

IMéRA Conference – DHST Annual Council Meeting

Science and scientists in global context: The circulation of knowledge and techniques

Marseille, December 5, 2014

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Science at the fringe of the French colonial world: the circulation of Jean-André Peyssonnel's treatises on medicine and the natural history of Guadeloupe

This meeting offers me the opportunity to introduce you to some aspects of my work on Jean-André Peyssonnel, a physician and naturalist who was born here in Marseille in 1694. He spent his childhood near the church of *Les Accoules* and was familiar with the world of fishermen and sailors, and consequently, with marine life. The house where he lived still exists. It is located in the *rue Caisserie*, but on the outside there is no sign that refers to the notoriety of the former occupant. There is a street named after the Peyssonnel family, close to the Departmental Archives, but in general it seems that most people of Marseille are ignorant of the tumultuous but fascinating scientific life of one of their fellow citizens.

Jean-André Peyssonnel is essentially known for three achievements that are all to be situated in the beginning of his career. First, he assisted his father, also a physician, in the battle against the plague that ravaged Marseille in 1720-1721, and in the aftermath he published some writings on the contagious character of the disease, a question that at the time was the subject of a lively debate among physicians. Second, he explored various forms of marine life, especially coral, and came up with the revolutionary thesis that coral is essentially an animal organism – thus he attacked ancient authors such as Theophrastus who believed that coral is a mineral or modern naturalists such as Ferdinando Marsigli who was convinced that it is a plant, but he also earned the wrath of Réaumur who found that Peyssonnel ridiculed academic authority. Third, in the years 1724-1725 he made a sensational journey through the Barbary regencies of Tunis and Algiers. In fact it was a mission ordered by Minister Maurepas on a proposal made by the King's Librarian Jean-Paul Bignon who was in reality one of the main royal supervisors of the Académie Royale des Sciences. The voyage aimed to investigate the natural history of the Barbary regencies – especially crops that could be useful to the French economy – but Peyssonnel ignored his instructions in two respects: first, his work in the field of natural history was almost exclusively focussed on observation of coral fished near the Bastion de France, the results of which seemed to prove his thesis – in fact he identified what he called tiny “nettles” inside the stony skeleton; second, on his itinerary through North Africa he deviated from the planned route, penetrating deep into Kabylia where he spent most of his time describing archaeology and local customs instead of nature. This long journey made him bankrupt, and due to his insubordination the French government refused to help him financially.

My own research mainly deals with the history of science in colonial contexts, with a focus on Africa. In that respect I got in touch – some years ago – with Peyssonnel's work. I knew of his renown as a major European source on Barbary – a reputation based on the publication of a series of letters by Dureau de la Malle in the 1830s following the French conquest of Algeria. It is one of the very few printed works containing writings by Peyssonnel. In fact, the book brings together transcriptions of letters addressed by Peyssonnel to Bignon and scholars such as Guillaume Delisle and Pierre Chirac. I went looking for the originals and found copies of the “African” letters in the archives of the Académie des Sciences and the Archives Nationales in Paris, but also in libraries in Rouen and Avignon.

To my surprise I found many more manuscripts on various scientific subjects. Since I aimed to write Peyssonnel's biography, I decided to set up a systematic investigation of all his manuscripts. Peyssonnel lived in a time when scientific work continued to circulate in the form of manuscripts that were copied and distributed among friends and colleagues, often with several copies of the same work circulating in parallel at the same time. Peyssonnel mainly acted in that way and only rarely

turned to the printing press. 18 published works are known – some have no more than a few pages. Most are in English: in fact 11 papers were published in the form of articles in the *Philosophical Transactions*, and that only at the end of his life. I will say more on that later. But the manuscripts are particularly numerous. To this date I identified 207 manuscript documents related to Peyssonnel's life and work. Among these I discovered 56 letters addressed by Peyssonnel to his correspondents, 17 letters addressed by his correspondents to Peyssonnel, 31 letters between third parties dealing with Peyssonnel in a direct way, 48 administrative documents, no less than 38 scientific treatises which are all autographs by Peyssonnel, 13 papers in English translation in other handwriting, and 4 documents which do not belong to any of these categories. I found these traces in 19 collections situated in France (16), the UK (2) and the US (1) – this in itself illustrates the wide circulation of Peyssonnel's papers. What is particularly noteworthy: a surprisingly large corpus of letters and treatises originated on the island of Guadeloupe.

As I mentioned earlier, both the African voyage and the coral debate were key-elements in Peyssonnel's career, and, consequently, have been studied by many contemporary historians, sociologists, linguists, archaeologists and marine biologists, but his residence on the secluded island of Guadeloupe in the French West Indies from 1727 to his death in 1759 received virtually no attention from the side of historians of science – with the exception of James McClellan and François Regourd who briefly analysed his work in their book on the French "Colonial Machine". However, the more than 20 scientific treatises that originated on the island give a clear picture both of science practices in a remote corner of the French colonial empire in the eighteenth century, and of the various ways in which locally produced knowledge ended up in various European centres of knowledge. The interplay between proximity and distance constantly acted upon Peyssonnel's scientific work and influenced its distribution towards wider scientific communities. Peyssonnel's residence on the island of Guadeloupe confronts us with authority questions and power relations in the French world of science and politics. Finally, it offers us a deeper understanding of the attitudes adopted by two major scientific institutions – the Académie Royale des Sciences and the Royal Society – towards eighteenth-century "colonial" knowledge.

But first, let us investigate how Peyssonnel ended up on the island of Guadeloupe. From his early years on, he had the ambition to become part of a community of scholars. He sent the first results of his observations on marine life in the coastal waters of the Provence to the Société Royale des Sciences in Montpellier, which awarded him corresponding membership. Then he approached the Académie Royale des Sciences where Bignon granted him his patronage. Soon he became a corresponding member of the Académie too, and with Bignon's blessing he departed on the ill-fated African voyage. Upon his return he clashed with Maurepas on money and with Réaumur on scientific issues. Acquiring permanent membership and a royal pension, which would allow him to devote all his time to scholarship, would remain a vain hope. But his financial situation was a catastrophe. So he started a campaign in favour of the creation of a chair of naval medicine for the benefit of sailors and tried to convince both the Court and local authorities in Marseille of his skills by publishing a study on the currents in the Mediterranean. It was to no avail. With Bignon's help he then made an attempt to obtain a consular office in a French trading post on Crete or Cyprus, but again that plan met with governmental veto as he had no commercial experience. Thus, in 1727, Peyssonnel was forced to accept the post of "Médecin du Roi" in Guadeloupe out of necessity. He knew it was a definitive choice – he made a settlement with his brother on the family belongings in Marseille – but he was not enthusiastic about his future although he now had a permanent income. For a man of science, Guadeloupe was just too isolated – it offered no direct contacts with France as everything passed through the ports of Martinique. It comes not as a surprise to see that soon after his arrival Peyssonnel requested the Crown for his transfer to Martinique. But again he faced rejection.

In fact, the French government had serious reasons to keep Peyssonnel on the island of Guadeloupe. It seems that his experience as a physician and a plague fighter made him perfect for the job that

awaited him. His work was often conflictual. For example, he needed to monitor the work of local surgeons who were ignorant in matters of science but nevertheless opposed his authority. Still, more important was that he received orders to fight a local outburst of leprosy on Grande Terre. In 1728, he made an extended visit to 256 infected patients, predominantly black slaves. In his report he described the development of the disease, the skin lesions with red spots and places of insensitivity on various body parts, and suggested that it had made its appearance on the island after a cargo of infected slaves from Guinea had been spread all over the island. His work resulted in a comprehensive study on the disease with a detailed description of the typical skin deformations. His claim that it really was about leprosy was based on experiments with needles that had to measure the degree of insensitivity. He also claimed the disease was contagious without really knowing why. Some surgeons raged against his diagnosis and claimed it merely was an outbreak of scurvy, so slave owners had nothing to worry about. Eventually, the local authorities accepted Peyssonnel's opinion, ordering the exile of all lepers to the small island of La Désirade where they lived not only in isolation but also in complete misery. In 1748 Peyssonnel again had to organize a systematic visit of all the lepers on the island of Guadeloupe.

Peyssonnel was responsible for one of the first detailed descriptions of leprosy in the French West Indies. And he was convinced that his work had scientific value. As was his duty, he sent his reports and copies of his correspondence to the Secretary of State responsible for the Navy and the Colonies. These comprehensive scientific treatises were considered administrative documents, and consequently they were archived and classified without further paying attention to them – the originals are preserved at the Archives Nationales in Paris and Aix. But Peyssonnel was aware of the fact that his writings risked to sink in oblivion and so he decided to share his findings with the scientific community. In 1733 he sent a shortened version of his study to the Académie in Marseille – a learned company founded in 1726 – in fact Peyssonnel himself had been one of the co-founders just before his departure to Guadeloupe. His learned friends in Marseille read the text during a meeting on January 13, 1734, but unfortunately never published it. The manuscript disappeared in the Académie's archives where it went missing.

Meanwhile Peyssonnel had settled, married and founded a family. In addition to his medical care, he focussed primarily on the natural history of Guadeloupe. During the first years of his residence he continued to send botanical specimens to Antoine de Jussieu in Paris, but it seems he stopped doing that when he found out that his correspondent's interest waned, probably because of the distance that separated them. It is likely that Peyssonnel went in search of land suitable for the development of plantations or for mining. In that respect he explored the whole area around the Souffrière volcano. He climbed the mountain several times and accomplished one of the first mineralogical investigations of this volcanic area. Again he thought his findings were noteworthy and sent them to Marseille. There they were only shared among the intimates of the local Académie during a presentation on February 3, 1734. After that brief moment of scholarly attention the manuscript was archived – this copy is preserved. Thus Peyssonnel continued his work, producing dozens of treatises on the natural history of the French Antilles, including botanical and zoological studies. He even found time to revise older writings on currents, marine life and coral.

In Europe, the practice of science evolved, and after many years the attitude towards Peyssonnel's work began to change. In 1738 his name appeared in a book written by the Englishman Thomas Shaw on Barbary. In the summer of 1741 Bernard de Jussieu investigated polyps during a trip to the coast of Normandy. Upon his return in Paris he presented to the Académie Royale des Sciences a paper on the "animal nature" of some sea products previously considered as plants. It was the first step towards Peyssonnel's rehabilitation. In 1742 Réaumur published the sixth volume of his work on insects. In the preface he corrected his earlier opinion on the nature of coral, following new discoveries made by the Swiss Trembley. Finally, Peyssonnel's discoveries were accepted. In 1749

Buffon confirmed in his influential work *Histoire Naturelle* that Peyssonnel was the first to discover the true nature of coral.

Unfortunately, Peyssonnel's text no longer circulated through the world of scholarship. But that would change quickly. Eventually, after many years news about recent developments reached Peyssonnel on Guadeloupe. This probably happened around 1750-1751. Aware of the interest shown for his older work but no longer comfortable with scholars in France, Peyssonnel decided to send a paper of 224 pages on coral to the Royal Society of London – in fact it was a text that had hardly changed since he left Europe in 1727. He explained his move in the following way: “in France some amateurs use and even claim my findings, about which they have been informed, and I, isolated in the West Indies, cannot afford to perfect my work by want of books, and more so by want of advice, guidance, and even critique that could help me to explain what is still obscure and to correct my mistakes [...]” On 7 May 1752 William Watson presented to the members of the Royal Society and abridged version of Peyssonnel's treatise in English. The Company immediately decided to publish it in the *Philosophical Transactions*. This contribution did not remain without effect. In the coming years, a dozen of articles written by Peyssonnel would be published in the same series.

But in order to obtain such a result, Peyssonnel had to travel to Europe in person. In 1755 Peyssonnel decided to undertake a trip to France, accompanied by his son. He especially wanted to settle family affairs, but he took the opportunity to permanently restore his scientific reputation. He renewed contact with scholars in Paris and London. He was so pleased with the Royal Society's abridged version of his text on coral that he retranslated it into French and published it in the form of a small book. In 1756 he was elected a Fellow of the Royal Society, but he also became a corresponding member of the Academies of Rouen, Lyon, Angers, La Rochelle and Bordeaux – places where he passed by when he crisscrossed France on his trips to friends in Paris and relatives in Marseille.

January 28, 1756 must have been a special day in Peyssonnel's life because the members of the Académie Royale des Sciences in Paris invited him to give a lecture on his experiences in the French West Indies. Using the model of his older paper on the Mediterranean, he now discussed his observations on the currents in the Caribbean – but it probably did not make much of an impression on the members of the Académie as the paper was never published in the institution's series. But the feeling was likewise. On March 6, 1756, he confessed his feelings about the atmosphere he had felt in the Parisian Académie in a letter addressed to Claude Nicolas Le Cat, Permanent Secretary of the Academy of Rouen: “I would be delighted to see you in order to talk about all what is happening here at the Académie, which I find very ill due the humours which collide with each other; she makes convulsive movements; bile, melancholy, phlegm [...] everything is in motion; I am extremely surprised and angry at the same time. The beautiful union of the past is no longer there”. Peyssonnel returned to the West Indies some weeks later.

Once back on the island of Guadeloupe Peyssonnel was grateful for the honour the Royal Society had given him, as well as for the warm welcome he had received when visiting Academies in the provinces. These were the institutions that had given him a real opportunity to restore his good name. All these favours needed some compensation, Peyssonnel thought. The last years of his life were filled with work: he continued copying his old treatises but he also wrote new ones. All this material was sent to the new friends he had made in Europe. That is the reason why the Archives of the Academies of Bordeaux, Rouen and Angers still preserve so many of Peyssonnel's autographs, often copies of his treatises on leprosy, the Souffrière volcano or the flora and fauna of Guadeloupe. The Royal Society in London became Peyssonnel's favourite corresponding institution. It received an impressive collection of papers. Various packages containing two to three treatises at a time arrived in London in the years 1756, 1757 and 1758. The Fellows indeed appreciated Peyssonnel's contribution to “colonial knowledge”. For each and every paper the process they applied was the same: a Fellow was appointed who must carefully translate the complete text in English, after which

it was read before the entire assembly. Then the translation was published in the *Philosophical Transactions*. That way a whole corpus of treatises on Guadeloupe's natural history was formed. Only two treatises – a very short text on American ants and a 400 pages long text on the Guinea worm, which causes the disease Dracunculiasis – never reached the press.

Concluding remarks

On the eve of his death Peyssonnel was probably pleased with the fact that his ideas had finally received the blessing of scientific authorities in Europe. However, one must admit that when Peyssonnel's work was rediscovered, it was already exceeded by systematic research accomplished by a new generation of naturalists who were influenced by Linnaeus's binomial classification. With regard to coral, this systematic approach is reflected in the works of John Ellis and Daniel Solander in London or in those of Peter Simon Pallas in St. Petersburg. Nevertheless, the fact that Peyssonnel's treatises continued to circulate illustrates well the wide interest for "colonial" knowledge at the end of the eighteenth century. This "global" approach of natural phenomena would eventually culminate in the works of Humboldt and Darwin.