

INVENTING WATER LILIES: LATOUR-MARLIAC AND THE SOCIAL DYNAMICS OF MARKET CREATION

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ESKA | « Entreprises et histoire »

2017/3 n° 88 | pages 147 à 165

ISSN 1161-2770

ISBN 9782747227292

Article disponible en ligne à l'adresse :

<https://www.cairn.info/revue-entreprises-et-histoire-2017-3-page-147.htm>

Pour citer cet article :

Robert Charles Sheldon, « Inventing water lilies: Latour-Marliac and the social dynamics of market creation », *Entreprises et histoire* 2017/3 (n° 88), p. 147-165.
DOI 10.3917/eh.088.0147

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INVENTING WATER LILIES: LATOUR-MARLIAC AND THE SOCIAL DYNAMICS OF MARKET CREATION

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Le succès que connaît le nénuphar comme plante décorative des étangs et des bassins n'est pas simplement lié à la forme de son feuillage ou à la beauté de sa fleur. Il résulte aussi de la stratégie mise en œuvre à la fin du XIX^e siècle par Bory Latour-Marliac, l'entrepreneur qui créa, de manière conjointe, différentes variétés hybrides de nénuphars et un marché de consommateurs pour en assurer la vente.

INTRODUCTION

“Monsieur,

Je vous remercie infiniment du charmant échantillon de *vaccineum oxycoccus* que vous avez eu l'obligeance de m'adresser ; cette plante est aussi jolie que curieuse.

Par réciprocité je vous envoie à mon tour le *Nymphaea* ‘Marliacea Chromatella’, nouveauté fort en vogue dans toute l'Europe...”

*Bory Latour-Marliac to M. de Passillé,
23 June 1888*

This paper explores the process by which individuals create novel products and services as well as consumer demand for them. Such a process has been referred to alternatively as innovation¹, entrepreneurship² and market creation³. It is based on empirical data gathered from the correspondence of Bory Latour-Marliac, who is widely credited with having created the market for colourful hardy water lily hybrids in the late 19th century⁴. His letters shed light on the role that social structure and dynamics played in both the “invention” of Latour-Marliac’s colourful hybrids as well as in their commercialisation. They show that in both areas he made use of

¹ J. A. Schumpeter, *The Theory of Economic Development. An inquiry into profits, capital, credit, interest, and the business cycle*, Cambridge, MA, Harvard University Press, 1934; P. Drucker, *Innovation and Entrepreneurship: Practice and Principles*, Oxford, Butterworth-Heinemann, 1985.

² J. A. Timmons, *New Venture Creation: Entrepreneurship for the 21st Century*, New York, McGraw-Hill, 2002.

³ S. D. Sarasvathy, *Effectuation. Elements of Entrepreneurial Expertise*, Cheltenham, Edward Elgar, 2007.

existing markets, when he purchased breeding stock from suppliers, had catalogues printed, placed advertisements in magazines, and obtained mailing lists for direct marketing efforts. They also show that he made deft use of his commercial, personal and professional networks. This “closer than arms length” or relational action was arguably a key factor in his successful creation of the water lily market.

The line of analysis taken herein to explore the creation of the colourful hardy water lily market is rooted in the field of economic sociology, where it spans the divide between the sociology of innovation and the sociology of markets. These two subfields meet and, at times, overlap at the point where a new idea or invention is commercialised, i.e. brought to market⁵. This paper falls toward the sociology of markets side, mainly because the data speak more to the development of a nascent market for a new product, rather than to the conception and development of the new product itself⁶. Another factor pushing the paper to the side of markets is the fact that much of what generally falls under the definitional heading of innovation does not actually lead to commercial markets. Successful product/service innovation is arguably the only one of Schumpeter’s five types of innovation that always and necessarily does⁷.

Much of the work in the sociology of markets has focused on the social structuring and dynamics of established markets rather than on the emergence of new markets⁸. These works look respectively at how production markets are ordered, how firms within markets use networks to obtain information and efficiencies, how markets are sustained, and how action within and between them is coordinated. The present paper’s focus precedes these others’ in that it examines how a product market emerges for the first time, rather than how such a market is organized or functions. It deals with the impact of social structure; specifically network structure, on the *process* of market creation, rather than with its effect on an existing market.

Its empirical contribution is a micro-level one, showing how entrepreneurial actors set the stage for many of the meso- and macro-level dynamics to which the aforementioned works typically apply. The empirics also meet Richard Swedberg’s call for more historical approaches to the study of market dynamics⁹. The paper makes a theoretical contribution through its application of Ronald Burt’s theory of structural holes to the dynamics observed in the archives¹⁰. The analysis undertaken leads to the conclusion that, in order to capture the richness of the social dynamics in play during the market

⁴ C. Holmes, *Water Lilies: Bory Latour-Marliac, the Genius Behind Monet’s Water Lilies*, Woodbridge, Garden Art Press, 2015.

⁵ See M. Akrich, M. Callon and B. Latour, « À quoi tient le succès des innovations ? Premier épisode. L’art de l’intéressement », *Gérer et Comprendre. Annales des Mines*, n° 11, juin 1988, p. 4-17 and « À quoi tient le succès des innovations ? Deuxième épisode. Le choix des porte-parole », *ibid.*, n° 12, septembre 1988, p. 14-29.

⁶ See Francesco Ramella’s work on the sociology of economic innovation for an overview of the state of the art there: F. Ramella, *Sociology of Economic Innovation*, New York, Routledge, 2016.

⁷ *Ibid.*

⁸ See for example H. White, “Where do Markets Come From?”, *American Journal of Sociology*, vol. 87, n° 3, November 1981, p. 517-547 and *Markets from Networks: Socioeconomic Models of Production*, Princeton, Princeton University Press, 2002; M. Granovetter, “Economic Action and Social Structure: the Problem of Embeddedness”, *American Journal of Sociology*, vol. 91, n° 3, November 1985, p. 481-510; B. Uzzi, “Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness”, *Administrative Science Quarterly*, vol. 42, n° 1, March 1997, p. 35-67; N. Fligstein, *The Architecture of Markets: an Economic Sociology of Twenty-first Century Capitalist Societies*, Princeton, Princeton University Press, 2001; J. Beckert, “The Social Order of Markets”, *Theory and Society*, vol. 38, n° 3, May 2009, p. 245-269.

⁹ R. Swedberg, *Principles of Economic Sociology*, Princeton, Princeton University Press, 2003, p. 131.

¹⁰ R. S. Burt, *Structural Holes: The Social Structure of Competition*, Cambridge, MA, Harvard University Press, 1992.

creation process, it is important to use an actor-based level of analysis. In this context, that means viewing the entrepreneur(s) as the *de facto* locus of network coordination, distinct from the emergent firm. The latter is viewed as another network cluster, albeit a critical and fixed one between which the entrepreneur brokers exchanges with his or her other network clusters.

While the market for colourful hardy water lilies may seem somewhat trivial compared to other world-changing *belle époque* innovations in engineering and aeronautics, its presence is felt today by more than a small niche of gardeners, mainly thanks to the painter Claude Monet. Monet was an early customer of the Latour-Marliac nursery, purchasing in 1894 the water lilies that he would famously depict in over 200 paintings¹¹. Most people take for granted the existence of the colourful water lilies in his paintings, assuming that they were always already there. In fact Monet's pond was one of the first in the world planted in such a way, given that the water lilies in question had only recently been created and made available by Latour-Marliac¹². The way in which the colourful water lilies came to be in Monet's pond is a revealing story that changes one's appraisal of his paintings. It is hoped that this paper will contribute to similarly revealing research and theory on how markets, which also tend to be viewed as always already there, emerge for the first time.

The article's first section will give historical background on Latour-Marliac, his firm, and the period in which he worked. The second section will describe the methodology

used to study and analyse the archival material. The third section will present the findings of the study, focusing first on the transactional and relational actions observed during the invention process, and secondly on those actions observed during the commercialisation process. The fourth section will include an application of Ronald Burt's theory of structural holes¹³ and the *tertius gaudens* concept¹⁴. It will show that the way in which network structure was used by Latour-Marliac to create the market for colourful water lilies depends on which level of analysis one chooses to use¹⁵. If the entrepreneur is conflated with the firm then the action observed appears to be cooperative in nature, with bilateral exchanges between Latour-Marliac and his networks. If the entrepreneur is viewed as separate from the firm, then exchanges are trilateral in nature, with Latour-Marliac acting as a *tertius gaudens*, brokering exchanges between the emergent firm and his networks.

HISTORICAL PERIOD

Bory Latour-Marliac (1830-1911) lived in the Lot-et-Garonne *département*, situated in southwest France roughly between Bordeaux and Toulouse. The Latour-Marliac family enjoyed high social status, both from notable ancestry and wealth, owning as they did large tracts of farmed land in the region, two country estates, and a townhouse in Bordeaux. Bory founded his nursery in 1875 in Le Temple-sur-Lot to produce and grow bamboo, a plant in which he had become a

¹¹ M.-F. Bocquillot *et al.*, *Le jardin de Monet à Giverny : l'invention d'un paysage*, Milan, 5 Continents Éditions, 2009.

¹² By the time Monet purchased water lilies for his pond another hybridiser in the United States, James Dreer, had created and commercialised a few colorful hybrids, which Latour-Marliac obtained and commercialised himself, mainly in Europe. Three of these varieties were included in Monet's first order.

¹³ R. S. Burt, *Structural Holes*, *op. cit.*

¹⁴ G. Simmel, *Conflict and Web of Group Affiliations*, New York, Free Press, 1955 [1st ed. 1922].

¹⁵ See J. Revel (dir.), *Jeux d'échelles. La micro-analyse à l'expérience*, Paris, Gallimard-Seuil-Éditions de l'EHESS, 1996 for a discussion and examples of how micro-historical approaches can lead to the questioning and re-interpretation of findings based on prevailing methods of historical analysis.

foremost expert¹⁶. Over the ten-year span of the examined archival material, bamboo-related sales and correspondence move from accounting for 95 % of the documents (1881-1882) to just 5 % (1891-1892), replaced by correspondence related to burgeoning water lily sales. Overall, approximately 80 Latour-Marliac water lily hybrids were introduced, some posthumously. Latour-Marliac varieties dominated the water lily market until the 1970s, when a handful of American hybridisers began creating and selling hardy water lily crosses using other hybridisation techniques¹⁷. Latour-Marliac's nursery was the first specialist water lily nursery in the world, which meant that the similarly specialised nurseries that followed purchased their water lily stock from the only place they could: Le Temple-sur-Lot. The result is that today Latour-Marliac's hybrids remain mainstays wherever water lilies are sold¹⁸.

The period in which Latour-Marliac lived was characterised by botanical and horticultural innovation. European botanist-explorers were importing ever more novelties into Europe from ever more far-flung parts of the world, serving a European market for exotic plants that had taken hold among a set of collectors, specialists and newly founded botanical gardens. Many of these introductions were discussed in a new popular gardening press, which included William Robinson's *The Garden* in the United Kingdom (UK), founded in 1883, and its French counterpart, Godefroy Lebeuf's *Le Jardin*, founded in

1887. The archives show that Latour-Marliac was not only a subscriber to these publications, but also a frequent correspondent with each journal's founder. Water lilies, of the colourful tropical variety, were among the most acclaimed novelties of the time, particularly following the discovery in 1837 of the *Victoria regia*, the giant water lily from the Amazon River basin with pads measuring over two meters across¹⁹. While interest was high, no one in Europe without a glasshouse could hope to grow any of the tropical water lilies that the European gardening public was discovering for the first time²⁰. Enter Latour-Marliac, whose life's work would become the creation and commercialisation of colourful water lilies that could tolerate the European winter.

METHODOLOGY

An account of the archives

This research is based mostly on the Latour-Marliac archives, which are owned and maintained on site by SARL Latour-Marliac. The part of the archives that is analysed here consists of Latour-Marliac's outgoing correspondence from 1881 to 1891. These letters were recorded in duplicate by Latour-Marliac in 500-page bound volumes of ink soluble tissue paper. They consist of 2 832 pieces of correspondence, making up

¹⁶ Latour-Marliac introduced a number of species from Japan, and obtained naming rights over some. Today *phyllostachys nigra* 'Boryana' and *phyllostachys bambusoides* 'Marliacea' are still commercially available. In the preface to his book, *The Bamboo Garden*, London, Macmillan, 1896, p. VIII, A. B. Freeman-Mitford describes Latour-Marliac as "the greatest European importer" of bamboo.

¹⁷ P. D. Slocum and P. Robinson, *Water Gardening: Water Lilies and Lotus*, Portland, Timber Press, 1996.

¹⁸ C. Holmes, *Water Lilies: Bory Latour-Marliac*, *op. cit.*

¹⁹ For a detailed account of the period from a botanical perspective and its fascination with the *Victoria*, see T. Holway, *The Flower of Empire: An Amazonian Water Lily, the Quest to Make it Bloom, and the World it Created*, Oxford, Oxford University Press, 2013.

²⁰ The catalogues of Haage and Schmidt, a large nursery in Erfurt, Germany, which was one of the few to sell water lilies during the 19th century, speak to the increase in interest for tropical varieties. In their 1873 catalogue they show only the hardy white species *Nymphaea alba*, whereas by 1893 they show *N. alba* plus 16 tropical species. The first colorful hardy they sell is Latour-Marliac's N. 'Marliacea Chromatella', appearing for the first time in their 1894 catalogue.

the first six of 21 volumes that culminate in 1911, the year of his death. Given that the author acquired the company in 2007²¹, access to the archive was unrestricted. The documents therein have never been formally catalogued. The closest thing to a register for this material consists of an alphabetical index of names in the back of each volume. To complete what these volumes show about the history of the family and of the nursery business prior to 1911, interviews and informal exchanges were held between 2007 and 2011 with Bory Laydeker, Latour-Marliac's great-great grandson, and his two great grandsons, Philippe and Henry Laydeker²².

The internal validity of the volumes studied is strong, but it presents nonetheless some limits. Following John H. Stanfield's application of the terms internal and external validity to archival research²³, the former measures the extent to which the data is interpretable, i.e. the extent to which there is enough there to derive meaning, whereas the latter speaks to the degree to which the conclusions reached may be generalised²⁴. The Latour-Marliac archives are internally valid because they contain virtually the entirety of his outgoing commercial and professional correspondence. But they lose internal validity because of the lack of the incoming correspondence, and because there are no other primary sources related to the business other

than the bound volumes²⁵. There are also gaps in the archives: two volumes accounting for the period between 6 June 1884 and 3 March 1887 are missing. Lastly, the bound volumes do not represent all of Latour-Marliac's correspondence during the period, only the part he wished to record²⁶. As to external validity, the fact that this study is exploratory and based on one case of market creation naturally limits the degree to which it may be generalised.

Approaching the archives

The methodological approach taken to the study of the archives is more formal than historiographical in nature²⁷. It is formal in that it seeks to measure in quantitative fashion what is in the archives related to the commercialisation of water lilies. A historiographical approach would be more descriptive and ethnographic in nature, giving richer detail about individuals and events²⁸. In addition, the archival work done here is more deep than broad: it analyses material from one organisation, or more accurately its founder, rather than using material from across multiple cases. In this way it differentiates itself from more macro socio-historical enquiries, labelled "ecological approaches" by Marc Ventresca and John Mohr²⁹, which aim to make broader historical claims about

²¹ Indeed, through an unusual set of circumstances I became the owner of this company while working on my doctoral thesis in organisational sociology. The firm has been under professional management since 2012.

²² Latour-Marliac's son, Edgard, had no children. The family name therefore changed to Laydeker after the marriage of his daughter, Angèle, to Maurice Laydeker in 1887.

²³ J. H. Stanfield, *Black Reflective Sociology. Epistemology, Theory and Methodology*, Walnut Creek, Left Coast Press, 2011.

²⁴ D. T. Campbell and J. C. Stanley, *Experimental and Quasi-Experimental Designs for Research*, Chicago, Rand McNally, 1963.

²⁵ Bory Laydeker recounted in 2011 that at some point in the 20th century a maid accidentally threw out the nursery's (and family's) earliest non-bound memorabilia, which had been stored in a large trash bag.

²⁶ Beyond the commercial and plant-related correspondence, what little personal correspondence there is consists of mail order purchases of clothing from stores like Le Bon Marché, family legal- and financial-related correspondence, and some long and affectionate letters to his adult children.

²⁷ M. Ventresca and J. Mohr, "Archival Research Methods", in J. Baum (ed.), *The Blackwell Companion to Organizations*, Malden, Wiley-Blackwell, 2002, p. 829-848.

²⁸ *Ibid.*

²⁹ *Ibid.*, p. 7.

social phenomena. What is more, the present paper mainly aims to understand the dynamics and relations involved in the process of demand-side market creation, not to understand the dynamics or relations going on within Latour-Marliac's emergent firm, the supply side. Even if that were the goal, there is little in the archive that speaks to the creation and management of the nursery organization itself.

Data Selection, Coding and Analysis

In archival research involving social scientific approaches, the research question determines what data is analysed and how³⁰. The Latour-Marliac archives, like most archives, contain a very large amount of information, not all of which can or should be analysed. Since the research question asks what role social structure and dynamics played in the commercialisation of the colourful hardy water lily hybrid, it was decided to focus only on correspondence pertaining to water lilies and aquatic plants. That meant excluding correspondence related to non-aquatic plants like bamboo as well as personal correspondence that did not mention water lilies. While the bamboo and personal correspondence did overlap with the water lily business in some cases, the extent to which they did was judged insufficient to justify the added work of a detailed analysis of such correspondence.

In order to come up with a system of coding, a detailed page-by-page assessment was made for the first 200 pages of the 1881-1883 volume to determine what kind of correspondence the archive contained. This procedure made clear that each page would have to be classified according to the type of correspondence and to the plant mentioned, before a more detailed content analysis could occur on individual pieces of water lily-related correspondence. The coding process was

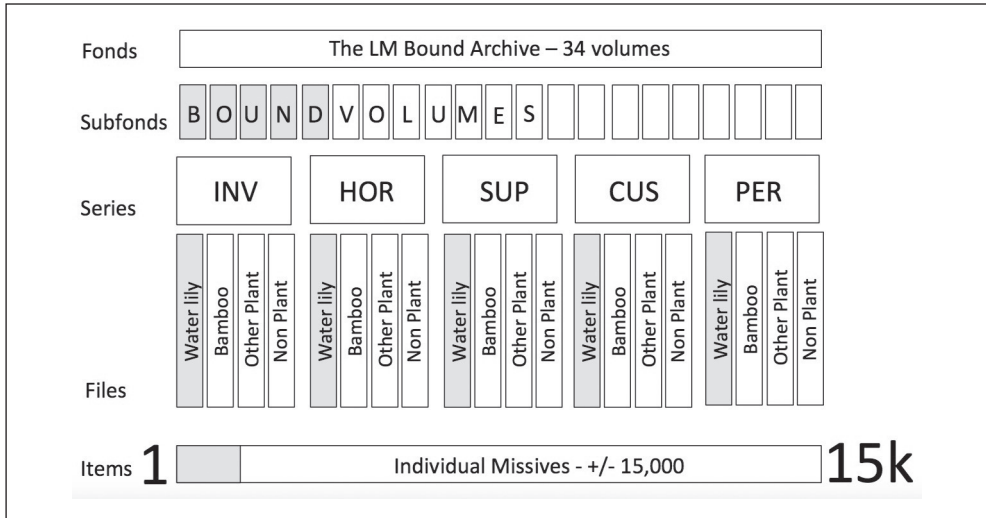
therefore divided into two steps: coding of all correspondence, followed by coding of the contents of the individual pieces of water lily-related correspondence.

The initial phase of coding was equivalent to a cataloguing procedure. It was therefore undertaken using the archive cataloguing standards set forth by the International Council on Archives Protocols. That process requires organising the archive's contents according to different levels. The first level, referred to as the "fonds", consists of the nursery's outgoing correspondence from 1881 to 1924, which is divided into 34 volumes. The subsequent level is the "series" level. Here the content of each volume was categorised into invoices, horticulture-based correspondence, supplier-related correspondence, customer-related correspondence and personal correspondence. Next, at the "file" level, each series was divided into the type of plant to which its contents pertained: water lily-, bamboo-, other plant-, mixed plant- or non-plant-related. Each invoice was therefore classified according to which type of plant was mentioned; the same was done for pieces of horticulture-related correspondence, and so on. The last level, the "item" level, consisted of each individual letter in the archive, for which the name, date and address of the letter's recipient were recorded. This initial coding gave a "bird's-eye view" of the archive's contents, facilitating second stage coding and rendering measurable broad trends in the development of the market, such as the evolution of water lily sales over time. The cataloguing process is captured visually in Figure 1 below, in which the shaded areas show the part of the archive that was catalogued for this research.

Once the cataloguing procedure was completed, each piece of water lily-related correspondence was analysed in a specific manner, based on the series from which it came. The content of invoices was analysed according to the type of water lilies sold,

³⁰ *Ibid.*; J. H. Stanfield, *Black Reflective Sociology*, *op. cit.*

Figure 1. The Latour-Marliac archive, catalogued using ICAP standards.



their quantity and their price. Supplier correspondence was coded according to subtype: shipping services, advertising and promotion services, translation services and purchase of plants and non-plant materials. Horticultural, customer and personal correspondence was coded according to what may be called non-commercial transactional content. This kind of content had three dimensions. One involved Latour-Marliac requesting a favour, or requesting water lily samples, or asking someone for advice or information. Another involved him offering the same, and the third involved him recounting having received favours, plants or information from someone. These secondary coding and content analysis procedures combined with the initial coding yielded a data set that gives a relatively rich picture of the emerging water lily market, as will be shown in the next section.

FINDINGS

Inventing the Colourful Hybrid Water Lily

The archives show that Latour-Marliac began commercialising hardy water lily species before he had produced any hybrids of his own. Between 1881 and 1884 he filled 40 water lily orders, selling 110 plants, which were one or the other of ten species or sub-species, i.e. they were varieties that already existed in nature. Four of the hardy varieties he had obtained were already colourful. *N. alba rubra*³¹ (also known as *N. sphaerocarpa* and *N. caspary*) is an exceedingly rare naturally occurring red mutation of *N. alba*, the white water lily indigenous to Europe, while *N. odorata rubra*, also exceedingly rare, is a naturally occurring pink mutation of *N. odorata*, the white water lily indigenous to North America. The third colourful water

³¹ Hereafter, “N.” stands for *Nymphaea* in all species and cultivar names.

lily was the delicate light pink *N. carnea*, origin unknown but likely a natural cross between *N. odorata* and *N. odorata rubra*. The fourth was *N. flava*, a relatively common subtropical yellow species indigenous to the southern United States. These four colourful varieties, along with the white versions of *N. alba* and *N. odorata* and their variants, plus a handful of tropical species, would make up Latour-Marliac's hybridising palette.

Latour-Marliac obtained many of his water lily species by buying them from a small number of plant nurseries, which is to say that market transactions played a role in his procurement of these plants. Between 1881 and 1891, he purchased 49 plants from nine different nurseries in 23 separate transactions. In 1881, he obtained *N. caspary* and *N. carnea* from Godefroy Lebeuf, the aforementioned founder of *Le Jardin* magazine and a nurseryman based in Argenteuil, France. He obtained other early tropical and hardy species from Haage und Schmidt, in Erfurt, Germany and Van Houtte nurseries in Ghent, Belgium. Later, in 1889 and 1890, he sourced key tropical species from the American grower Sturtevant in New Jersey, F.H. Hosford and Co. in Vermont and Barry Grey in Massachusetts. It was from the market, therefore, that Latour-Marliac obtained much of his species breeding stock.

He was also, however, adept at using his professional networks to obtain plant material from non-commercial sources. In a letter dated 26 June 1887, he describes how he procured the pink *N. odorata rubra*, which became a top seller and parent of his first commercial hybrid, *N. 'Rosacea'*. The plant was obtained from Godefroy Lebeuf, a commercial supplier, but it was Latour-Marliac's friendship with Lebeuf that enabled him to

obtain the very precious plant. In the aforementioned letter he recounts how a horticultural acquaintance named Mr. Hovey stopped by Lebeuf's nursery and, upon seeing the red-toned flowers of *N. alba rubra* growing there, remarked that his neighbour near Boston was selling water lily flowers of an even deeper red. He said that the water lilies were growing in a kettle pond on Cape Cod, and that the owner was loath to part with any plants, since these were the "goose that laid the golden eggs". Lebeuf asked Hovey to make an offer on his behalf, giving him 1 000 francs with which to bargain, an astronomical sum to pay for a plant in the 1880s³². Within a few months he had the plants and duly passed one to Latour-Marliac.

In another 1887 letter, Latour-Marliac requests of a Monsieur Pailleur that he ask his friend Monsieur Bois to act as intermediary between him and the *Muséum* (the French Natural History Museum in Paris) in order to obtain a water lily species they had. There are also nine letters between 1887 and 1890 to George Nicholson, the head gardener at Kew Gardens London, in which Latour-Marliac sends new water lily creations and asks in return for some specific species. Having made a name for himself and a network in the horticultural and botanical world via his earlier work with bamboo, Latour-Marliac was not hesitant to use and develop that network to further his work on water lily hybridisation.

The Arrival of the Hybrids

The techniques Latour-Marliac used to create his hybrids have become more clear recently as the archives have been catalogued and explored³³. Some of his early hybridising techniques were relatively straightforward in that they involved crossing the aforemen-

³² For comparison purposes, a common water iris was selling bare root for 50 centimes in Lebeuf's 1882 catalogue, making *N. odorata rubra* 2000 times more expensive. In 2016 common water iris were sold by Latour-Marliac nurseries in bare root condition for 3,50 Euros, making Latour-Marliac's 1000 francs equal in value to approximately 7000 Euros.

³³ Besides my own work, see also C. Holmes, *Water Lilies: Latour-Marliac, op. cit.*

tioned colourful hardy species with the white *N. odorata* or *N. alba*. *N. 'Rosacea'* and *N. 'Marliacea Chromatella'* fall into this category, as do most of his early hybrids³⁴. In the case of *N. 'Pygmaea rubra'* and others, however, it appears the technique was much more complex, involving an “intersubgeneric” cross between hardy and tropical species. In a May 1887 letter to Lebeuf, Latour-Marliac writes that ‘*Pygmaea rubra*’ is the “indisputable evidence that hardy varieties may be crossed with tropical varieties”. He goes on to say that the hybrid is a “grandson” of *N. rubra des Indes* (a red tropical night-blooming variety also known as *N. rubra*), because *N. 'Pygmaea rubra'* came from a cross with *N. 'Ortgesiana rubra'*. The latter being a tropical hybrid made by crossing *N. rubra* with the other (white) night-blooming species, known as *N. lotus*.

In her study of the Latour-Marliac archives, Caroline Holmes uncovered an 1893 letter in which he stated that he used *N. rubra des Indes* as parent plant to obtain many of his red varieties, rather than *N. alba rubra*³⁵. A response to a customer dated 9 April 1881 shows that Latour-Marliac had *N. rubra* on site and available for sale; an 1881 order from Haage und Schmidt shows he also had *N. 'Ortgesiana rubra'*. Hence, while the precise process used to perform these early intersubgeneric crosses remains unknown, the fact that Latour-Marliac undertook such crosses to make many of his hybrids is now established.

The first mention of a water lily hybrid in the archives comes on the 29th of May 1882, in a letter to a Madame Laffon in which Latour-Marliac describes creating a spectacular but slow-to-reproduce red hybrid. In October 1883, he describes the same plant to Lebeuf, saying that he had named it *N. 'Floribunda Rubra Striata'* and that it had inspired him to pursue his hybridisation work further. In June 1884 he writes, again to

Lebeuf, that this hybrid is a much more profuse bloomer than *N. caspary*. Due to the nearly three-year gap in the archives at this point, the next mention of hybrids comes on the 12th of April 1887 with the sale of *N. 'Rosacea'*, a pink variety. On the 9th of May 1887, in another letter to Lebeuf, Latour-Marliac writes that he is sending him two water lily hybrids, the yellow *N. 'Marliacea Chromatella'* and the red *N. 'Pygmaea Rubra'*. On the 24th of June he sends a *Chromatella* to Nicholson at Kew. Commercial sales of *Chromatella* begin in July 1887, with Latour-Marliac selling 11 by the end of the year.

Commercialising the Colourful Hardy Water Lily Hybrid

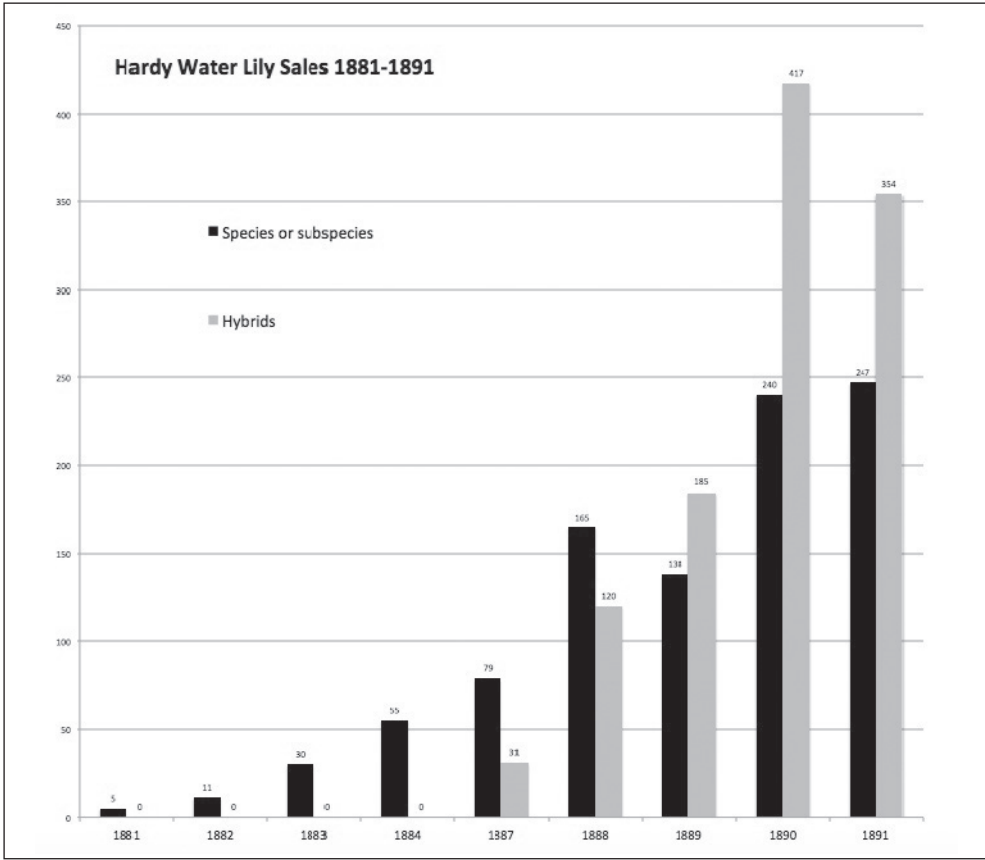
The first sales of colourful hardy water lily hybrids appear in the spring of 1887, though a few sales were likely to have been recorded in the year before in one of the lost volumes. Figure 2 below shows the evolution of water lily sales by species and hybrid over the period 1881 to 1891. Hybrid sales increase rapidly, from just 31 plants in 1887 to a peak of 417 in 1890. The slight decline in 1891 is likely due to a positive after-effect of Latour-Marliac's success at the 1889 Paris Universal Exposition, where he won First Prize in the aquatic plant category. Hybrid sales during this period were generated by nine water lily hybrids, listed in order of commercial introduction: *N. 'Odorata Rosacea'*; *N. 'Marliacea Chromatella'*; *N. 'Odorata Sulphurea'*; *N. 'Marliacea Albida'*; *N. 'Pygmaea Helvola'*; *N. 'Marliacea Rosea'*; *N. 'Marliacea Carne'*; *N. 'Odorata Exquisita'*; *N. 'Laydekeri Purpurea'*.

Sales of these hybrids surpassed sales of water lily species starting in 1889. Most of this commercial activity was occurring in France, but Latour-Marliac's nursery was becoming more international, mainly via the

³⁴ J. B. Latour-Marliac, “The New Hardy Water Lilies”, *The Garden*, vol. 41, 23 December 1893.

³⁵ C. Holmes, *Water Lilies: Bory Latour-Marliac, op. cit.*, p. 36.

Figure 2. Hardy Water Lily Sales 1881-1891.



UK and the US. In 1887 there were 28 pieces of commercial correspondence with entities in the UK, including orders. By 1891 this had risen to 55 pieces. Similarly for the US, in 1887 there was no correspondence, but by 1891, 14 pieces appear, mostly involving orders from nurseries like Sturtevant’s in New Jersey, and from the Olmsted Brothers acting as intermediary for the Vanderbilt estate.

Pricing

The price of new introductions generally started high, but declined rapidly after introduction. The example of *Chromatella* is illus-

trative: in the first year of its introduction, 1887, the average price per plant was 28,50 francs compared to the average species price of 4,79. In 1888, the average price had fallen to 13,26 francs; in 1889 to 8,30; in 1890 to 3,84 and in 1891 to 3,02. *Marliacea Carnea* and *Rosea* each started at 50 francs when introduced in 1889. By 1890 they had dropped in price to 30 francs and by 1891 to 15 francs. *Laydekeri Purpurea*, prized for its red colour, sold for the first time at 100 francs. On average, during the period, the selling price of hybrids was slightly more than double the selling price of species. At this stage of the water lily market’s development, the rapid drop in price does not seem to

be related to competitive pressure, even though some nurseries had started to sell Latour-Marliac's hybrids. For example, in three letters to customers in 1887 Latour-Marliac notes that his prices are reasonable compared to Van Houtte's, which had just begun selling Chromatella for 50 francs per plant, 20 francs more than Latour-Marliac. No hardy hybrid appeared in Haage and Schmidt's catalogue until 1894, when Chromatella was offered at 4 Marks.

Overall, during this period prices were more or less halved every year following introduction until bottoming out at between 3 and 5 francs per plant, or roughly double the price of species plants. It is interesting to note that this pricing pattern appears to be in keeping with both Moore's and Wright's "laws" regarding the cost evolution of innovative products³⁶. The former says that cost decreases exponentially over time, while the latter says cost decreases with exponential increases in production³⁷. Water lily production is, in most cases, an exponential process and each of the three aforementioned Marliacea varieties is considered vigorous, or easy to multiply. That is to say that one plant may beget as many 20 new plants from division in season 1; those 20 become 400 in season 2; 8000 in season 3 and so on.

Commercial- and Network-based Marketing Communications

Latour-Marliac used some classical marketing communications techniques to build the consumer market for his water lilies, while in parallel he used his existing networks to advantage. On the classical market-

ing side he pursued a two-tier strategy, developing a clientele through direct and indirect means of communication.

The first record of advertising in a horticulture-related publication comes on 26 August 1881 when he writes to the *Annuaire Général de l'Horticulture* in Toulouse requesting that he be listed in the directory for Southwest France. Over the next ten years he would advertise in 15 different publications. At the end of 1881 he has 3000 catalogues printed in Villeneuve-sur-Lot. In September of 1882 he purchases, from M. Brassac, the editor of the *Annuaire Général de l'Horticulture*, a list of château owners in the *départements* of Loire-Inférieure, Loire-et-Cher, Allier, Nièvre and Côte d'Or. This pattern of direct mail to château owners combined with advertising in directories and gardening magazines is repeated and amplified over the ten-year period studied.

While advertising expenditures are mainly for French publications, by 1890 Latour-Marliac is advertising in two publications out of Brussels and one out of London. The increase in foreign correspondence and transactions mentioned previously is reflected in the commensurate increases in shipping and translation-related correspondence, which tended to revolve around foreign orders. While it is impossible to judge the efficacy of these classical marketing communications, their effect would have been limited by a simple fact: few people, apart from those with large estates, would have had any kind of ornamental water feature at this time. This explains why he chose to target château owners early on, but it also underscores the importance of using other methods of creating demand for his plants.

³⁶ See G. E. Moore, "Cramming more Components onto Integrated Circuits", *Electronics Magazine*, vol. 38, n° 8, April 1965, p. 114-117; and T. P. Wright, "Factors affecting the costs of airplanes", *Journal of the Aeronautical Sciences*, vol. 3, n° 4, February 1936, p. 122-128. On the former see C. C. M. Mody, *The Long Arm of Moore's Law: Microelectronics and American Science*, Cambridge, MA, MIT Press, 2016. On the latter see F. Garcias, "Destins de la courbe d'apprentissage : heurs et malheurs d'une technologie managériale de guerre en temps de paix", *Entreprises et Histoire*, n° 85, décembre 2016, p. 28-30.

³⁷ B. Nagy, "Statistical Basis for Predicting Technological Progress", Working Paper, Santa Fe Institute, 2012.

Indeed, the data show that Latour-Marliac relied heavily on network or relational methods of marketing communications, and that he did so in three distinct ways. First, he communicated with his existing bamboo customer network about his new water lily offer. In an early example he responds in March 1882 to a customer's enquiry about bamboo and encloses with the response, unsolicited, the aquatic plant catalogue. Second, Latour-Marliac communicated with his existing plant supplier network about his new water lily offer. There is a moment in the archive, around 1888, when Latour-Marliac's water lily suppliers suddenly become customers. In a letter to Haage und Schmidt on 27th June 1887 he says he intends to send samples of hardy water lilies he thinks will interest them. Likewise, in the same year he announces the arrival of Chromatella in a note to Van Houtte that accompanies his payment of an invoice. Haage und Schmidt code only as suppliers until 1887, but after 1890 they code almost exclusively as customers. The same is true of Van Houtte, Lebeuf and Sturtevant. These nurseries start out as suppliers of water lily species to Latour-Marliac only to become customers of his water lily hybrids later.

The third method of network-based marketing communications involved public relations, namely getting articles written about his water lily hybrids in the gardening press. Godefroy Lebeuf, nurseryman and founder of *Le Jardin* magazine, played an important role in building demand for colourful water lily hybrids. The 1881 archive material shows that Latour-Marliac came to know Lebeuf through market-based transactions, but that these very quickly became closer and collegial in nature. On the 5th of August 1881 Latour-Marliac suggested that Lebeuf publish an article on water lilies and aquatic plants that he would write. This and other mentions of Latour-Marliac's hybrids, including a lithograph botanical plate of Chromatella, would be published in *Le Jardin* during the late 1880s and early 1890s.

In 1887, dropping the name of his client, James St. Vincent Saumarez, also known as Baron de Saumarez, Latour-Marliac wrote to William Robinson, founder of the UK gardening journal *The Garden*, to introduce himself and his new creation, N. 'Marliacea Chromatella'. Robinson had the letter translated and published in the July 1887 issue of *The Garden*. He and Latour-Marliac would go on to have a prolific correspondence after 1891, with the former dedicating the entire 1893 volume of *The Garden* to Latour-Marliac and his hybrids. In exchange, Latour-Marliac named a new red hybrid after him: *Nymphaea* 'Robinsoni', a rendering of which appeared in an 1896 issue of *La Revue Horticole* (see Figure 3). A similar honor had been bestowed before, upon Maurice de



Figure 3. N. 'Andréana' and 'Robinsoni' in G. Severeys and L. Descamp-Sabouret, « Nymphéas nouveaux », *La Revue Horticole*, vol. 68, 1896, p. 352-353 (Courtesy of the Société Nationale d'Horticulture de France Library).

Vilmorin, who was editor of *La Revue Horticole*, after an 1891 article he penned on the new hybrid hardy water lilies. That exchange yielded the bamboo named *bambusa* ‘Vilmorini’. Thus it was that Latour-Marliac consciously and proactively used his network to obtain publicity and build consumer demand. The result of his commercial and network-based efforts between 1881 and 1891 was the creation of a small but significant demand-side market. This market had started with four customers in 1881, who collectively purchased five hardy species. Ten years later, during the year 1891, 115 customers placed orders, collectively purchasing 631 plants, two-thirds of which were colourful hardy hybrids.

ANALYSIS AND DISCUSSION

How Latour-Marliac Used Network Structure

The archives show that network structure was a significant factor in the creation of the market for colourful water lily hybrids, but what were the dynamics in play between Latour-Marliac and that structure? The notion of social capital, of which Latour-Marliac had no shortage, can shed some light on this question. A quasi-aristocrat with a familial and personal history of botanical accomplishment, Latour-Marliac was simply better connected, and to people with more resources, than most in this milieu, which represents a baseline element of social capital³⁸. His correspondence shows many exam-

ples of cooperation with network members, from his obtaining plant material and information from Lebeuf, Nicholson and others, to his exchanging observations with Madame Laffon and getting articles published in the gardening press. In this sense of the term social capital, Latour-Marliac appears as a consummate networker, cooperating with network members in order to obtain resources.

However, Latour-Marliac’s social capital was also based in the diversity of his network, something that made it rife with structural holes³⁹. A structural hole is a “separation between non-redundant contacts”, or a gap between two members of a network who are connected to a central player but not to each other⁴⁰. In the aforementioned aspect of social capital, benefits are generally obtained from knowing more people with more resources with whom one can cooperate. Here, benefits are derived from brokering exchanges between two previously unconnected parties in one’s network, or put another way by “taking advantage of bridge relationships across structural holes”⁴¹. Ronald Burt refers to the player who acts as broker as the *tertius gaudens*⁴², or the third party who benefits from bringing two parties together⁴³. Essential to this notion is the idea that the *tertius* plays two parties against or off one another in some way, exploiting tension between them.

Latour-Marliac’s network, shown in Figure 3, was rich in structural holes because he moved in different personal, professional and commercial spheres, connected as he was to both the upper echelons of the botan-

³⁸ R. S. Burt, “The Social Capital of Structural Holes,” in M. F. Guillén *et al.* (eds.), *The New Economic Sociology: Developments in an Emerging Field*, New York, Russell Sage Foundation, 2002, p. 148-190.

³⁹ *Ibid.*; R. S. Burt, *Structural Holes*, *op. cit.*; R. S. Burt, R. M. Hogarth, C. Michaud, “The Social Capital of French and American Managers”, *Organization Science*, vol. 11, n° 2, March-April 2000, p. 123-147; R. S. Burt, “Structural Holes and Good Ideas”, *American Journal of Sociology*, vol. 110, n° 2, September 2004, p. 349-399.

⁴⁰ R. S. Burt, *Structural Holes*, *op. cit.*, p. 18.

⁴¹ R. S. Burt *et al.*, “The Social Capital of French and American Managers”, *art. cit.*, p. 142.

⁴² Following G. Simmel, *Conflict and Web of Group Affiliations*, *op. cit.*

⁴³ R. S. Burt, *Structural Holes*, *op. cit.*, p. 32.

ical world and French high society. Hence, by both definitions of the term, Latour-Marliac's network gave him a high degree of social capital with which to create the water lily business and its market.

When researchers have looked at whether or not and how structural holes are used by players in situations of innovation they have been confronted with what amounts to a dichotomy between the cooperative and exploitative aspects of social capital. Gordon Walker, Bruce Kogut and Weijian Shan tested the two types of social capital against cases of inter-organisational network creation by biotechnology start-ups, finding that the firms tended to cooperation rather than exploitation in their use of network structure⁴⁴. In other words, structural holes did not figure in a significant way. When David Obstfeld tested structural hole theory against data gathered on cases of in-house innovation in a car manufacturer's engineering division he also saw cooperation, or "union rather than disunion"⁴⁵. This led him to employ the term *tertius iungens*, which is one who brings two parties in a network together, be they already connected in some way or not, but not necessarily in an adversarial or competitive way. In their theoretical paper on the emergence of firm networks, Julie Hite and William Hesterly propose an evolutionary dynamic between the two sides. Initially, emergent firms are "identity-based" or entrepreneur-centric, leading them to engage in cooperative behaviour within the entrepreneur's network⁴⁶. During the growth phase, when relationships become necessarily more arms-length and

commercial in nature, more adversarial brokering behaviour emerges. The idea that *tertius*-like behaviour is more prevalent in arms-length commercial exchange is a hypothesis that Gordon Walker and his colleagues also put forward⁴⁷. This existing research on social capital and innovation suggests therefore that the brokering associated with structural holes is not a predominant factor there.

In the case of Latour-Marliac, whether or not his behaviour may be characterised as cooperative or exploitative depends in large part on how one defines the central player. Ronald Burt states clearly that "the players in which relations intersect are physical and legal entities: a person, an organization, or a broader aggregation of physical and legal entities"⁴⁸. Indeed, there is considerable leeway in defining who or what is the locus of network activity, something that can be particularly fluid in cases of innovation⁴⁹. This ambiguity is reflected in the articles just discussed. For example Walker *et al.* base their analyses on organisations, Obstfeld on groups of managers within a division, and Hite and Hesterly imply that the central player is an amalgam of founder and firm, with one influencing action more than the other depending on the stage of the firm's development. It appears, therefore, that the question as to who or what is the central player and for how long he, she, they or it remain so is highly pertinent when engaging in network analyses of innovation-related situations involving market creation.

⁴⁴ G. Walker, B. Kogut, W. Shan, "Structural Holes and the Formation of an Industry Network", *Organization Science*, vol. 8, n° 2, March-April 1997, p. 109-125.

⁴⁵ D. Obstfeld, "Social Networks, the Tertius Iungens Orientation, and Involvement in Innovation", *Administrative Science Quarterly*, vol. 50, n° 1, 2005, p. 100-130, esp. p. 103.

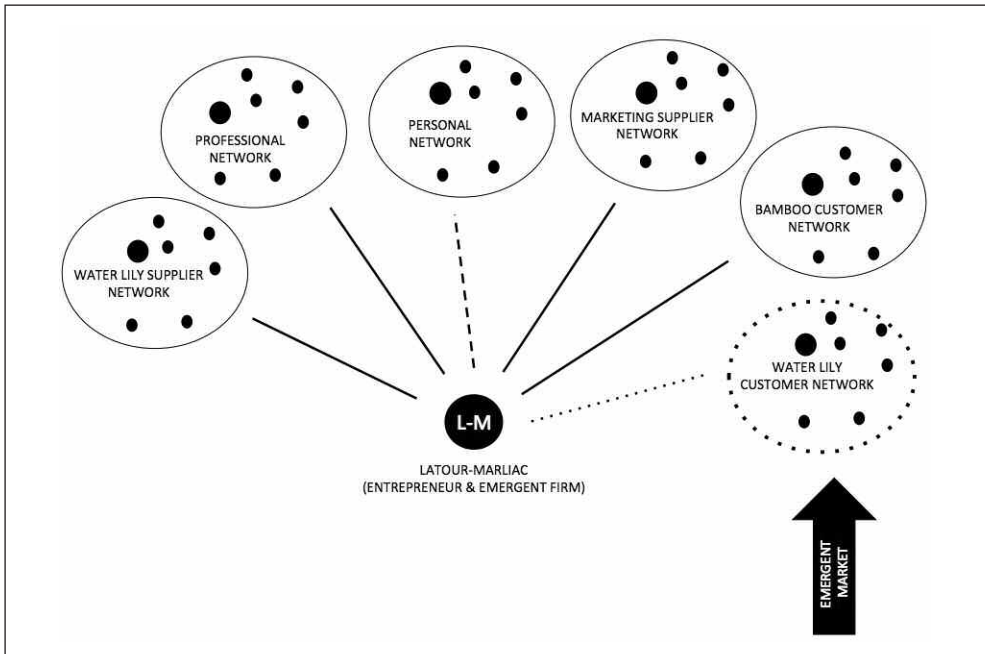
⁴⁶ J. M. Hite, W. S. Hesterly, "The Evolution of Firm Networks: From Emergence to Early Growth of the Firm", *Strategic Management Journal*, vol. 22, n° 3, March 2001, p. 275-286.

⁴⁷ G. Walker, B. Kogut, W. Shan, "Structural Holes and the Formation of an Industry Network", *art. cit.*

⁴⁸ R. S. Burt, *Structural Holes*, *op. cit.*, p. 2.

⁴⁹ M. Akrich, M. Callon, B. Latour, « À quoi tient le succès des innovations ? », *art. cit.*

Figure 4. Latour-Marliac's Cooperating Network Configuration.

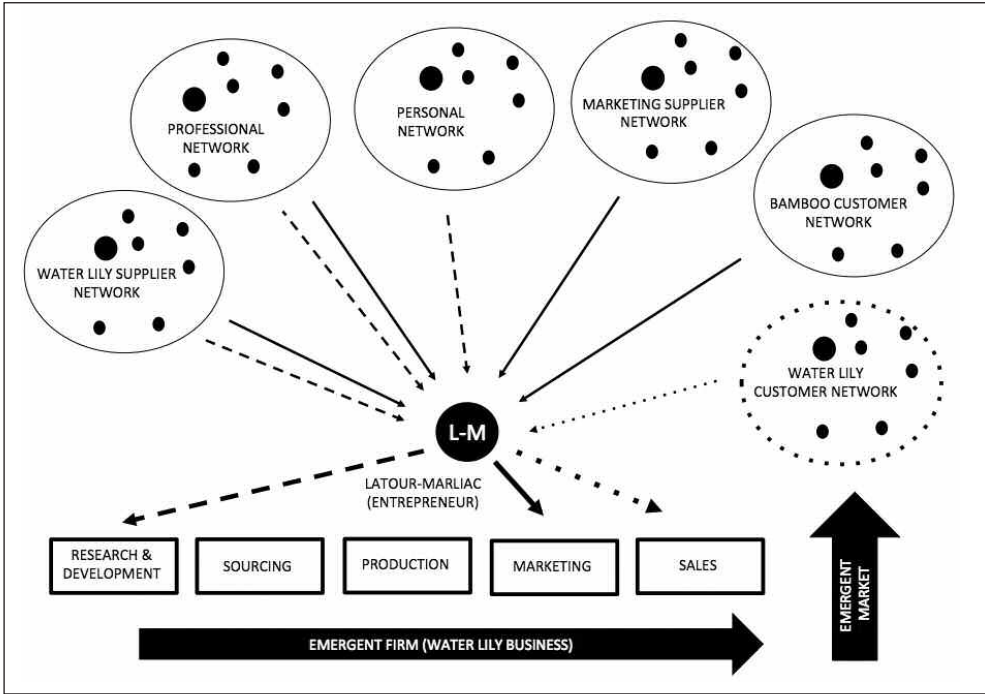


To return to Latour-Marliac, if one were to conflate the man with the emergent firm, then his use of networks appears (see Figure 3) to be largely cooperative in nature, something in keeping with the aforementioned literature. However, were one to separate the two, Latour-Marliac the entrepreneur becomes a first-rate *tertius gaudens*, brokering exchanges of information and other resources between different network clusters and the emergent firm, ultimately creating the market for colourful hardy water lilies. Figure 4 above illustrates this dynamic. In effect, Latour-Marliac brokers transactions between the emergent water lily business, which has been represented as a rudimentary value chain, and his other network clusters. The graphic reflects that the archive contains information mainly related to the R&D/invention side of the commercialisation process and the marketing side. It does not shed as much light on the supply side – for example it does not show how staff was

hired and managed; how Latour-Marliac grew and multiplied the plants; where he bought fertilizer or how the cultivation pools were built and maintained.

On the R&D side the graphic shows with a dashed line how information and materials were obtained from three different network clusters and integrated into the firm's activities. On the marketing side (relationships shown with solid lines), he brokered market transactions between the firm and its suppliers and customers. But he also connected his bamboo customer network with the water lily business, such as when he included the aquatic plant catalogue when invoicing a bamboo customer. Similar bridging occurred between the water lily business and his personal and professional network clusters. Professionals like Nicholson and de Vilmorin were routinely and explicitly asked for favours that fed back to the water lily business, be they for plants, information or articles about his water lily hybrids in a journal.

Figure 5. Latour-Marliac’s Brokering Network Configuration.



These commercial and professional exchanges contributed to the development of the business and by extension its market, indicated in the diagram with dotted lines. The important point to retain here is that, in this model, the emergent firm exists independently of Latour-Marliac, who acts not as a stand-in for it, but as a broker between it and his other network clusters.

This dynamic is very similar to some of the managerial brokering behaviour that Ronald Burt has observed within firms⁵⁰. In those analyses managers have been shown respectively brokering information and other resources between the firm and their non-firm network members, their work group and non-work group network members, or between their business unit and their net-

works outside the business unit. In Burt’s three studies, a pattern of brokering behaviour is shown in which one side of the brokered exchange is fixed. For example, in the 2004 study, Burt observes that enterprising managers “discover and bring home best practice”, with home in this case being the supply chain business unit⁵¹ [italics added]. What is similarly specific about brokering in the context of innovation that requires new market creation is that “home” is the emergent firm. The findings from the Latour-Marliac archives demonstrate that in order to see that entrepreneurs engage in *tertius*-like brokering, that indeed it may be their *raison d’être*, they need to be viewed as separate from the firms that they use to bring their new products or services to market.

⁵⁰ R. S. Burt, *Structural Holes*, *op. cit.*; R. S. Burt *et al.*, “The Social Capital of French and American Managers”, *art. cit.*; R. S. Burt, “Structural Holes and Good Ideas”, *art. cit.*

⁵¹ R. S. Burt, “Structural Holes and Good Ideas”, *art. cit.*, p. 366.

Lastly, the exchanges brokered by Latour-Marliac between the emergent business and his network also meet Burt's requirement that the *tertius gaudens* exploit an "essential tension" in order to exist as such⁵². The *tertius* uses this tension to negotiate exchanges between network clusters. No small amount of tension would have been generated by Latour-Marliac's social and professional position. This could have involved uncertainty over the consequences of a request from Latour-Marliac going unanswered or an exchange with him going awry. He would have been difficult to ignore, since a favourable exchange through him could yield positive effects on one's reputation or other benefits. High-ranking aristocrats, like Saumarez and the Comte de Castillon, may have felt obliged to deal with a "member of the club". Horticulturalists like Nicholson, Robinson or Lebeuf may have felt a collegial obligation, and perhaps also a desire to curry favour with someone influential and of higher social standing. Friends may not have wanted to let him down for personal reasons, or perhaps they owed him a favour.

On the other side of these exchanges was the emergent firm, whose contribution to the stock of exploitable tension would have come in the form of pure economic imperative. Latour-Marliac may have been wealthy, but his firm had to pay its own bills. He could use the tension around all commercial exchange related to price, availability, and so on to advantage, and he did. To reprise a previous example, when he saw that Van Houtte was selling N. 'Marliacea Chromatella' at 50 francs to his 30 francs a series of letters went out to customers, presumably ones who had complained about his prices, pointing out the difference. In this case Latour-Marliac interposed himself between the

emergent business and customers in order to mitigate, and indeed manipulate, the tension that exists around pricing in commercial exchange. There was, therefore, no shortage of tension for Latour-Marliac to exploit in his role as *tertius gaudens*, as intermediary between the emergent water lily business and his other networks.

CONCLUSION. LIMITATIONS AND IMPLICATIONS

In terms of the sociology of markets this enquiry constitutes a foray into the role that social structure and dynamics play in the creation of markets. Similar to how Obstfeld characterised his work on networks and innovation, this paper makes a "microsocial" contribution to a subfield that has generally focused more on how markets are organised than on how one or another of them initially comes about⁵³. Its theoretical scope is necessarily limited, which means it leaves many questions unanswered. For example, Mark Granovetter and Neil Fligstein both call for more work on the motivations of actors engaged in economic activity⁵⁴. The case of Latour-Marliac and the water lily market would certainly have something to add to this discussion.

The role of institutions was also not addressed in this study, despite the fact that they would have played a significant role in the timing of the emergence of this particular market. Colonialism, railroad and shipping infrastructure, international phytosanitary controls, labour laws and practices and a strict set of norms imposed by an elite botanical class made up of organisations like the Linnean Society are just a few institutional elements that would have come into play.

⁵² R. S. Burt, *Structural Holes*, *op. cit.*

⁵³ D. Obstfeld, "Social Networks, the Tertius Iungens Orientation, and Involvement in Innovation", *art. cit.*, p. 125.

⁵⁴ M. Granovetter, "A Theoretical Agenda for Economic Sociology" and N. Fligstein, "Agreements, Disagreements, and Opportunities in the New Sociology of Markets", in M. F. Guillén *et al.* (eds.), *The New Economic Sociology*, *op. cit.*, p. 35-60 and 61-78.

And lastly the role of culture was touched upon only indirectly, and then only via the question of caste. Latour-Marliac's success in building the market early on was related to his own elite cultural background given that many of his initial clients were wealthy estate owners with aristocratic origins. The expansion of the water lily market required a "democratisation" of water gardening culture, from those wealthy estate owners to ordinary hobbyists. Latour-Marliac and many of his correspondents, from Lebeuf and Van Houtte to Monet, were consciously bringing about that change in culture through a new popular garden-related press.

This study makes a microsocial contribution to the sociology of markets literature by showing the importance of level of analysis in sociological studies of innovation involving market creation. It argues that a distinct line should be drawn in such analyses between the entrepreneur and the emergent firm that they use to bring their products and services to market. This distinction is neatly in line with economic approaches to entrepreneurship, which view such actors as coordinators who re-allocate scarce resources by combining them in new ways⁵⁵. Or, in terms of the Austrian school of economics, as arbitrageurs who combine resources that are individually undervalued in one market in order to sell the combination at a profit in another market⁵⁶. Ronald Burt makes the point that the *tertius gaudens* is always an entrepreneur in the literal sense of that term, because he or she always acts as go-between, the etymological meaning of the

word "entrepreneur"⁵⁷. This paper proposes something related but different: that the entrepreneur-innovator is always a *tertius gaudens* in that he or she is always an intermediary between the emergent firm and its stakeholders, obtaining resources for the former via the latter, and in the process creating new markets where necessary.

Finally, this approach to market creation via the entrepreneur-innovator is in keeping with work on the entrepreneurial process undertaken by Saras Sarasvathy⁵⁸. She notes the challenge of analysing creative processes using social scientific tools that have been conceived of and used to study "givens" like markets and firms, or for that matter the colourful water lilies in Monet's paintings. In order to get at the process by which those givens emerge she proposes to build on Herbert Simon's notion of sciences of the artificial⁵⁹. To her, firms and markets ought to be considered as artefacts that are "constructible through the entrepreneurial method"⁶⁰. This method is what she calls an effectual one, stemming from actions taken based on who one is, what one knows, who one knows and what one has, rather than from "rational" actions taken based on a previously optimised plan. She equates the use of effectual processes and their outcomes with the making of a patchwork quilt, where a selection of disparate patches are ordered and stitched together in a way that makes a complete quilt, or loci of exchange in the form of a firm and market(s).

If the metaphor is extended to Latour-Marliac, he is the one who places the patch-

⁵⁵ J. A. Schumpeter, *The Theory of Economic Development*, op. cit.; M. C. Casson, *The Entrepreneur: An Economic Theory*, Oxford, Martin Robertson, 1982.

⁵⁶ I. M. Kirzner, *Competition and Entrepreneurship*, Chicago, The University of Chicago Press, 1973; I. M. Kirzner, *How Markets Work: Disequilibrium, Entrepreneurship and Discovery*, London, The Institute of Economic Affairs, 1997.

⁵⁷ R. S. Burt, *Structural Holes*, op. cit., p. 34.

⁵⁸ S. D. Sarasvathy, "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency", *The Academy of Management Review*, vol. 26, n° 2, April 2001, p. 243-263; S. D. Sarasvathy, *Effectuation*, op. cit.

⁵⁹ H. A. Simon, *The Sciences of the Artificial*, Cambridge, MA, The MIT Press, 1996 [1st ed. 1981].

⁶⁰ S. D. Sarasvathy, *Effectuation*, op. cit., p. 182.

es and stitches them together. The patches that are available to him from the beginning of the process to the end are determined in subjective, effectual fashion: they depend on who he is, what he knows, whom he knows and what he has. Once the firm and market are created they will be exposed to the vagaries of the market and all that that

entails, making them perhaps more aptly studied using predominant social scientific tools, including rational actor theory. But until then it is the emergent firm, market and network members who are subject to the vagaries of the entrepreneur, his or her vision, powers of persuasion and deal making.