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From the first patents to the first industrial exhibition

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**Electronic version**

URL: <https://journals.openedition.org/ephaistos/10805>

DOI: 10.4000/ephaistos.10805

ISSN: 2552-0741

**Publisher**

IHMC - Institut d'histoire moderne et contemporaine (UMR 8066)

**Electronic reference**

Michael Dudzick, "Inventors and the French business environment (1791–1798)", *e-Phaïstos* [Online], X-2 | 2022, Online since 24 December 2022, connection on 26 December 2022. URL: <http://journals.openedition.org/ephaistos/10805>; DOI: <https://doi.org/10.4000/ephaistos.10805>

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# Inventors and the French business environment (1791–1798)

From the first patents to the first industrial exhibition<sup>1</sup>

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- 1 The paper clarifies aspects of the development of granting privileges, patents, and financial incentives in France throughout the 18<sup>th</sup> century. The allocation of such benefits was organised institutionally, and the paper shows how the centralization affected the functioning, financing, and the social stratification of patent institutions. The social composition played a vital role in deciding who receives the patent and the funds, and that constituted power over the future shape of the business environment, leading to the long interinstitutional strife.
- 2 Having patent order legalized and established, it soon bore fruit. The second part outlines the circumstances of the announcement, progress, and results of the first industrial exhibition, where the variety and versatility of the exhibited products represented the greatness of the French inventive spirit, going hand in hand with the vision of rewarding one's own efforts. The industrial exhibition of 1798 was thus intended to seal many years of efforts to simplify the filing of patents, to open inventing to the lowest social groups, and to secure a strong position for France among the continent's progressively industrialised countries.
- 3 Bernard Delaunay (2013) traces the origins of intellectual property protection in the 17<sup>th</sup> and 18<sup>th</sup> centuries, describing the circumstances and process of approving proposed inventions, including the internal mechanisms and functioning of the French Academy of Sciences. He is supplemented by facts about the learned society of David Sturdy (1995) and Roger Hahn (1971). Liliane Hilaire-Pérez (1991), who clarified the relationship between royal privileges, the predecessors of patents, and French society in the 18<sup>th</sup> century, maps out the period before the codification and centralisation in an article that looks at inventions and their creators in the 18<sup>th</sup> century.

- 4 Her work is loosely built on by Jeff Horn (2006) and Charles Gillispie (2004), who described the cultural and scientific aspects of France during the revolution and the Directory. The works of Christiane Demeulenaere-Douyère (2009) on the social composition of the first modern patent organisation, *Société libre des inventions et découvertes*, and its petition activities (Demeulenaere-Douyère 2008), which had an impact on the formation of other support institutions that were responsible for both granting financial subsidies (Morin 1868) and providing storage facilities for manufactured machinery, as Claudine Fontanon (1992) showed in period records, were also of benefit.
- 5 In order to portray the legal framework of the time, the paper is based on the laws from the examined years 1791 (Duvergier 1834) and 1795 (Duvergier 1835) written in the collections of Jean-Baptiste Duvergier, thanks to which it is possible to observe the emergence of new institutions, together with the development and specification of existing laws concerning granting patents and the promotion of inventing in general. A government decree (Neufchâteau 1798) by Minister of the Interior François de Neufchâteau served as the starting point for the launch of an industrial exhibition, the events of which Charles Simian refers to in most detail (Simian 1889).
- 6 The article is based on knowledge of economic history, more specifically on the history of trades and entrepreneurship, and on the history of law, because it seeks to show a correlation between the progressive concretization and the final adoption of patent law and the growing number of entrepreneurs and manufacturers that were also supported by state funds. The article provides a realistic social perspective, i.e. research into individual decisions and interpersonal relations, in this case the contradictory behaviour of privileged scholars, unprivileged artists, and the importance of such behaviour in advancement in fields of culture and science.
- 7 The paper methodologically relies on deduction from the point of view of presenting the legislative consequences of patent law on the increasing number of inventions approved, and induction in the case of observing government policy in awarding grants and honourable prizes to French departments. This policy is based on the intentions of the then Minister of the Interior, François de Neufchâteau, as biographical method shows in his circulars and memoirs. The main list of inventions and products for exposition was subjected to a comparative method which compared the types of products awarded the grant or honourable prize, and finally a quantitative method which showed the entire range of products presented at the first industrial exhibition in France at the end of the 18<sup>th</sup> century.

## The process of approving new inventions and legalization

- 8 Without legislative backing and government support for business plans, a large group of independent discoverers, inventors and entrepreneurs could not have come into being in France at the end of the 18<sup>th</sup> century. This was, however, preceded by complex development. Under the old regime, it was the French monarch who granted intellectual property protection, called an exclusive privilege (*privilège exclusif*)<sup>2</sup>. Since this was a royal decree, it came into conflict with parliaments that opposed the monarch's power – the fact that they wanted to prevent the granting of privileges led

them to introduce a procedure of thoroughly examining proposed inventions, thereby creating a methodology for the future granting of patents<sup>3</sup>.

- 9 The second body granting the *privilèges* was *Bureau de commerce* (Commerce Office), cooperating with artisans. There was, however, another player in the game: the Academy of Sciences, created in 1666 (Strudy 1995: 80-100). Its academicians had to cooperate with the artisans, as stipulated in the decree of 1699: « *L'Académie examinera, si le Roi l'ordonne, toutes les machines pour lesquelles on sollicitera un privilège auprès de Sa Majesté* »<sup>4</sup>. While the *Bureau de commerce* oversaw the privileges, it depended on the Academy that was assessing the inventions.
- 10 The state and the scholarly institution made an agreement that the academists, « *en acceptant les pensions du gouvernement, montraient tacitement leur volonté de vouer leurs efforts au bien de la nation,* »<sup>5</sup> thus giving them sheer power<sup>6</sup> in deciding over the future form of the French technological framework. At first, there was no strict examination of the inventions: the privilege was granted during the *séance* just by observing the model or its design plans. In 1710, commissioners were appointed: after the report was read in the *séance*, the procedure, « *pour vérifier le bon fonctionnement et les performances de l'invention examinée,* »<sup>7</sup> took place. The two- or three-member examination committee used consecutive methods like examination, appraisal, description, study and teaching to announce the results in collective *séances* and, after reading the final assessment, the invention was registered (Delaunay 2013).
- 11 Used methods classified inventions by strict criteria to different categories. As for the former, the proposed objects ought to fall into criteria of novelty, usefulness, technical feasibility and technical quality. Academy had at its disposal various plans and designs, based on which it assessed whether the new object brings something revolutionary or not or to what extent it enhances already existing machines. As for the latter, the objects were divided into eleven categories: machines (28%), naval (18%), conveniences (12%), watchmaking (9%), military (8%), transport (8%), various (5%), metallurgy (4%), agriculture (3%), architecture (3%), and textile (2%). Between 1699 and 1750, a total of 927 *privilèges* were granted, out of which 751 consisted of private demands and 176 were requested by the royal administration (19%)<sup>8</sup>.
- 12 The power of selecting useful and beneficial machines with other objects deepened the moat between artists and academists who took over the whole scientific field. Not only did they favour privileged men (Delaunay 2013: 49) but they also embark on producing written works. Since 1699, they had been publishing the *Histoire et mémoires de l'Académie royale des sciences* where *seances*, speeches and internal affairs are recorded. Since 1720, the scholars began assessing works produced outside the institution – their recognition resulted in issuing special publications, such as the *Mémoires et ouvrages de mécanique présentés à l'Académie* (1741) or *Mémoires de mathématiques et de physique présentés à l'Académie Royale des Sciences* (1744) (Delaunay 2013 : 75-76 ; Leclant 1996 : 627-641).
- 13 We mustn't forget that given dissimilar approaches of artists' and academicians' approvals, there were several misunderstandings. Even though a slight standardization came in December 1762 (Hilaire-Perez 1991) the case of a certain Rossignol is striking: in 1785, the member of the *Académie*, Alexandre Vandermonde (1735–1796), considered as « *a pillar of Bourbon's technological decision-making* », <sup>9</sup> partly recognised Rossignol's privilege, but the same Vandermonde, as a member of the *Bureau*, rejected the proposal (Hilaire-Perez 1991). It was obvious that change was needed.

- 14 The turning point came in 1791 when it concerns the liberalisation of commerce. The Patent Act of 7 January 1791 definitively abolished the privileges of individuals and declared « *all inventions or new discoveries in all areas of industry as the property of their creator, with the guarantee of full and complete use* » (Duvergier 1834 t.2: 173). An invention, its improvement, or a discovery brought in from abroad was registered at the secretariats of the department boards. A patent<sup>10</sup> was awarded for five, ten, or fifteen years, and upon its expiration, the invention was « passed » to the benefit of society (Duvergier 1834 t.2: 137-138) as in the case of the previous *privilège exclusif*.
- 15 Obstacles remained in the form of the impossibility of free production and liberal market. The Allard law of 17 March 1791 laid foundations of the free entrepreneurship and trade:
- « Il sera libre à toute personne de faire tel négoce ou d'exercer telle profession, art ou métier qu'elle trouvera bon ; mais elle sera tenue de se pourvoir auparavant d'une patente, d'en acquitter le prix, et de se conformer aux règlements de police qui sont ou pourront être faits »<sup>11</sup>.
- 16 Since the patents represented the uniqueness of each creator, whose efforts were overshadowed by the guilds, the so-called Le Chapelier law of 14 June 1791 abrogated them, saying that
- « tous attroupements composés d'artisans, ouvriers, compagnons, journaliers contre le libre exercice de l'industrie et du travail [...] seront tenus pour attroupements séditieux et, comme tels, ils seront dissipés par les dépositaires de la force publique »<sup>12</sup>.
- 17 Moreover, in September 1791, a significant change in the support of enterprise and inventing occurred: a state monetary fund of two million livres was established (Duvergier 1834 t.3: 263). It financially motivated the citizens for three hundred thousand livres were set aside for inventors « *qui, par leurs découvertes, leurs travaux et leurs recherches, auront mérité d'avoir part aux recompenses nationales* »<sup>13</sup>. The sum was distributed according to a three-tier scale, took into consideration the difficulty of producing and protecting the patented invention and remunerated citizens aged over 60 with poor entrepreneurs (Duvergier 1834 t.3: 263-264; Morin 1868: 6).

## The institutional framework and interest groups

- 18 A year after its outbreak, the revolution introduced a new kind of gathering – societies and clubs composed of various experts, politicians and artists. The youngest organisation was *Société libre des inventions et découvertes* (Free Society of Inventions and Discoveries) founded in August 1790 (Demeulenaere-Douyère 2008: 19 et 2009: 61-62; Tresse 1952: 248). Its contribution was reflected in 1791 in petitions<sup>14</sup> which led to the January adoption of the Patent Act, the July establishment of *Directoire des brevets* (Patent Directorate) and the October foundation of *Bureau de consultation des arts et métiers* (Consulting Office for Arts and Crafts). Whereas the Free Society consisted mainly of artisans, the Consultation Office was made up of fifteen academists and the same number of industrialists (Duvergier 1834; Gillispie 2004; Hilaire-Perez 1991; Horn 2006; Grison 1999; Morin 1868).
- 19 However, both institutions, each favouring their own social group, were to judge inventions unanimously. An illustrative example of this non-compliance is Claude Baron de Servières (1755–1804),<sup>15</sup> president of the Free Society of Inventions and, at the

same time, president of the Patent Directorate. His intention was to « *démarquer des arrogances académiques qu'il dénonce avec virulence* »<sup>16</sup>. The fact that the central task of *Bureau de consultation* was to advise the government on the redistribution of financial rewards among inventors, the excessive petition activity of the Free Society can be simply explained as follows: de Servières, in his stint as a member of the Consulting Office, sought to distribute more money to artists at the expense of scholars and in doing so to significantly limit the influence of the latter (Demeulenaere-Douyère 2009: 23; Gillispie 2004: 201, Morin 1868: 6; Tresse 1952: 248). After further unsuccessful petitions, however, *Société libre des inventions et découvertes* lost its exclusivity<sup>17</sup> and *Bureau de consultation* took over the role of distribution.

- 20 Given that « il pourra être accordé des gratifications particulières aux artistes dont les talents auront été reconnus par des approbations des corps savans, »<sup>18</sup> academists still remained an important element at a time when the many years of dispute between them and artists were coming to a head. The revolt against privileged scholars was led by painter Jacques-Louis David (1748–1825): the two main hubs were *Point central des arts et métiers* (Central Society of Arts and Crafts), which consisted only of *sans-culottes*, and *Société de la Commune des arts* (Society of the Artistic Community). The Central Society fought with the Royal Academy of Painting and Sculpture, and the Artistic Community opposed the Painting Academy (Gillispie 2004:200-209; Hassenfratz 1995; Tresse 1952: 248).
- 21 The atmosphere of in 1792 was becoming very unfriendly to elite groups. The *Académie* experienced a crisis when some of its members participated in melting bells from demolished churches and helped producing gunpowder (Gillispie 2004: 211-212; Russell 1983), while others took a pacifist stance. The culmination was Condorcet's plan of public education, in which scholars were to stand at the top of the pyramid and other schools would be subordinated to them (Baker 1965). The artisans' and *sans-culottes'* pressure, the supports of the Jacobin regime, led to the temporary « *suppression de toutes les académies et sociétés littéraires patentées ou dotées par la nation* »<sup>19</sup> in August 1793.
- 22 Not even the Consulting Office was spared from attacks because of its composition of academics and artisans. Whether it was the hatred of inventors whom scholars denied granting a patent, or the interventions of ministers of the Interior in the powers of the institution, it began unravelling itself in 1794 after several failures when « *une partie des membres dispersés dans diverses places; ceux qui restent, en nombre insuffisant pour leurs travaux, sont surchargés, et cependant ils ne reçoivent aucun traitement* »<sup>20</sup>. A government decree of May 1796 confirms that « *le Directoire exécutif, considérant que le bureau de consultation [...] est paralysé par le trop petit nombre des membres et qu'il ne peut plus continuer les importants services qu'il a rendus,* »<sup>21</sup> puts an end to the Bureau which, in nearly five years of its functioning, divided among 279 enterprising citizens around one and a half million francs (Gillispie 2004: 209; Horn 2006: 174; Morin 1868: 14).
- 23 Apart from the intercommunity fights for power stood an institution that stored submitted inventions. It was initiated by abbé Henri Grégoire (1750–1831)<sup>22</sup> who called for
- « un vaste dépôt où se réuniront une quantité prodigieuse de machines avec ses dessins et descriptions pour uniformer la technologie et pour prévenir des hommes qui ont consume un temps précieux pour inventer péniblement ce qui étoit invente »<sup>23</sup>.

- 24 In less than two weeks, the four-member Conservatoire national des arts et métiers (CNAM ; National Conservatory of Arts and Crafts) was created for storage of « les machines, modèles, outils, dessins, descriptions et livres dans tous les genres d'art et métiers »<sup>24</sup>. In order to prevent forgery<sup>25</sup>, a sample for comparison with other machines, drawings and notes from the inventor were to be provided with each invention.
- 25 Grégoire's proposal was not a novelty: René Descartes (1596–1650) was likely the innovator when turning part of his house into a laboratory equipped with machines. Jean-Baptiste Colbert (1619-1683) followed up his idea: with the establishment of the Academy of Sciences in 1666, he prompted scholars to buy machines, create a separate room and contribute to the collection of books, *Description des Arts et Métiers* (Delaunay 2013: 157-161; Hilaire-Perez 1991; Fontanon 1992). More modern was the museum of mechanical machinery of inventor Jacques de Vaucanson (1709–1782) and the Vandermonde's collection which consisted of around two hundred items of machinery seized during the revolution<sup>26</sup>.
- 26 Although CNAM was spared interpersonal disputes, it was impacted on by political disputes. A few months after it was established, it stood up to the Council of Five Hundred and, moreover, the Directory ended the funding of its activities, thereby suspending the functioning of the institution. It therefore stood alongside *Bureau de commerce*, which was abolished in 1791, the Academy of Sciences, which came to an end in 1793 and *Bureau de consultation des arts et métiers*, which was dissolved in 1796. The prominent position of academics in institutions could not be considered realistic in an egalitarian society (Hilaire-Perez 1991; Russell 1983; Tresse 1952). As a result of centralisation, all the above institutions were replaced by one « *Institut national chargé de recueillir les découvertes, de perfectionner les arts et les sciences* »<sup>27</sup>. This Institute syncretically took over all functions: it stored plans, notes and sketches in its depository, granted financial rewards with patents and introduced discoveries in three sectors<sup>28</sup>. Its employees did not receive a reward but a salary, making the Institute a tool of state centralisation in elevating the French genius and scientism.
- 27 The elite<sup>29</sup> *Société d'encouragement pour l'industrie nationale* (Society for the Encouragement of National Industry), founded in 1801, was another one in charge of the support of inventors and the development of technology. Sixty men in six committees – the financial, trade, and mechanical, chemical, agricultural and economic arts committees – sought to stimulate French industry through several forms of support: by spreading technical knowledge, creating a library with a collection of models, discussing the significance and improvement of new methods, rewarding and supporting the creators (of newly used objects) and by creating a journal (Blouin 2019).
- 28 The Society's most enduring legacy was its *Bulletin* that presented notes on patents, awards, machines, methods, books, or brief excerpts of leading technological works. In addition to members, such as bankers, scientists, professors, industrialists, scholars and civil engineers, technicians, craftsmen, officials or entrepreneurs also contributed to the journal. Their motivation was to obtain a financial reward for the production of their inventions, including the contacts that the *Société* mediated – for example, Régnier's turntable ladder with a protective cover received a reward of two thousand francs and the opportunity to produce it in bulk (Chassagne 1989; Gillipsie 2004).



## The holding of the first industrial exhibition

- 29 Both domestic consolidation, with closing of the Jacobin Club in the autumn of 1795 and the royalist and sans-culotte movements subsequently suppressed, and military successes spreading the French influence to Belgium and Italy enabled the French Republic to step up its encouragement of the national spirit. This was to be played out at a purely symbolic level: the Minister of the Interior François de Neufchâteau (1750–1828)<sup>30</sup> attended the meeting of the five directors in 1797 and wanted to create something new and remarkable for the annual celebration of the foundation of the Republic (Chandler 1798).
- 30 Thanks to his agricultural education, Neufchâteau promoted physiocratic ideas for he favoured luxury French products<sup>31</sup> that in their number, production, and excellence would outperform products from Great Britain. He therefore established a departmental travelling commission to select appropriate products, and a central commission to judge them afterwards. The evaluation commission awarded « *vingt médailles d'argent aux vingt manufacturiers les plus habiles, et une médaille d'or à celui qui aura porté le coup le plus funeste à l'industrie anglaise* »<sup>32</sup>. In other words, a properly selected products should have proven that while the British create products, the French improve them and use them in an economic war.
- 31 Unlike in the first public exhibition in 1699<sup>33</sup>, where paintings and sculptures were exhibited, in 1798 art and science sought to « *briser le relatif isolement technologique et réduire l'avance industrielle anglaise* »<sup>34</sup>. Neufchâteau sent out the impulse for the organisation of the first industrial exhibition in his circular:
- « Le Gouvernement doit couvrir les arts utiles d'une protection particulière ; c'est dans ses vues qu'il a cru devoir lier à la fête du 1<sup>er</sup> vendémiaire un spectacle d'un genre nouveau, l'exposition publique des produits de l'industrie française. »<sup>35</sup>
- 32 The minister's instructions further specify that participants may display and sell only their own products, that they will be given places for demonstrations and that only 12 of them will win.
- 33 The day of celebration was, in the Republican calendar, the first vendémiaire (22 September)<sup>36</sup> when the festivities were to culminate in a show of the best products. When registering for the fair, a participant had seventeen days after registration to present his patent before an eight-member committee composed of representatives of the National Institute, the CNAM and the artisan community<sup>37</sup> that had the last three days of year VI (19–21 September 1798) to judge all present exhibitors and their products so as to determine the twelve winners. The best were then rewarded both with state subsidies to start their own business and with medals.
- 34 Apart from imitating the 100-year-old public exhibition, Neufchâteau also took inspiration from established practices in terms of rewards: the CNAM had already organised exhibitions of machines for the general public since its inception but had not awarded medals as was the case with the *Lycée des arts* and *Institut national* where they both awarded « *assessments, medals, and garlands* »<sup>38</sup>. With subventions and medals, the Minister wanted to encourage as many exhibitors as possible from as many departments as possible to attend the first industrial fair.
- 35 The venue for the exhibition could not have been any other in France at that time than *Champ de Mars* in Paris, a witness to several major revolutionary events and soon to



« new and remarkable » events. The grand opening of the first industrial exhibition took place at 10 a.m. on 19 September 1798. Buglers got the fair underway to the sound of a military march, followed by a group of cavalry, mace-bearers, drummers, foot soldiers, heralds, organisers, and exhibitors, the jury, members of the Directory, Minister of the Interior Neufchâteau, and another squad of infantry bringing the procession to a close (Neufchâteau 1798).

- 36 The stands of 126 exhibitors (Horn 2006; Simian 1889; Tulard 1966)<sup>39</sup> who displayed their products were located in the square that was « *partagé en 68 arcades, au centre des lesquelles s'élève le temple de l'Industrie* »<sup>40</sup>. It can be assumed that at least those Parisian artisans to whom news of the exhibition reached would have been involved more had it not been for the recent revolutionary terror and the uncertain economic situation under the Directory at that time (Horn 2006: 193<sup>41</sup>). This was also mentioned by Minister Neufchâteau in his opening speech when he expressed his regret that only 16 of the 111 departments were represented which was, according to him, due to the hasty announcement of the fair and the deadline for registration being too short (Horn 2006: 193; Simian 1889: 36).
- 37 What products were visitors able to see at the exhibition and from which departments<sup>42</sup>? The largest group included producers, carders and knitters of cotton products (30; Eure and Aube), followed by producers of scarves and handkerchiefs (12; Maine-et-Loire), the creators of physical and mechanical appliances such as screws, measuring instruments or artificial limbs and other parts of the body (11; Paris), producers of various literary works or astronomical models (9; Paris), scribes and painters (6; Paris), tanners (6; Eure), locksmiths (5; Paris), metalworkers (5; Paris) and porcelain producers (5; Sèvres). In several cases, brothers displayed their goods, sometimes father and son, a whole factory, professional groups of people, or various inventors the same product. The exception was the fortieth arch where a whole set of Republican weights and measures was exhibited<sup>43</sup>.
- 38 Exhibitors were judged by the jury on the third and fourth complementary days (19 and 20 September), and on the fifth complementary day (21 September) the Commission announced the winners and awarded medals and honours, all in line with the Minister's regulation. Medals were awarded to the 12 best products: clocks specifying the decimal time of a 10-hour day, tools for specifying geodetic, astronomical, and navigational data, ink typographic characters, steel blades, porcelain and earthenware products, coloured tapestries and pens, cast iron stoves, cotton stockings, decorated painted metal sheets and spun cayenne cotton<sup>44</sup>.
- 39 On the same day, the jury awarded 13 honorary distinctions for products made of steel, serge and etamine, files, artistic filigree, horn screens, measuring tools, gold-plated and silver-plated steel cutlery, wood screws, a metal screen for making vellum paper, knitted and cotton goods, treated leather and razor blades<sup>45</sup>. The following day, on 22 September 1798, on the anniversary of the founding of the Republic, all award-winning products were displayed in the Temple of Industry (Neufchâteau 1798: 107; Simian 1889: 36) and samples of their products were placed in the halls of the National Institute.
- 40 Although quantitative products generally won, there were also traditional products, whether porcelain or cotton products. What might come as a surprise was the truly broad range of artisans and inventors of the time – from the coloured canvasses with a variety of themes through medical utensils, cashmere cloth, copper instruments,

hunting weapons, a model of the planets, chemical and literary works, aromatic wax, ointments and a bronze statue, it might appear that society had definitively renounced division into artists and scholars and that competing with each other and above all with Great Britain resulted in national pride, the very element the government had been aiming for.

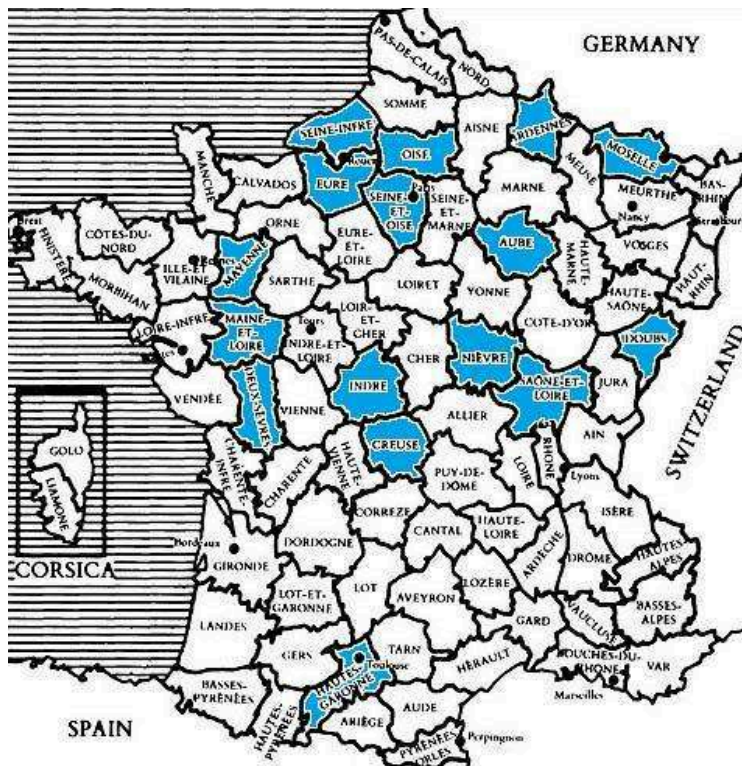
- 41 In the Napoleonic regime, three more exhibitions followed, held always in September. In 1801, 19 out of 220 exhibitors received golden medals, for example for the production of paper, steel or silk fabrics. One year later the number of participants rose to 540, out of which 38 received golden medals for watches, coin minting machine or improved method of laundry. In 1806, the *Société d'encouragement pour l'industrie nationale* began to support inventors, and in addition to gold and silver medals, second-class medals were awarded, including mentions of the creators to stimulate their business; 54 of them, out of a total of 1,422 exhibitors, were awarded gold medals for superfine cloths, muslin or ribbons. There were more expositions planned, but military campaigns put an end to them, thus postponing the following one to 1819 (Chandler).

## Conclusion

- 42 At the end of the 18<sup>th</sup> century, France saw not only important political outcomes, but also a significant codification of scientific life. Such scientific life developed autonomously and was first run and defined by a privileged class of academics. Since 1722 *Bureau de commerce* was collaborating with artisans who began to realise their increasing economic and professional-scientific role in society, thereby permeating academic scholars. It was a long time, however, until they had a political support strong enough to enjoy the same rights as academicians.
- 43 The future of the technological development of the Kingdom of France depended greatly on the scholars. Although the *Bureau*, made up of artisans, approved the granting of privileges, it was the academics who cared what inventions they considered appropriate and sent them into the approval process. In addition, in the 18<sup>th</sup> century, the invention was preceded by an early examination of the object which was to assess suitable discoveries within the criteria of novelty, usefulness, feasibility and quality. By declaring what object was suitable for the society or not, that is to say by deciding according to the rules a priori accepted and adopted by the scholars themselves, the Academy could be considered as a leading figure in forming the French technological framework.
- 44 At the beginning of 1791, the group of artists began to strengthen in direct proportion to the decline of scholars' position in society. Thanks to the efforts made, Cavalier de Bouffler and Baron de Servières created the first modern patent society, *Société libre des inventions et découvertes*, composed of artisans, which was to oversee the award of patents and of financial rewards to inventors. *Bureau de consultation* was founded in the same year, with thirty men from the academic and another thirty from the artisanal sphere. Apart from the approval of inventions, the main focus of *Bureau de consultation* was the redistribution of finances from the state fund which led artisans to try to seize the powers of the academists. As scholars weakened, the artists who had begun to come together in interest groups gained strength, bringing about the abolition of all scholarly societies in August 1793.

- 45 Important in collecting the technological knowledge, the *Conservatoire National des Arts et Métiers* stemmed from a museum of mechanical machinery and a repository of approved inventions with their drawings that were intended to serve as teaching aids, and to present and disseminate technical terminology and the essentials of technical language. Due to poor funding, its operations were suspended, together with the authority of the Academy of Sciences to disseminate knowledge and the authority of *Bureau de consultation* to reward inventors. All of this was transferred to a single society – *Institut national*, the culmination of revolutionary centralisation efforts in the field of science and culture, that was since 1801 accompanied by the *Société d'encouragement pour l'industrie nationale*, whose aim was to disseminate technical knowledge, financially support and motivate inventors and, last but not least, publish a freely available technical journal.
- 46 The era of peace meant that the government was able to apply its intention of raising national awareness among citizens after 1797 using results achieved in the field of science and industrial practice. Minister of Interior François de Neufchâteau acknowledged that the technological development was lagging behind, and thanks to a long tradition of supporting the French genius, along with ingenuity, he was looking for a way to capitalize on the current diversity of business. He put emphasis on domestic industriousness and on the trade war with Great Britain which was completely outstripping France in manufacturing and export at that time. The idea of organising an exhibition of French products was intended to be a symbolic national movement.
- 47 The first industrial exhibition in September 1798 got underway with a show of one hundred and twenty-six inventors, artists and producers who were to motivate other Frenchmen in the national interest to help the country catch up with the British at future industrial-oriented fairs. However, only 12 of them won the best product award and 13 an honourable award which attests to the high selectivity and importance of the event. It is clear (fig.1) that the fair was mainly attended by exhibitors from the top half of the Republic; most departments border on each other, suggesting that the information had spread earlier among people than from the ministerial circular, many of them coming from the industrially advanced part of the country and wanting to participate in the building of an economically strong state.

Fig.1. First industrial exhibition in September 1798: the location of the exhibitors



Edité par l'auteur pour les besoins de l'article. Fonds de carte : DOYLE, William. The Oxford History of the French Revolution. 2nd edition. New York: Oxford University Press, 2002, p. 127 (disponible gratuitement en ligne)

- 48 The jury said that it would evaluate the most useful and the largest-scale products and did indeed send awards to the seven departments in which the displayed products were already tried-and-trusted and even produced *en masse*. The grand prizes (fig.2) were split between three departments, the honourable awards (fig.3) among four; here we can see government efforts to encourage others to replicate the production of the fittest and best products which were above all able to compete with British economic and industrial performance.

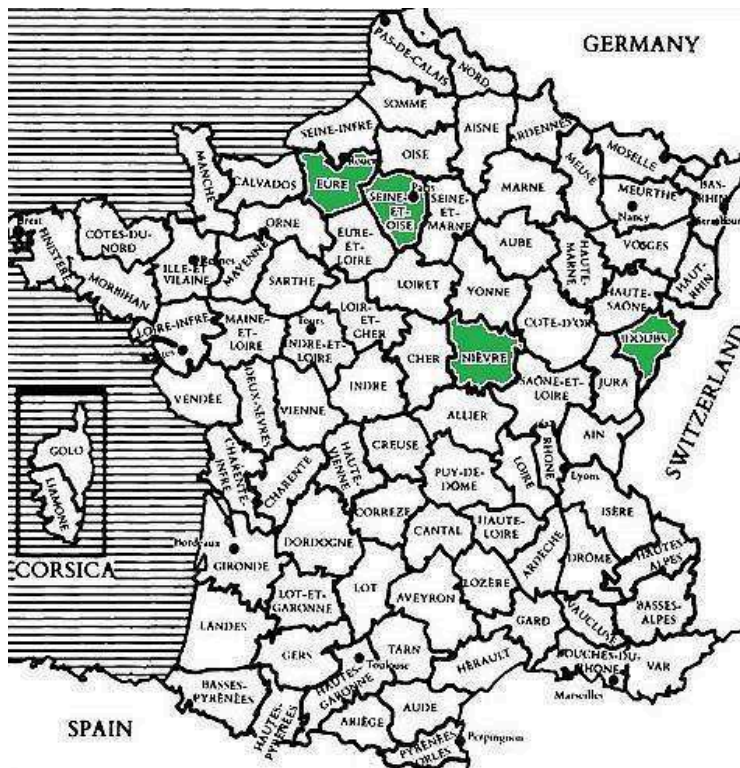
Fig.2. First industrial exhibition in September 1798: the location of the grand prizes



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Fig.3. First industrial exhibition in September 1798: the location of the honourable awards



Edité par l'auteur pour les besoins de l'article. Fonds de carte : DOYLE, William. *The Oxford History of the French Revolution*. 2nd edition. New York: Oxford University Press, 2002, p. 127 (disponible gratuitement en ligne)

- 49 The decades-old tradition of granting privileges to inventors has been divided among artists and scholars, the latter having more power in deciding what is new and more beneficial to society. This inequality between the two groups lasted until 1791 when there was some equality between academics and craftsmen, who found themselves in one institution in charge of granting patents and financial support. Intergroup disputes began to break and scholars and artisans began to work together, supporting the business environment and advancing the technological and scientific level of France. The holding of the first industrial exhibition was to be the culmination of legislative efforts to grant patents to successful objects and methods, which, with their richness and diversity, were to elevate both the lives of citizens and at the same time compete with other states at the international level.

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## NOTES

1. This paper was written within the bounds of a project at the Faculty of Arts at Charles' University entitled SVV 260 557: History between the past, the present, and the future.
2. Hilaire-Pérez distinguishes between several kinds of granted privileges, such as paid, court, or fiscal, ranging from five to thirty years, or for life. The first privilege was granted in 1551 to Abel Foullon for the production of typographical characters (Hilaire-Pérez 1991 : 914).
3. Totally counterproductive was one scholar's membership in both institutions with completely different statutes and conditions for the adoption of a.

4. « *The Academy will examine, if the King orders it, all the machines for which a privilege will be requested from His Majesty. (The Academy) will certify if they are new and useful.* » (Delaunay 2013: 47).
5. « *The academicians, by accepting government pensions, tacitly showed their willingness to devote their efforts to the good of the nation.* » (Hahn 1971: 13).
6. The Académie was given its first rules by the King (Sturdy 1995:281-297).
7. Presentation “*verifying the proper functioning and performance of the examined invention*”. (Delaunay 2013: 76).
8. It was also common that the inventions were proposed by the academicians themselves: between 1666 and 1699, there were 37 academicians’ objects, while 9 came from external men (Delaunay 2013: 12-13, 41-42 and 53, 58-59, 96-97 and 115).
9. Vandermonde was one of the first modern « collectors » of machines and inventions, which he exhibited publicly and which were used at the turn of the century as an important part of schooling leading to practicability (Fontanon 1992: 19-20; Horn 2006: 179; Tresse 1952).
10. Patent is translated into French as « brevet » and it is advisable to distinguish it from the royal privilege – while a brevet was granted to any inventor, a privilege was given only to those who followed the state’s policy (Hilaire-Pérez 1991: 915).
11. « *It shall be free for any person to engage in such trade or to exercise such profession, art or craft that he considers good; but it will be bound to obtain a patent beforehand, to pay the price thereof, and to conform to the police regulations which are or may be made.* »
12. « *All assemblies composed of artisans, workers, journeymen and day-labourers against the free exercise of industry and labour [...] shall be considered seditious assemblies and as such shall be dispersed by the guardians of the public law.* » (Duvergier 1834 t. 3 : 22).
13. « *Who deserve a share of national remuneration for their inventions, their work and their research* » (Duvergier 1834 t. 3 : 263 ; Horn 2006 : 173 ; Morin 1868 : 6).
14. Although *Société libre des inventions* consisted of lower classes, it was sponsored by Stanislas Jean, chevalier de Boufflers, who lobbied « *urgently and proficiently* » for artisans at the Constituent Assembly (Demeulenaere-Douyère 2009: 21, 2008: 64-66).
15. Claude-Urbain de Retz, Baron de Servières, was a military officer and a member of several societies, such as the Royal Maritime Academy, the Montpellier Royal Society of Sciences and the Swedish Royal Patriotic Society.
16. « *To distance himself from the academic conceit that he sharply rejected* » (Demeulenaere-Douyère 2008: 62).
17. In December, most Parisian artists and artisans came together in the Societies of the Artistic Community with the demand to increase financial rewards to those groups, but in vain (Demeulenaere-Douyère 2009: 24)
18. « *Special bonuses may be granted to artists whose talents have been recognized by the approvals of learned bodies* » (Duvergier 1834 t. 3 : 263).
19. « *The abolition of all academies and literary societies licensed or endowed by the nation* » The Academy of Sciences and its 30 branches in the provinces were closed; its reopening occurred in October 1795 as the part of the *Institute de France* (Gillispie 2004: 165, 209–211, 216–218; Leclant 1996: 637; Russell 1983: 116-120).
20. « *The number of its members had fallen so far that those who remained were insufficient to do their jobs, were overloaded and did not receive a salary* » (Grégoire 1794: 18).
21. « *The Directory, considering that the Consulting office [...] is paralyzed by the too small number of members, and that it can no longer continue the important services it has rendered* » (Morin 1868: 14).
22. Henri Jean Baptiste Grégoire, an ordained priest, represented the clergy at the meeting of the Estates General in 1789. As a politician, he promoted the abolition of slavery and equality for Jews, while on the other hand promoting the replacement of local dialects with a single, standard French.

23. « *Spacious warehouse where an immense number of machines would be located, along with their designs and descriptions, to unify the technology while at the same time ensuring that citizens do not waste time by inventing what has long existed* » Report from September 1794 (Grégoire 1794: 5-8 and 11.)
24. « *Machines, models, tools, drawings, descriptions and books of all kinds of art and crafts* » (Duvergier 1834: 294; Grégoire 1794: 19-20; Tresse 1952: 246).
25. A harmed inventor was to be paid three thousand livres (Duvergier 1834 t. 2 : 138).
26. It is also worth mentioning the private collection of Pilâtre de Rozier, which, thanks to the support of the king's brother, introduced courses in applied mechanics for industrialists and traders (Fontanon 1992: 19-20; Gillispie 2004: 213; Tresse 1952: 250).
27. « *National Institute responsible for discoveries and perfecting the arts and sciences* » In addition, the Institute maintained communication with scholarly and foreign societies (Duvergier 1835 t. 8 : 38 ; Gillispie 2004 : 446-448).
28. The Department of Science, of Moral and Political Sciences and the Department of Literature and Fine Art (Duvergier 1835 t. 8 : 358-359 ; Russell 1983 : 126).
29. It brought together the three consuls, senators, state councillors, prefects, deputies, or bankers (Chassagne 1989).
30. François de Neufchâteau was a French agriculturalist, deputy, Minister of the Interior (July 1797-September 1797 and June 1798-June 1799) and count from 1808. Throughout his life, he supported agriculture and the development of art; as a minister, he promoted the creation of the Louvre museum (Margairaz 2005).
31. Highly-valued, crafted goods from the time of the old regime were replaced by everyday products which were produced in large quantities and whose quality matched their price (Horn 2006: 191).
32. « *Twenty silver medals to the twenty most skillful manufacturers, and one gold medal to whoever strikes a fatal blow to English industry* » (Simian 1889: 42-43).
33. A second exhibition took place in 1704, a third in 1727 and thereafter every year from 1737 until the middle of the century. (Simian 1889: 26–28).
34. « *To break the relative technological isolation and reduce the English industrial advance* » (Fontanon 1992).
35. « *The Government must cover the useful arts with special protection; it is in his views that he thought it necessary to link to the festival of the 1st vendémiaire a spectacle of a new kind, the public exhibition of the products of French industry.* » Circular of the 9th fructidor of the year VI (26 August 1798) to the departments of central administration and its commissioners (Neufchâteau 1798 t. 1 : 102-105).
36. 22 September is the date on which the kingdom was abolished in 1792 and marks the beginning of the French Republic. The new revolutionary calendar, replacing the existing Gregorian calendar, contained 12 months, each of 30 days, with three weeks of ten days each month, and was closed with five complementary days at the end of every year (OREL 2012: 6).
37. The judges for *Institut national* were chemists Jean Darcet and Jean-Antoine Chaptal, sculptor Jean Guillaume Moitte and writer Louis de Gallois, for CNAM mechanic Claude-Pierre Molard, for the Mining Committee mineralogist Gillet de Laumont, for the Agricultural Society musician Charles Duquesnoy and watch-maker Ferdinand Berthoud (Simian 1889: 34–35).
38. The Order of Saint Michael was founded at the end of December 1777 and was awarded annually in the form of gold medals or honorary recognition to the best invention (Duvergier 1835 t. 8, t. 9 ; Fontanon 1992 ; Grison 1999 ; Hilaire-Pérez 1991 ; Tresse 1992).
39. The total cost of organising the exhibition came to sixty thousand livres.
40. « *Divided into 68 arcades, in the centre of which rises the Temple of Industry.* » (Exposition publique des produits de l'industrie française 1798: 5).
41. The author claims that producers and inventors were still afraid to cooperate with a state that had been just five years ago dominated by Jacobins and that they feared the possible loss of their property and livelihoods (Horn 2006: 193).

42. Figure 1 : Of the 126 participants, 75 were from Paris or the surrounding area, accounting for 59.52 %. The departments of exhibitors tended to be next to each other, which might explain the lively commercial and social interaction that brought with it the transmission of information.

43. After this watchmakers (3), carpenters (3), people that worked with horn (3), steel (2), crystal (2), stone (2), weapons (2), iron products (1) and boilers (1), producers of wax (2), wallpaper (2), tapestries (1) and chemical products (1), confectioners (2), and a sculptor, a tailor, a printer, a glassmaker, a welder, an astronomist, a metallurgist, a barber, a founder and an apothecary (Exposition publique des produits 1798 : 5-16).

44. Sixteen men received the highest award in 12 categories : Breguet, Lenoir, Pierre, Didot, Herhan, Clouet, Dilh, Guerhard, Desarnod, Conté, Gremont, Barré, Potter, Payn JR, Deharme and Jullien. (Exposition publique des produits 1798: 20-21; Simian 1889: 37).

45. The jury rewarded a total of 13 « *beneficial* » products presented by 16 exhibitors: Berthier, Raoul, Bouvier, Gerentel, Kutsch, Thirouin-Gauthier, Patoulet, Audry, Lebeau, Salneuve, Perrin, Detrey, father and son Gahours, Plummer-Donnet and Lepetit-Wall (Exposition publique des produits 1798: 22-23; Simian 1798: 38).

## ABSTRACTS

The last decade of the 18th century brought changes not only in the political and social order in French history, but also in scientific advancement. Under the old regime, the issue of intellectual property protection was addressed by learned societies and the King. Interest in regulating and in codifying patent law reflected the need to motivate the French inventive spirit and the desire to counter British commercial dominance on the continent in the form of trade competition. The culmination of this was to be a show of the best products France could offer, with the latent motive to stimulate the business environment and make the country an industrially competitive area in continental Europe. The paper clarifies aspects of the development of granting privileges, patents, and financial incentives in France throughout the 18<sup>th</sup> century. The allocation of such benefits was organised institutionally, and the paper shows how the centralization affected the functioning, financing, and the social stratification of patent institutions. The social composition played a vital role in deciding who receives the patent and the funds, and that constituted power over the future shape of the business environment, leading to the long interinstitutional strife.

La dernière décennie du XVIII<sup>e</sup> siècle a apporté des changements non seulement dans l'ordre politique et social de l'histoire de France, mais aussi dans le progrès scientifique. Sous l'Ancien régime, la question de la protection de la propriété intellectuelle était traitée par les sociétés savantes et le roi. L'intérêt pour la réglementation et la codification du droit des brevets reflétait la nécessité de dynamiser l'esprit inventif français et le désir de contrer la domination commerciale britannique sur le continent sous la forme d'une concurrence commerciale. Le point culminant de tout cela devait être une exposition des meilleurs produits que la France pouvait offrir, avec l'ambition latente de stimuler l'environnement commercial et de faire du pays une zone compétitive sur le plan industriel en Europe continentale. L'article clarifie certains aspects du développement des privilèges d'octroi, des brevets et des incitations financières en France tout au long du XVIII<sup>e</sup> siècle. L'allocation de ces avantages était organisée de manière institutionnelle, et l'article montre comment la centralisation a affecté le fonctionnement, le

financement et la stratification sociale des institutions de brevets. La composition sociale a joué un rôle essentiel en décidant qui recevait le brevet et les fonds. Cela a constitué un rapport de force sur la forme future de l'environnement commercial, menant à une longue lutte inter-institutionnelle.

## INDEX

**Mots-clés:** histoire des techniques, académie royale des sciences, brevet, exposition industrielle

**Keywords:** history of technology, royal academy of sciences, patent, industrial exhibition

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