle makers, and an enameller. In order to advance animal economy, the Société would put together two physicians, three surgeon anatomists, two physicists, two geometers, and two mechanicians. The articles specified precisely how members would be assigned to perfecting the individual arts. All members were expected to share their secrets, in the name of the common goal of perfecting their art: all contributions would disclose details about materials, ingredients, machines and tools.

Although the Société’s mission was local—they aimed at perfecting the arts practiced in Paris—foreign members had a strategic relevance as they were expected to gather relevant information from abroad. Each member, whether foreign or French, whether assiduous or free, was expected to collect information for the Société. The end result of this work would be a series of catalogues for distribution, the public presentation of this collective enterprise. Even non-members were invited to send inventions that might be of public utility; in exchange the Société would discuss them and provide feedback and encouragement.<sup>46</sup>

## THE SOCIÉTÉ DES ARTS AND THE ACADEMIE DES SCIENCES

The Société des Arts expanded rapidly during the early years of its existence. The available documents do not tell us how many members actually formed the Société or attended its meetings at any given time, but records of new admissions show a steady increase in the number of members in all classes in the three years that followed the Société's foundation.<sup>47</sup> The rituals of admission were similar to those employed by the Académie des Sciences: each candidate was first discussed during a meeting, his candidature was subjected to secret ballot, and, if he obtained the majority of the votes and the approval of the count of Clermont, his membership was finally established. If the new member was an "assiduous," he would then present a work of art or a memoir to the Société. Exception was made for the honorary members, who were often appointed directly by the count himself.<sup>48</sup> Although we can only speculate about the channels through which new members were identified and recruited, an undated draft on "the perfection of the Société des Arts" explains that only artisans and artists who excelled in their art were to be admitted to the Société—a statement that echoes Richelet's definition of *expert*.<sup>49</sup> The attempt to create an assembly of the most skillful and most learned artisans in Paris at the time was not an easy task and required an "extremely scrupulous" selection.<sup>50</sup> We do not know much about the criteria for the assessment of each member's expertise, except that during the first two years of its existence the Société was "purged twice" of members who did not live up to expectations.<sup>51</sup>

The new documents found in Germany show that the Société's main ambition of producing collaborative work in line with the project of its predecessor, the Commission des Arts, never materialized. The minutes of meetings indicate that the Société organized itself according to ritualized practices modeled upon the Académie des Sciences' procedures. During the meetings, which took place twice a week (on Thursdays and Sundays) for two hours, the members read one or more memoirs according to the agenda decided by the Secretary. The memoirs were subsequently reviewed by ad hoc committees. The "distribution of the arts"—the allocation of each member to specific areas of activity, as outlined in the regulations—appeared in the minutes only a couple of times in 1732, though it was referred to as a task that was not progressing as rapidly as expected. In fact, it was never completed.<sup>52</sup>

The reasons why the Société could not carry out its program should not be looked for in the alleged rivalry with the Académie des Sciences, as has been previously argued. Following the lead of Joseph Bertrand, historians have suggested that Réaumur's hostility toward the Société was the main reason for its dissolution.<sup>53</sup> Réaumur believed that the Académie des Sciences should serve the state by providing expert consultants as well as knowledgeable inspectors of manufactures.<sup>54</sup> According to Bertrand, Réaumur opposed the Société because its goals overlapped with the role he believed the Académie des Sciences should play for the state. Réaumur's strategy to defeat the Société des Arts, according to this interpretation, consisted in offering membership in the Académie to a few key members of the Société under the condition that they withdrew from it, thus inducing the Société's failure. This point of view seems to find support in the admission of La Condamine—a member of the Société des Arts recruited in the Académie des Sciences—who in 1765 wrote to his fellow member Grandjean de Fouchy:

Vous avés été témoin par vous même, Monsieur, des dégoûts que j’essayai à mon entrée dans l’Academie, il y a 35 ans, uniquement par ce qu’on exigeoit de moi que je renonçasse hautement à la Société des arts, sans encourir la disgrâce d’un prince de sang, alors mon colonel, et dont je produisois une lettre par laquelle il me témoignoit qu’il ne voyoit rien d’incompatible entre ma qualité d’academicien, et celle de directeur de la société qu’il protégeoit.

[You witnessed personally, Sir, the shame I suffered upon my admission to the Academy, 35 years ago, only because they demanded that I renounced completely to the Société des Arts, without incurring the disfavor of a prince of the blood, then my colonel, and by whom I presented a letter in which he stated that he did not see anything incompatible between my role as an academicien and that as the director of the Société that he patronized.]<sup>55</sup>

However, the induction of a few members of the Société des Arts into the Académie was not a sufficient reason for the former’s dissolution. It could hardly be denied that Réaumur’s vision for the Académie des Sciences had much in common with the goals of the Société des Arts. Even contemporary observers did not fail to notice overlaps in the activities of the two organizations: in 1759, the surgeon Antoine Louis remarked that the Société des Arts worked on the same topics as the Académie and, for this reason, seemingly posed a threat to the Académie itself: “Elle [l’Académie des Sciences] pourrait devenir accidentellement plus faible sur certaines parties, sans qu’on s’en aperçût; tant elle [la Société des Arts] brille par l’éclat qu’elle a acquis, et qu’elle reçoit journellement par la supériorité de ses principaux membres.” [On certain areas it [Académie des Sciences] could accidentally become weaker, without anyone noticing; so much it [Société des Arts] shines thanks to the luster it has acquired and that it receives daily as a result of its principal members’ prominence.]<sup>56</sup>

The prominence of the Société’s members did attract the attention of the Académie, which recruited not only La Condamine as adjunct chemist but also Alexis Clairaut in the class of mechanics, Philippe Buache as adjunct geographer, Grandjean de Fouchy as adjunct astronomer, and Jean Grosse as adjunct chemist.<sup>57</sup> In later years other members of the Société des Arts were recruited to the Académie: abbé Nollet (adjunct mechanic) in 1739, abbé de Gua (adjunct geometer) in 1741, Jacques Vaucanson (adjunct mechanic) in 1746, and Quesnay in 1751.<sup>58</sup> However, not all of them were obliged to give up their membership in the Société des Arts. De Fouchy, for example, served as the Société’s secretary in 1732 while he was a member of the Académie; Grosse was active in the Société after his admission to the Académie in 1731.<sup>59</sup> Membership in the two associations was not always mutually exclusive. In 1732, when the news of the foundation of the Société des Arts was spreading throughout Europe, the French ambassador in Copenhagen, the count of Plélo, wrote to the academicien Delisle that the Société’s members included several famous French *artistes* as well as “five or six of your fellows at the Académie.”<sup>60</sup> The abbé Privat de Molières became a member of the Société des Arts in 1732, when he was already a member of the Académie des Sciences.<sup>61</sup>

The exchanges between the Société and the Académie were more complex than previously understood. The Société offered a model that, in a few instances,

the Académie tried to imitate. In 1731, for example, the Académie established the position of adjunct geographer for which it considered Buache and Liébaux, both members of the Société des Arts. The Société des Arts appears to have been in several instances a sort of satellite institution for the Académie—much like the Commission des Arts—which drew from it expert practical knowledge to be used for its own projects. In 1728, after the description of arts and crafts had stalled at the Académie, Bignon wrote to Réaumur to recommend the naval engineer Jean Jeoffin Gallon, who had “a great talent for drawing” as well as good mathematical knowledge. Bignon explained that, should the project of a description of the arts and crafts resume, Gallon’s skills would prove useful.<sup>62</sup> In 1730 Gallon became a member of the Société des Arts and in 1734, when the Académie des Sciences launched the publication project of the machines and inventions, he was employed to produce the drawings for the plates. Gallon was elected a corresponding member of the Académie one year later.<sup>63</sup> On other occasions the Académie resorted to the Société in order to obtain additional expert opinion. In 1732, La Condamine asked the Société to provide a thorough evaluation of two samples of steel. In a diplomatic move, since his fellow academician Réaumur had published on the subject in 1722, he explained to his former colleagues that the evaluation would have to remain informal.<sup>64</sup> Conversely, memoirs by members of the Société des Arts circulated among members of the Académie des Sciences and were also occasionally read there.<sup>65</sup>

The thesis that rivalry with the Académie des Sciences provoked the dissolution of the Société des Arts is not supported by recently discovered documents. It may well be that a form of rivalry did exist, but it was neither the Académie’s rivalry that led to the failure of the Société des Arts nor Réaumur’s active hostility.

### PATRONAGE AND THE DISSOLUTION OF THE SOCIÉTÉ DES ARTS

At the time of the constitution of the Société des Arts, the patron-client relationship was fundamental to artists’ working world. Patrons provided their artist-clients with commissions and useful connections, as well as with status and reputation.<sup>66</sup> It is unsurprising, then, that the *artistes* who formed the first kernel of the Société des Arts should seek some form of patronage for their association. By presenting their request to the abbé Bignon, however, the members of the Société hoped to obtain more than an individual patron. The program that they elaborated presented the Société as an institution that, being devoted to the pursuit of the public good, would serve the state just as the other existing academies in Paris. They hoped that, with Bignon’s intercession, the Société too would acquire the status of a royal institution. It is significant that the project they prepared for the abbé referred to the Société as a “société académique” of the arts that would put new expertise at the service of the state.<sup>67</sup> Their efforts to differentiate their goal from that of other existing academies served to present the new association as a potential state academy, just like the Académie des Sciences and the other academic institutions founded at the time of Colbert.

The abbé Bignon’s reply to the Société’s request is unknown, just as the circumstances leading to the selection of the count of Clermont as the Société’s patron. Clermont was, however, actively involved in the pursuit of useful knowledge.

In 1729 he joined Réaumur in a series of experiments with noble metals, aimed at finding new methods for gilding and silver plating. Réaumur's experimental notes indicate that Clermont had worked on such procedures before: he was familiar with the chemical processes involved in the dissolution of metals and had created his own recipe for making silver amalgam.<sup>68</sup> In the same year, the count became interested in the various techniques for making porcelain; he set up a workshop in his premises and entrusted its direction to a craftsman whom Réaumur had procured. In November 1729, Réaumur read to the Académie a memoir on the making of porcelain and revealed that the count had been directly involved in this research.<sup>69</sup> These collaborations between Réaumur and Clermont weaken the thesis that Réaumur played an active role in boycotting the Société des Arts. It is unlikely that he would have opposed an association that enjoyed the patronage of a prince of the blood whom he publicly praised as a patron of the sciences and the arts and with whom he had repeatedly worked.

Clermont's direct interest in experimental philosophy and its practical applications continued during his patronage of the association. In 1731, when Rémond de Sainte Albine presented to the Société a treatise on a new machine [*laminoir*] for making large sheets of lead, Clermont took a personal interest in the matter. Large sheets of lead were employed in architecture and the new machine intrigued Languet de Gergy, the vicar of the church of Saint Sulpice, who was carrying out a grandiose renovation of the church. Imported from England and employed in a manufacture in Paris, the machine had been harshly criticized in an anonymous pamphlet published the same year. Languet de Gergy, who was an honorary member of the Société and a close connection of Clermont, engaged in a series of tests on the sheets of lead made by the machine and was favorably impressed by it. The Société decided that in order to settle the matter it was essential to visit the manufactory to see how the machine operated and to assess the quality of the lead. The count of Clermont joined the group and went twice to the manufactory; his visits convinced him of the effectiveness of the machine. When the Société met to decide whether to approve it publicly, he supported the invention.<sup>70</sup>

At least since the time of Leopoldo de' Medici's patronage of the Accademia del Cimento, the model of an individual aristocrat bestowing his protection upon an assembly of men pursuing the public good had been variously replicated in Europe.<sup>71</sup> This form of patron-client relationship—where the client was a quasi-institution—brought to the aristocratic patron visibility and prestige among his peers. It was a form of moral ennoblement for aristocrats who wanted to demonstrate that their nobility was not just a matter of blood, but also of virtue. The young count was ready to seize the new visibility and power that his new position brought him. In his top-down interactions with the members of the Société he appointed fellow aristocrats as honorary members, imposed the discussion of specific memoirs, and elaborated a set of regulations for the Société des Arts, without even taking into account the project that the original members had presented to Bignon.<sup>72</sup> The official regulations published in 1730 were the result of negotiations between the count and the Société via an intermediary, the count's secretary Moncrif. The Société discussed the count's remarks over several meetings, which he never attended.<sup>73</sup> By stating that the first duty of the Société was "to conform itself to the orders of his Most serene Highness," the first article of the regulations presented the Société to



the public as a property of the count.<sup>74</sup> The notice of the publication of the regulations emphasized the count's patronage, leading a number of readers—including Voltaire—to believe that the count was the founder of the *Société*.<sup>75</sup>

The members of the *Société* were aware of the importance of the patronage of a prince of the blood, but their ambition was of a different nature. They hoped that the count would be able to persuade the king to give the *Société* the status of a royal academy—an ambition that was soon disappointed: in 1729 Louis XV “provisionally refused the royal certification.”<sup>76</sup> The king's denial of this request testifies to the persistence of skeptical attitudes towards an association primarily composed of artisans. Nonetheless, the count initially funded the *Société* with an annual donation of 1,200 *livres* for two prizes. One was a gold medal worth 300 *livres* that the *Société* would award during its semiannual public meetings to the author of the best memoir on a specific subject. The other prize consisted of six gold medals each worth 100 *livres* to be awarded to *artistes* who had contributed to the advancement of the arts either by a memoir or an invention.<sup>77</sup> The call for memoirs and inventions to be evaluated for the prizes was published in various magazines, thus spreading simultaneously the *Société*'s self-presentation as an assembly of experts in the useful arts and the role of the count of Clermont as its patron.<sup>78</sup>

Clermont's patronage, however, was a double edged sword for the *Société*. While it contributed to building the *Société*'s legitimacy and reputation, it also left the future of the assembly to the whims of an aristocrat who had several other priorities. Clermont hardly ever attended the weekly meetings and his absence discouraged several members from participating in the everyday work of the *Société*. Attendance soon became such a matter of concern as to require an extraordinary meeting on 25 January 1733, which resulted in a formal request to the count to join the meetings more often and to invite honorary members to do the same.<sup>79</sup> The request did not lead to any change in the count's attitude to the *Société*. In the 1730s, Clermont, who was also the abbé de Saint Germain de Prez, obtained a special permission to join the French army in the war of the Polish succession. This commitment took him away from Paris and gave a final blow to the life of the *Société*, then engaged in the preparations for its first public meeting.

The public meeting was highly anticipated by the members as a public demonstration of the *Société*'s activities and of its members' expertise. As in the case of the public meetings of the Académie des Sciences, it would have been open to foreign visitors and local cultivated elites. According to the program that the members prepared, during the event the secretary would give a quick overview of the *Société*'s activities by reading aloud a selection of excerpts from its memoirs (carefully selected so as not to display any internal disagreement), then a restricted group of members would each read a memoir on an innovative subject that had been preliminarily selected by a special committee. The *Société* would also award the prizes funded by the count.<sup>80</sup> Clermont's military commitments, however, kept delaying the event. Aware that the public meeting would give the audience a firm impression of his patronage of the arts, the count wished to be present and denied his permission to hold the public meeting in his absence. Ignoring several pleading letters, he ordered the *Société* to wait for his return, but was unable to commit to any firm date.<sup>81</sup> The surviving documents clearly show that the failure to host a public meeting dampened the enthusiasm of the few members who had kept the



Société alive. In 1737, after what appears to have been one of its last meetings, the Société resolved to ask the count's permission to look for another place for its gatherings.<sup>82</sup> It is unclear if the Société continued its activities elsewhere, but in 1753—upon his admission to the Académie Française—Clermont admitted his responsibility in its failure: “J’ai toujours aimé les lettres et les arts. Dès ma première jeunesse, j’avais formé une société dont l’objet étoit de les cultiver. La guerre où le Roi me fit l’honneur de m’employer m’empêcha de donner mes soins pour le maintien de cet établissement.” [I have always loved the sciences and the arts. During my first youth, I formed a society whose goal was to cultivate them. The war, in which I was honored by the King to be enrolled, prevented me from taking care so as to maintain this institution.]<sup>83</sup>

Based on the patron-client relationship that characterized the interactions between individual *artistes* and their patrons, Clermont's whimsical patronage undermined the overall project of the Société des Arts. Looking at the example of the Académie des Sciences—and at its failure in engaging with the arts—the members of the Société hoped to be recognized as experts whose knowledge was essential to the public good and, as a consequence, to the state. The end of the Regency and the beginning of a new reign, after years of economic crisis, seemed to be just the right time for an association devoted to the perfection of the useful arts to prosper. However, the French state did not endorse this attempt to create an assembly especially dedicated to the improvement of the useful arts. Although it is beyond the scope of this paper to propose a comparative study, it is noteworthy that the Société's counterpart in London, the Society of Arts founded in 1754, enjoyed instead a much longer life. Among its ranks were members of the government who legislated on the basis of the knowledge they obtained at the Society's meetings.<sup>84</sup>

The dismissive attitude towards an association composed mainly of artisans was not confined to the French state. The academic world as well was skeptical—or wary—of an institution where artisans figured prominently. The Académie des Sciences considered the Société as a sort of ancillary institution from which to draw competent advice and occasional new members, just as it did with the Commission des Arts. In 1777, one of its members, Jean Le Rond D'Alembert, wrote the obituary for the count of Clermont (with whom he shared membership in the Académie Française), remembering the Société des Arts as the count's creation: “[Le comte de Clermont] avait formé une société littéraire, aux assemblées desquelles il assistait quelquefois, et qui avait pris le titre de Société des arts. Cette espèce d'académie devait réunir à la fois les sciences, les lettres et les arts mécaniques. Le projet étoit grand, mais trop vaste, et fut d'ailleurs trop mal combiné par ceux que le prince avait chargés de l'exécution.” [The count of Clermont formed a literary society, whose meetings he sometimes attended, and which had taken the title of Société des Arts. This sort of academy was meant to put together the sciences, the liberal, and the mechanical arts. The project was grandiose, but too vast, and for that matter it was too badly organized by those whom the prince charged with its execution.]<sup>85</sup> D'Alembert's poor evaluation of the Société's goals and its members, if typical of the academic elite, is at odds with historians' attempts to understand the Société des Arts as a predecessor to the *Encyclopédie*, pointing as it does to the *philosophe's* low opinion of artisans' ability to organize themselves in an association that would combine the sciences and the arts. This article does not intend to refute

the connections between the Société des Arts and the *Encyclopédie* that previous studies have highlighted, but it takes Diderot's and D'Alembert's engagement with the mechanical arts as a point of arrival rather than as a point of departure. In other words, the concern here has not been so much to underscore how the Société des Arts anticipated some of the themes that were later central in Diderot's and D'Alembert's work, but to call attention to the role of the *artistes* as a group of learned artisans that complicates the dichotomy between the academic and the artisanal world. The *artistes* of the Société des Arts strove to differentiate their work from that of other artisans by formulating a culture of ingenuity that defied any distinction between theory and practice. They disregarded purely theoretical knowledge—just as they distanced themselves from the rote activity of the craftsman—and attempted to create a collective body of expertise that would serve the French state by the improvement of the arts. Such expertise was grounded in an epistemology that learned artisans had expressed in their treatises and workmanship for at least three centuries. With its ambition to be granted the status of a royal institution, however, the Société des Arts constituted a new step in the articulation of this artisanal epistemology. The *artistes* in the Société did not just state that natural knowledge could only result from the bodily engagement with materials; they also now claimed that there could be no useful knowledge without their expertise, which they suggested the state should acknowledge by funding an ad hoc institution. In doing so, they connected ingenuity with productive knowledge, claiming that this could only be achieved by collective work.

The failure of the Société's program was not due, as previously believed, to its immature encyclopedic ideology or to the rivalry of the Académie des Sciences. It was rather the lack of state support that led to the collapse of the ideal of collective work on which it was based. It is certainly correct—indeed necessary—to take the Société des Arts into account when dealing with the history of the *Encyclopédie*. Yet even without adopting a retrospective approach, the history of the Société des Arts offers fresh insights into the academic and the artisanal worlds in early modern France, as well as on the contested territory of technical innovation.

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#### NOTES

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1. Franco Venturi, *Le origini dell'Enciclopedia* (Firenze: Edizioni U, 1946), 11–12. On Gua de Malves, see: Marie Jean Antoine Nicolas de Caritat de Condorcet, "Eloge de M. l'abbé de Gua," *Histoire de l'Académie Royale des Sciences 1768* (Paris, 1788), 68–69; Frank A. Kafker, "Gua de Malves and the *Encyclopédie*," *Diderot Studies* 19 (1978): 93–102. All translations from French originals are our own.

2. Roger Hahn, "Science and the arts in France: The limitations of an encyclopedic ideology," *Studies in eighteenth-century culture* 10 (1981): 77–93; Roger Hahn, "The applications of science to society: The societies of art," *Studies on Voltaire and the Eighteenth Century* 25 (1963): 829–36.

3. Hahn, "Science and the arts," 80.

4. Joseph Bertrand, *L'Académie des sciences et les académiciens de 1666 à 1793* (Paris, 1869). On the Académie des Sciences, see also Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666–1803* (Berkeley: Univ. of California Press, 1971).

5. Madeleine Pinault, "Aux sources de l'*Encyclopédie*: la *Description des Arts et Métiers*," (PhD diss., École pratique des Hautes-Études, 1984); Madeleine Pinault, "Diderot et les illustrateurs de l'*Encyclopédie*," *Revue de l'Art* 66 (1984): 17–38; Martine Jaul and Madeleine Pinault, "La collection '*Description des Arts et Métiers*', Etude des sources inédites de la Houghton Library Université Harvard," *Ethnologie française* 12 (1982): 335–60; Arthur C. Cole and George B. Watts, *The Handicrafts of France as recorded in the Description des Arts et Métiers, 1761–1788* (Boston: Kelley (Augustus M.) Publishers, 1952); Georges Huard, "Les planches de l'*Encyclopédie* et celles de la *Description des Arts et Métiers* de l'Académie des Sciences," *Revue d'histoire des sciences et de leurs applications* 4 (1951): 238–49.

6. Lissa Roberts, Simon Schaffer, and Peter Dear, eds., *The Mindful Hand: Inquiry and Invention from the Late Renaissance to Early Industrialization* (Amsterdam: Royal Academy of Science, 2007); see especially the introduction for a methodological call not to essentialize such dichotomies. As early as 1962 Paolo Rossi produced a nuanced discussion of the relationship between science and the arts, the scholar and the artisan, and theory and practice in the early modern period; see Paolo Rossi, *I filosofi e le macchine, 1400–1700* (Bologna: Feltrinelli, 1962), translated as *Philosophy, Technology, and the Arts in the Early Modern Era* (London: Harper & Row, 1970). Larry Stewart has worked extensively on these themes in the context of eighteenth-century Britain; see *The Rise of Public Science: Rhetoric, Technology and Natural Philosophy in Newtonian Britain* (Cambridge: Cambridge Univ. Press, 1992) and "A Meaning for Machines: Modernity, Utility, and the Eighteenth-Century British Public," *Journal of Modern History* 70 (1998): 259–94. For the earlier period, see Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: Univ. of Chicago Press, 2004); on the relationship between artisans and the world of learning, see Pamela O. Long, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance* (Baltimore: Johns Hopkins Univ. Press, 2001).

7. Pamela Smith developed the notion of "artisanal epistemology" in *The Body of the Artisan*.

8. Pierre Richelet, *Nouveau dictionnaire françois: contenant généralement tous les mots anciens et modernes* (Amsterdam, 1709). The *artiste's* domain was not limited to the fine arts.

9. The word *artiste* here employed is a period term. It thus differs from the notion of artist/artisan employed by Larry Shiner in *The Invention of Art: A Cultural History* (Chicago: Univ. of Chicago Press, 2001), where the main concern is to trace the origins of the fine arts.

10. Eric Ash, "Introduction: Expertise and the early modern state," *Osiris* 25 (2010): 1–24; Christelle Rabier, ed., *Fields of Expertise: A Comparative History of Expert Procedures in Paris and London, 1600 to Present* (Cambridge: Cambridge Scholars Publishing, 2007). For a somewhat different notion of "artisanal-scientific expertise," see the special issue of *Annals of Science* on "Artisanal-Scientific Experts in Eighteenth-Century France and Germany," edited by Ursula Klein: *Annals of Science* 69, no. 3 (2012).

11. In the French language the word *expert* was not only an adjective—as in early modern English—but also a noun. The quotations come from Pierre Richelet, *Nouveau dictionnaire françois* (Amsterdam, 1709), s.v; Antoine Furetière, *Dictionnaire universel*, vol. 2 (La Haye, 1725), s.v; Jacques Savary, *Dictionnaire universel de commerce*, vol. 2 (Paris, 1748), s.v.

12. These documents are among the papers of Bottée, director of the Société des arts between 1733 and 1735, and are kept in the archives of the duke de Croÿ at Dülmen in Germany. The folder "Mons 555" in this archive comprises 183 uncatalogued pieces (for a total of about 500 pages) that directly concern the Société des arts. They cover mainly the periods between the beginning of 1732 and April 1734 and, less systematically, the end of 1736 and the beginning of 1737. Reference to this material will hereafter be cited as "De Croÿ." For earlier interpretations of the Société des Arts, see Hahn, "Science

and the arts;" Hahn, "The Applications of science to society;" Irène Passeron and Olivier Courcelle, "La Société des arts, espace provisoire de reformulation des rapports entre théories scientifiques et pratiques instrumentales," in *Règlement, usages et science dans la France de l'absolutisme*, ed. Christiane Demeulenaere-Douyère and E. Brian (Paris: Lavoisier Tech & Doc, 2002), 109–32.

13. Bacon's ideal of Solomon's house, where the sciences were cultivated for the benefit of mankind, influenced several early scientific academies, in particular the Royal Society of London, founded in 1660. See Francis Bacon, *New Atlantis* (London, 1627).

14. See Hahn, *Anatomy*; J.B. Shank, *The Newton's Wars and the Beginning of the French Enlightenment* (Chicago: Univ. of Chicago Press, 2008).

15. René Taton, *Les origines de l'Académie Royale des Sciences* (Paris: Palais de la Découverte, 1965); Paul Mouy, *Le développement de la physique cartésienne 1646–1712* (Paris: Vrin, 1934); Guillaume Bigourdan, *Les Premières Sociétés Savantes de Paris et les Origines de l'Académie des Sciences* (Paris: Gauthier-Villars, 1919); Harcourt Brown, *Scientific organizations in seventeenth-century France (1620–1680)* (Baltimore: The Williams and Wilkins Company, 1943); Bruno Belhoste, *Paris Savant. Parcours et rencontres au temps des Lumières* (Paris: Armand Colin, 2011).

16. Hahn, *Anatomy*, ch. 1.

17. Adrien Auzout, *L'éphéméride du comète* [Paris, 1664], "Au Roy," n.p.; published in Christian Huygens, *Œuvres Complètes*, 22 vols. (La Haye: M. Nijhoff, 1889–1950), 4:325–29; quote on 325.

18. "On taschera aussi d'apprendre toutes les tromperies des Artisans et des Marchands et leurs Sophistiqueries avec les Moyens pour les decouvrir, que l'on publiera pour empecher le public d'y ester trompé, et pour obliger les ourriers a trauailler plus fidelement . . . pour ce moyen le Roy aura dans ses grands desseins et dans toutes les propositions nouvelles qu'on luy fera un Conseil capable de luy donner des aduis sincerés et veritables [sic]." *Ibid.*, 4:326–27.

19. See Hahn, *Anatomy*; David Sturdy, *Science and Social Status: The Members of the Académie des Sciences, 1666–1750* (Woodbridge: Boydell Press, 1995); Alice Stroup, *Royal Funding of the Parisian Académie Royale des Sciences during the 1690s* (Philadelphia: American Philosophical Society, 1987); on inventions and the state in 18th-century France, see Charles Coulston Gillispie, *Science and polity in France at the End of the Old Regime* (Princeton: Princeton Univ. Press, 1980); Liliane Hilaire-Pérez, *L'invention technique au siècle des Lumières* (Paris: Albin Michel, 2000).

20. Hahn, "Science and the arts;" on Bignon's reform of the Academy, see Françoise Bléchet, "L'abbé Bignon, président de l'Académie Royale des Sciences" in *Règlement, usages et science dans la France de l'absolutisme*, 51–69.

21. André Jammes, *La réforme de la typographie royale sous Louis XIV. Le Grandjean* (Paris : Jammes, 1961); Geraldine Sheridan, "Recording technology in France: The *Descriptions des Arts*, methodological innovation and lost opportunities at the turn of the eighteenth century," *Cultural and social history* 5 (2008): 329–54. Compare with Hahn, *Anatomy*; Claire Salomon-Bayet, "Un Préambule théorique à une Académie des Arts," *Revue d'histoire de sciences et de leurs applications* 23 (1970): 229–50.

22. Hahn suggests that the two groups were the same: "Science and the arts," 81.

23. Archives de l'Académie des Sciences, Paris. Dossier « Des Billettes »: "Ce n'est pas comme à l'A.d.S. ou chacun en est quitte pour quelque production d'esprit ou d'expérience telle qu'elle se presente sans une consequence ny liason avec les suites mais icy c'est un ouvrage continu, qui doit estre digéré, exact et complet;" also quoted in Sheridan, "Recording technology in France," 342

24. On the reform of the Academy in 1699 see Bléchet, "L'abbé Bignon."

25. *Descriptions des Arts et Métiers, faites ou approuvées par messieurs de l'Académie Royale des Sciences* (Paris, 1761–1788).

26. Bibliothèque Nationale de France, Paris [hereafter cited as "BnF"]: Ms Fr 22225, f. 7; Henri Sully and Julien Le Roy, *Règle artificielle du temps* (Paris, 1737), 407.

27. A letter from the abbé de Saint-Pierre to Bignon refers to the assemblies that took place in the palace of the Cardinal of Rouhan, which failed because of people who were not interested in the public

good. BnF: Ms Fr 22230, f. 139. Abbé de Saint-Pierre to Bignon, 23 Mar. 1725. The reference to the Société des Arts that gathered at the Louvre is in BnF: Ms Fr 22225, ff. 7–10.

28. Sully and Le Roy, *Règle artificielle*, 381–413. On Sully and Law see John R. Harris, *Industrial Espionage and Technology Transfer: Britain and France in the Eighteenth Century*, (Aldershot: Ashgate, 1998), ch. 1.

29. Julien Le Roy, “Mémoire pour servir à l’histoire de l’horlogerie, depuis 1715 jusqu’en 1729” in Sully and Le Roy, *Règle artificielle*, 381–413; *Suite de la clef*, Nov. 1730, 321–23.

30. The full list is in BnF: Ms Fr 22230, f. 373. See also: <http://www.clairaut.com/n8novembre-1728po1pf.html>

31. BnF: Ms Fr 22230, f. 372. Liébaux to Bignon, 8 Nov. 1728.

32. De Croÿ (undated).

33. BnF: Ms Fr 22225, “Idée de l’établissement de la société académique des beaux arts,” f. 9.

34. *Ibid.*, f. 7v.

35. *Encyclopédie*, sub voce “Art,” 1:716.

36. Palissy is discussed in Rossi, *I filosofi e le macchine*, and Smith, *The body of the artisan*.

37. BnF: Ms Fr. 22228, f. 10. Only Clairaut would then be elected to the Académie. Archives de l’Académie des Sciences, Paris ([hereafter cited as “AASP”]: *Procès Verbaux* 1729, f. 210r and *Procès Verbaux* 1731, f. 169r.

38. Archives Nationales, Paris: Q85. Vaucanson to Daniel Trudaine, head of the Bureau of Commerce. The context for the letter was a recent election at the Académie des Sciences, where D’Alembert was favored over Vaucanson.

39. *Mercur de France*, Dec. 1728, 2893–95. On Clermont, see Jules Cousin, *Le comte de Clermont. Sa cour et ses maîtresses* (Paris, 1867); C. A. Sainte-Beuve, *Le comte de Clermont et sa cour* (Paris, 1868). Clermont became Grand Maître in 1747.

40. See, for example, the laudatory comment by the Swedish mathematician Jonas De Meldercreutz to the Neapolitan Celestino Galiani after his visit to Paris, as well as the letter by the count of Plélo, the French ambassador in Denmark, and the letter by Carl Johan Cronstedt to his mother. Biblioteca di Storia Patria, Naples: XXXI.B1, f. 271v. De Meldercreutz to Galiani; Archives Nationales, Paris: Mar, 2JJ/62, 37. Louis Robert Hyppolite de Bréhan, Count Plélo, 3 May 1732; National Archives of Sweden, Stockholm, Ms 3447. Cronstedt to Margareta Beata Grundel, 1735. Clermont’s patronage of the Société des Arts was praised also by Voltaire in his *Temple du gout: The Complete Works of Voltaire*, ed. Theodore Besterman, vol. 9, *Œuvres de 1732–1733* (Genève-Oxford: Voltaire Foundation, 1999), 180.

41. Staatsbibliothek, Berlin [hereafter cited as “SB”]: Ms J 1750.

42. *Règlement de la Société des arts, formée à Paris avec la permission du Roy, sous la protection de Monseigneur le comte de Clermont, prince du sang* (Paris, 1730); *Mercur de France*, 1731, 2199–206; *Journal de Trévoux*, 1733, 357–59.

43. *Règlement*, 1.

44. For a comparison of the *Règlement* with the draft initially written by the Société’s members, see Passeron and Courcelle: “La Société des Arts.”

45. There would be twelve geometers, fifteen mechanics, two astronomers, thirteen physicists, two physicians, three surgeon anatomists, ten chemists, two botanists, five engineers, three architects, two shipbuilders, two pilots, two geographers, two hydrographers, four clockmakers, two mathematical instrument makers, two painters, two sculptors, two goldsmiths, two engravers, one musician, one glass maker, two spectacle makers, one enameller, and six entrepreneurs from different manufactures.

46. *Règlement*, article 38.

47. This is particularly evident in the documents kept in the De Croÿ archive.

48. *Règlement*, articles 3, 5 and 10.
49. Richelet, *Nouveau dictionnaire*; De Croÿ: "Mémoire pour la perfection de la Société des Arts," undated.
50. De Croÿ: "Mémoire pour la perfection de la Société des Arts," undated.
51. Bibliothèque de l'Assemblée nationale, Paris: Ms 1508, f. 64r. Angélique Delisle to her brother, 14 Feb. 1730.
52. De Croÿ: minutes, 12 Jun. 1732.
53. Joseph Bertrand, *L'Académie des sciences et les académiciens de 1666 à 1793* (Paris, 1869), 95–97; Hahn, "Science and the arts."
54. AASP: Dossier Réaumur, *Réflexion sur l'utilité dont l'Académie des Sciences pourrait être au Royaume, si le Royaume lui donnait les secours dont elle a besoin*, undated.
55. Öffentliche Bibliothek der Universität Basel, Basel: L I a 685, f. 659r.
56. Antoine Louis, *Éloges de Messieurs Bassuel, Malaval et Verdier prononcés aux Écoles de chirurgie* (Paris, 1759), 9–10.
57. AASP: *Procès Verbaux* 1730 (24 and 26 May, 7 and 14 June).
58. For a list of the Académie's members see *Index biographique de l'Académie des sciences, 1666–1978* (Paris: Gauthier-Villars, 1979).
59. De Croÿ: minutes, 1731–33. We do not have enough evidence to draw conclusions about the other members of the Société who became *académiciens*.
60. Archives Nationales, Paris: Mar, 2JJ/62, 37.
61. De Croÿ: minutes 1732. On Privat de Molières see Shank, *Newton's Wars*, 38–48.
62. BnF: Ms Fr 22234, f. 178. Bignon to Réaumur, 2 May 1728.
63. De Croÿ: minutes, 11 Mar. 1734.
64. De Croÿ: La Condamine to Bottée, Nov. 1733.
65. Memoir by the mathematical instrument maker Le Maire in Bignon's papers: BnF: Ms Fr. 22230, ff. 340–47. Memoir by Deschisieux examined at the Académie des Sciences: AASP, *Procès Verbaux* 1738, f. 30.
66. On the patron-client relationship, see Sharon Kettering, *Patrons, Brokers, and Clients in Seventeenth-Century France* (Oxford: Oxford Univ. Press, 1986).
67. BnF: Ms Fr 22225: "Idée de l'établissement de la société académique des beaux-arts," ff. 7–9.
68. Biblioteca Medicea Laurenziana, Florence, Ms. Ashburnham 1804.
69. René Réaumur, "Second mémoire sur la porcelaine," *Mémoires de l'Académie Royale des Sciences pour l'année 1729* (Paris, 1731), 336–38.
70. De Croÿ: minutes, 22 Apr. 1731. Pierre Remond de Sainte-Albine, *Mémoire sur le laminage du plomb* (Paris, 1731), 36–38.
71. On scientific patronage and the early modern court, see Bruce Moran, ed., *Patronage and Institutions: Science, Technology, and Medicine at the European Court, 1500–1750* (Rochester: Boydell & Brewer, 1991); on the Accademia del Cimento see Marco Beretta, Antonio Clericuzio and Lawrence Principe, eds., *The Accademia del Cimento and its European context* (Sagamore Beach: Science History Publications/USA, 2009). James McClellan, *Science Reorganized* (New York: Columbia Univ. Press, 1985). On a Neapolitan attempt to emulate the patronage of Leopoldo de' Medici see Paola Bertucci, "The architecture of knowledge: science, collecting and display in eighteenth-century Naples" in *New Approaches to Naples c.1500–1800*, ed. Helen Hills and Melissa Calaresu (Aldershot: Ashgate, 2013), 149–74.



72. Clermont appointed the Abbé Le Blanc and the marquis de Lassé; he ordered that the Société read works by Julien de Mugneret, Clairaut, a Mr. Bianchi from Milan, and M. Horrebow. Hélène Monod-Cassidy, *Un voyageur philosophe au XVIIIe siècle: l'abbé Jean-Bernard Le Blanc* (Cambridge, MA: Harvard Univ. Press, 1941), 143; De Croÿ: minutes, 7 Aug. 1729, 21 Aug. 1729, 6 Mar. 1732, 23 Nov. 1732, 22 Jan. 1733; SB: Ms J 1750.
73. SB: Ms J 1750 (1729).
74. *Règlement.*, art. 1.
75. Voltaire, *Works*, 9:180.
76. Amans-Alexis Monteil, *Traité de matériaux manuscrits de divers genres d'histoire*, 2 vol., (Paris, 1835), 1:41–43; SB, Ms J 1750.
77. De Croÿ: minutes, 27 Mar. 1732.
78. *Journal de Trévoux*, Feb. 1733, 357–59; *Mercure de France*, May 1734, 937–38.
79. De Croÿ: minutes, 25 Jan. 1733.
80. De Croÿ: minutes, 19 Dec. 1733. Changes to this initial plan were made on 24 Dec. 1733 and on 11 and 18 Feb. 1734: the Société added a memoir by Clairaut senior and replaced a memoir by Julien Le Roy (which would be later published as “Description et usage d’un nouveau cadran horizontal, universel, et propre à tracer les méridiennes,” *Mercure de France*, Sept. 1735, 1898–1905 and Sully and Le Roy, *Règle artificielle*, 293–304) with another (which would also be published: “Description d’un nouveau cadran universel, portatif et à boussole,” *Mercure de France*, Sept. 1735, 1906–15 and Sully and Le Roy, *Règle artificielle*, 318–23).
81. De Croÿ: Clermont to the Société des Arts, 23 Dec. 1733.
82. De Croÿ: minutes, 17 Feb. 1737.
83. Bibliothèque de l’Arsenal, Paris: Ms 3505.
84. David Allen, “The Society of Arts and Government, 1754–1800,” *Eighteenth-Century Studies* 7 (1974): 434–52. On the London Society of Arts, see Derek Hudson and Kenneth W. Luckhurst, *The Royal Society of Arts 1754–1954* (London: John Murray, 1954); David Allan and John Abbott, eds., *The Virtuoso Tribe of Arts & Science: Studies in the Eighteenth-Century Work and Membership of the London Society of Arts* (Athens, GA: Univ. of Georgia Press, 1992).
85. D’Alembert, *Œuvres philosophiques, historiques et littéraires*, 18 vols. (Paris, 1805), 11:414–15. On D’Alembert’s attitude towards artisans, see Simon Schaffer, “Enlightened automata,” in *The Sciences in Enlightened Europe*, ed. William Clark, Jan Golinski, and Simon Schaffer (Chicago: Univ. of Chicago Press, 1999), 126–65.