

Muriel Collart (Université Libre de Bruxelles)

Daniel Droixhe (Université Libre de Bruxelles, Université de Liège)

## **From anti-climatology to pre-industrial pollution. Retz, Ramel and the medical topographies before the French Revolution**

Noël Retz, member of the Royal Society of Medicine and of the Dijon Academy, and the Bernardin Ramel were the first French authors who questioned the importance attributed to climate and meteorology as causes of a number of diseases, in the program of medical topographies developed by the Académie de médecine in the last decades of the 18th century. The program shared the “wide-spread consensus on the connection between an individual’s state of health and the state of the air they breathed” (V. Janković, *Confronting the Climate. British Airs and the Making of Environmental Medicine*, 2010).

Retz, in the *Nouvelles instructives bibliographiques, historiques et critiques de médecine, chirurgie et pharmacie* (1785), immediately depreciated the *idées fixes* adopted by the “sect of the topographical physicians”, as “idle in itself, humiliating for most of the practitioners, ridiculous in some parts, contradictory in others, and finally very dangerous in its carrying out”. We give a sketch of his arguments concerning the useless of an inquiry about the relationships between epidemics and the “constitutions of the atmosphere”.

Ramel published in 1787 his *Aperçu et doutes sur la météorologie appliquée à la médecine* and afterwards *De l’influence des marais et des étangs sur la santé de l’homme*. He borrows to authors like Pringle and Mead his remarks over “the stinks of stagnating waters” - especially Thames - corrupted by “putrid exhalations from the earth” and “above all” by “dead Carcasses lying unburied”. But « M. Nosereau », in his “*Topographie de la ville et de l’hôtel-dieu de Loudun* » (1787), rejects

the harmful influence of a cloaca located in the south-west of the city. In the same way, Ramel writes that “the air, this necessary element of our existence, does not exert upon the animal body a methodically tyrannical and destructive empire, a constantly oppressive and poisonous influence”. To prove it, he takes the example of “the dirty workshops” of the “tanners, leather curriers, tallow-founders”, etc., who “spend their whole life in an atmosphere loaded with putrid and mephistic emanations” without any “serious or mortal illness”.

The health of the coal-miners is particularly discussed in the history of professional diseases. The French scientist Jean-François Morand reports from 1768 to 1779 an inquiry that he led in the Liège country and he rejects the theory of the coal toxicity - in the phase of extraction but also in its domestic use. By shifting from the producers to the consumers, Morand crossed a second step in the debate concerning the “charbon de terre”. He developed this other aspect of the question in a 1770 volume. A third step will be crossed when some authors extend the problem of nuisance to the extra-domestic world (Philippe de Hurgues, 1615).

That kind of complaint had of course to increase with the rise of industrial revolution. The environmental concern was more insistent in the article “Workshops (Insalubrity)” by Nicolas-Pierre Gilbert, published in the *Encyclopédie méthodique* (1821). He writes that “the mines where are executed the metalworks, and especially those concerned by the cast iron, may be

*harmful to the health of the people living in the neighbouring houses". Some measures must be taken: "It is important to isolate the factories where those materials are treated on a large scale by fire, and especially the laboratories where are prepared the mercurial salts, the soft mercurial muriate, the over-oxygenated muriate of mercury, the calcination of cobalt for the evaporation of arsenic, etc. etc." That does not sound so trivial.*

In *Confronting the Climate. British Airs and the Making of Environmental Medicine*, Vladimir Janković has written: "By the early 1800s, the large volume of publications on the capacity of external factors to shape human physiology testified to a wide-spread consensus on the connection between an individual's state of health and the state of the air they breathed"<sup>1</sup>. Many physicians "argued that epidemics arose in places infested by malodorous mists - miasmas - which tended to occur during sultry weather and in the vicinity of decaying organic matter". If those ideas were rather old, the neo-Hippocratic current of the 18<sup>th</sup> century, stresses Olivier Faure, greatly "privileged the air and the weather in the explanation of the occurrence of diseases and of the extent of their ravages"<sup>2</sup>. Locke, Perry, Sydenham, Boyle, Boerhaave, Arbuthnot, Leibniz or Friedrich Hoffmann had provided, since the 17<sup>th</sup> century, sufficient physiological grounds for what has been called by Ludmilla J. Jordanova and James C. Riley the "environmental medicine" of Enlightenment<sup>3</sup>.

Thus, the latter were systematically reproduced and exploited in the "medical topographies" which have constituted a large part of the debate that opposed, for half a century, Michel Foucault, with his *Naissance de la clinique* (1963), and the Swiss-British movement which criticized the historian for having largely ignored previous developments of that "clinic" outside France<sup>4</sup>. The history of those topographies has been undertaken under the direction of Henri Picheral and Daniel Roche by Marie-Françoise Rofort and Hugues Moussy in dissertations unfortunately still unpublished<sup>5</sup>. We just want to add here a chapter to the medical program started by Richard de Hautesierck and Vicq d'Azyr.

---

1 New York: Palgrave Macmillan, 2010, p. 75.

2 "Les stratégies sanitaires", *Histoire de la pensée médicale en Occident 2. De la Renaissance aux Lumières*, ed. Mirko D. Grmek, Paris : Seuil, p. 287-88.

3 Jordanova, Ludmilla J. , "Earth Science and Environmental Medicine: the Synthesis of the Late Enlightenment", *Images of the Earth*, ed. L.J. Jordana and Roy Porter, Chalfont-St. Giles: British Society for the History of Science, 1979, p. 119-146; Riley, James C., "The Medicine of the Environment in Eighteenth-Century Germany", *Clio Medica* 18, 1983, p. 167-178; Feldman, Theodore S., « Meteorology, Medical », *Sciences of the Earth*, ed. Gregory A. Good, Vol. 2, New York & London: Garland, 1998, p. 574-575.

4 Risse, Guenter B, « Before the clinic was 'born'. Methodological perspectives in hospital history », *Institutions of Confinement. Hospitals, Asylums, and Prisons in Western Europe and North America, 1500-1950*, ed.

Norbert Finzsch and Robert Jütte, Cambridge Univ Press, 1996, p. 75 sv.; « La synthèse entre l'anatomie et la clinique », *Histoire de la pensée médicale en Occident 2*, p. 177-97 ; Wilson, Adrian, « Porter versus Foucault on the 'Birth of the Clinic' », *Medicine, madness and social History. Essays in honour of Roy Porter*, ed. Roberta Bivins et John Pickstone, Houndmills, Basingstoke, Hampshire : Palgrave Macmillan, 2007. p. 25-35.

5 Rofort, Marie-Françoise, *Les topographies médicales : une géographie des maladies et de la santé aux XVIIIe-XIXe siècles*, thèse de géographie de 3<sup>e</sup> cycle sous la direction de Henri Picheral, Université de Paris VII, 1987 ; Moussy, Hugues, *Les topographies médicales françaises des années 1770 aux années 1880 : essai d'interprétation d'un genre médical*, thèse sous la direction de Daniel Roche, Université Panthéon-Sorbonne (Paris), 2003.

## The climate in the medical topographies

In the *Journal de médecine militaire* of January 1786 was published a “Projet d’une géographie médicale de la France, à l’usage des troupes”, due to Jacques Dehorne, its director<sup>6</sup>. The project assigned to the « topographical descriptions of the towns of garrison and crossing of the troops” various objectives supposed to be useful to the physicians, the “gens de l’art”. They concern the knowledge of “the nature and qualities of the country where they practice medicine”, as well as the description of “the productions of every kind” typical of this country, so that they could be reformed in case of abuse”. So, the medical topography must first consider “primary geographical factors” such as latitude, landscape, exposure to wind, hydrology, temperature changes, humidity, “the flora, the fauna and the distribution of micro-organisms”. But it has also to take into account « the

effects of social life », as the way of life, the demographic density and of course the economical development. The topographies tried to define what Mirko Grmek calls the “pathogenic determinism of the place”.

Among the factors responsible for diseases, the climate thus occupied a central place. How could the military physicians, Dehorne asked, “properly administrate to the patients the remedies which are peculiar, without the exact knowledge of those climates”? The extent of the country, and particularly of its colonies, require such an environmental appropriateness. The garrisons are submitted to very different climatic conditions. With the rainy Low Countries on the North, the cold Germany on the East, the snowy Switzerland, the Savoy and the Alps, the Mediterranean Sea and the Pyrenees: what a number of atmospheric diversities! “Those different positions, and the diverse aspects of the sun which follow, necessarily have an influence on the air, the soil, the productions, the temper and the character of the peoples submitted to them”. The military physicians must be especially mindful of the type of climate that a regiment has leaved, so that the soldiers “were treated in relationship with the constitution they are bringing back”. It would be harmful that the doctors “mix up, by a uniform practice, those who are coming from a dry and blazing country with those who are going out of a greasy, aqueous country where the air is thick, cloudy and cool”.

## The medical topography: « a vain device » according to Noël Retz (1785)

Dehorne’s philosophy of medical inquiry was immediately attacked in a periodical just coming out: the *Nouvelles instructives bibliographiques, historiques et critiques de médecine, chirurgie et pharmacie*<sup>7</sup>. The author was the director of the journal himself : Noël Retz, member of the Royal Society of Medicine and of the Dijon Academy, who had possibly worked in Arras

---

6 *JdM*, p. 137 sv. See *Dictionnaire des journaux, 1600-1789*, ed. Jean Sgard, Paris-Oxford : Universitas-Voltaire Foundation, 1991, n° 0672 (éd. électronique LIRE UMR 5611, dir. Anne-Marie Mercier-Faivre and Denis Reynaud and ISH USR 3385 - <http://dictionnaire-journalistes.gazettes18e.fr/journaliste/680-noel-retz-de-rochefort>.) ; Favre, Robert, « Jacques Dehorne », *Dictionnaire des journalistes (1600-1789)*, ed.. J. Sgard, Voltaire Foundation, 1999, n° 213, éd. électronique,.

7 Paris : Méquignon l’aîné, I, 1785, p. xxv sv Stewart, Philip, «Nouvelles instructives (1785-1787) », *Dictionnaire des journaux, 1600-1789*, , n° 1034.

and was at that time in practice at the hospital of the Royal Marine in Rochefort<sup>8</sup>. Retz had published in 1779 a *Météorologie appliquée à la médecine et à l'agriculture* which was reedited in 1784. But he changed sides concerned medical topography, and Dehorne's program, in the 1785 *Nouvelles instructives*, was depreciated as "idle in itself, humiliating for most of the practitioners, ridiculous in some parts, contradictory in others, and finally very dangerous in its carrying out". It was told to tally with the idées fixes adopted by the "sect of the topographical physicians". For Retz, the art of healing only requires the knowledge of symptoms. You "debase the Art" when you suppose that the physicians are not able to discern by themselves "which remedies suit to a sick person without geographical information".

The first volume of the *Nouvelles* opens with a "Premier discours" bravely entitled "Preliminaries where we show that the causes of diseases do not exist in the air".

*Seduced by a lot of specious and imposing books, we had really believed that we could recognize in the air as many causes of diseases as the atmosphere contracts constitutions and feels variations (...). Time has come for abandoning such a fruitless work, or at least for reducing its results to their right value, and for convincing the practitioners that the atmosphere, whatever its constitution and its variations, does not produce diseases; and that those constitutions are limited to ascertain in the individuals those whose causes exist in their organs.*

Then, Retz explains in detail the "enormous work" that led him to those conclusions. The process is inscribed in the ordinary working of the "environmental medicine" as it is described by Theodore S. Feldman<sup>9</sup>:

*Meteorological instruments, developed in the first half of the 17<sup>th</sup> century, were by now generally available and offered numerical measurements of weather variables to those seeking the effects of the weather on health. This opportunity was especially to the Enlightenment, with a predilection for the collection and tabulation of statistical information. The impulses toward bureaucratization and the improvement of public welfare (what historians call enlightened absolutism) further encouraged environmental medicine, as government began to survey their physical and human resources and to enact public health and medical reform.*

First, Retz relates, "we have collected, on one side, almost all the observations that have been published about the epidemics, starting with those mentioned by Hippocrates". On another side have been collected "all the contemporary meteorological observations that we could find". We carried out "an accurate mix of the different atmospheric constitutions with the diseases which reigned during or after each constitution". The reader may check the exactitude of it in the *Météorologie appliquée à la médecine et à l'agriculture*, "crowned by a famous Academy" - the Académie impériale et royale des sciences et belles-lettres de Bruxelles<sup>10</sup> - "and which

---

8 He also provided an address in Paris, "rue Saint-Honoré". Rey, Roselyne, "Noël Retz de Rochefort (?-1810)", *Dictionnaire des journalistes, 1600-1789*, n° 680.

9 *Loc. cit.*, p. 575. See also Collart, Muriel, « Prendre la mesure du temps : le réseau météorologique international de James Jurin (1723-1735) », *La communication en Europe : de l'âge classique au siècle des Lumières*, dir. Pierre-Yves Beaurepaire, Paris, Belin, 2014, p. 76-86 ; Id., « L'âge d'or de la météorologie dans le *Mercure Suisse* et le *Journal Helvétique* : les observations du docteur Garcin », ed. Séverine Huguenin and Timothée Léchet, Genève : Slatkine, 2016 (gone to press); Id., « Climat et maladies : les Tables nîmoises du Docteur Razoux », *XIV<sup>th</sup> International Congress of Eighteenth Century Studies (Rotterdam, Erasmus Univ. 27-31 Juillet 2015)*, proceedings to be published.

10 Collart, Muriel, « Questions d'agronomie posées par l'Académie (1772-1794) », *L'Académie impériale et royale de Bruxelles. Ses académiciens et leurs réseaux intellectuels au XVIII<sup>e</sup> siècle*, ed. Hervé

has been well received by the physicians, where we had adopted the error that we are now to destroy”.

In a second step had been established “Tables where are ranked on one side the diseases, on the other the condition of the atmosphere at the same time or before”.

A third phase of the enquiry consisted in classifying “those articles under various categories, according to the type of disease and the principle of the constitution that was supposed to be its cause”.

A fourth phase tended to highlight and to only keep “the constitutions that had been marked by the extraordinary state of the meteorological influences”. Thus were omitted the elements concerning the “ordinary temperature of the climate and of the season”. Were only considered the differences in relation to the norm. But it was important to operate with the different parameters of “each constitution”. So, when the degree of heat was the only element non in accordance with the norm, the latter being corresponding to the “middle term of the *barometer*, the *hygrometer*, the power of the wind, etc.”, the only “rise of the thermometer” was put in relationship with such a “popular disease”.

Finally, a nosological look was directed towards the epidemics in “relating each of them to a particular type, like inflammation, putrescibility, dissolution, etc.”. In fact, all those diseases were reduced to “a very small number of kinds and disturbances”.

A first discovery resided in the contrast between the “phenomenal uniformity of the popular diseases” and the non less “prodigious amount of atmospheric constitutions”. “We only found three or four types of epidemics which repeated with small changes”. To this was added a jamming of the relationships proposed by the physicians. “We saw that the same epidemics were assigned to this atmospheric constitution, according to some observers, and to constitutions absolutely contrary, according others”. Only one evidence was registered: some epidemics affected less “the personals abstemious and well-fed”... Conversely, a collective disease did not necessarily spare “those who take all precautions to protect themselves from the extraordinary impressions of the air”.

Those observations led Retz to shift the origin of the diseases, to the detriment of the environmental influence. For him, “the real or material causes are interior”. He conceded that “some atmospheric constitutions” could “prevent the salutary revolution”, that is to say that climate and meteorology could block the organs which were responsible for the natural

repairs. The air only operated as an “obstacle”. Just a reasonable way of life could avoid “the heap of humors and their depravity, which result from bad diet, foods too rich in feeder juices or vitiated in different ways, the spoiled drinks, the excess of work, the immoderate night watches, the pains of body and soul”, etc.

Finally, Retz wants to illustrate the emptiness of the atmospheric theory with a dialogue between a « topographical physician » and a soldier in garrison at Perpignan, consulting for a “catarrh fever liable to begin inflammatory”.

---

Hasquin, Bruxelles: Académie royale de Belgique, 2009, p. 91-93.

*A physician comes to his bed, examines him, questions him: Which regiment are you coming from? - From such troop: I have spent some time in Lille, a costal pain bothers me very much when I breathe, I feel that it grows and that I need to be bled. - You are dreaming: you are coming from Lille, your juices have a tendency to thickening, to the engorgement of the viscera, and you got a scorbutic diabetes in this town where people are drinking beer and where they use to wash too much the houses; thus you must suffer from a tendency to putrescibility...<sup>11</sup>*

« Of all the futilities that produced a schism in medicine for some years (and they are not just a few), no one is more absurd, in my opinion”, concluded Retz. That “geographico-topographico-medical knowledge” is just “a vain device in the eyes of tutored, sincere and disinterested physicians”.

### **Bernardin Ramel: the “tyranny of meteorology” (1787)**

Georges Pichard has appointed Bernardin Ramel as the first who expressed “sharp criticism” against the medical meteorology<sup>12</sup>. Born in 1752 in Aubagne, the latter practiced medicine in his hometown and in La Ciotat, where he appears in the “an VI” as secretary of the municipal Council<sup>13</sup>. He will reach the position of prefect of the Bouches-du-Rhône under Napoléon.

He published in 1785, in Den Haag, a work entitled *Consultations de médecine, et mémoire sur l'île de Gémenos* where he mocked, like Retz, « those loads of idle meteorological observations which fill the new books”. Two years after were edited in Aix-en-Provence his *Aperçu et doutes sur la météorologie appliquée à la médecine*. In the foreword, he claims that he intend to undermine « the unlimited extent that the modern medicine gives to the meteorological system”, “harmful” for “our Art”, or at least “to tighten its limits”<sup>14</sup>. Like Retz, he recommends to turn more the attention towards the “analysis of the foods”.

Why are “so exclusively and so generally” to that “fluid” all the diseases which show “some affinity in their development, some similarity in their symptoms and some universality”?<sup>15</sup> To some extent, Hippocrates, so celebrated in the 18th century, is responsible for that way of thinking. Thus, “he was so convinced that some wind was bringing pest and sterility that he formed a vast project, however fanciful, to raise a big wall between this wind and the country where he was practicing”.

*In the time when the pest was devastating Illyria, we see that great physician ordering that the gorges and the passing places that led to the Illyrian mountains, so that the wind could not go trough those gorges and valleys, and that his country was protected from this epidemic.*

Isn't it ridiculous that, « in each point of the globe, there are physicists and doctors whose main research is concerned with barometers, hygrometers and eudiometers”. “If an epidemic occurs in some spot of one or other hemisphere, they never consider that this disease may find its origin in the bad quality or the criminal falsifications of foods or beverages, in the passions,

---

11 *Op. cit.*, p. 54-55. On the ideas concerning diabetes, see Furdell, Elizabeth Lane, *Fatal Thirst. Diabetes in Britain until Insulin*, Leiden/Boston: Brill, 2009.

12 *Provence historique*, 153/1988, p. 277 .

13 Paris : Méquignon l'aîné, 1779.

14 *Op. cit.* p. 3 sv.

15 *Op. cit.* p. 9-13.

and finally in the physical and moral habits of the inhabitants of that country; as they were becoming estranged from nature”.

To whom does this “tyrannical” extent of meteorology go back? Ramel accuses Paul-Jacques Malouin, who was then exerting his domination in all the sectors of medicine associated to chemistry. Professor at the Collège de France, ordinary physician of the queen, member of the Académie des Sciences as soon as 1744 and of the Royal Society, etc., he was well-known for not appreciating contradiction or criticism. He assigned to the air of the capital the epidemics observed during nine years in the middle of the century. Modernity has consecrated him by allocating him the writing of many articles of the great *Encyclopédie*.

His conception of the disease, Ramel stresses, was inspired by the famous Duhamel Du Monceau, with whom Malouin participated to the enterprise of the *Description des Arts et Métiers* de l'Académie des Sciences, and who applied as soon as 1741 meteorology to agriculture<sup>16</sup>. Collecting many times a day meteorological observations and setting them into columns and lines of open tables, Malouin contributed to the development of that spirit of systematic recording of statistical data considered by M. Foucault as a constitutive element of the “birth of the clinic”. But Ramel judged differently those lists.

*Those collections, as bulky as tedious, are supposed to be help after some centuries our nephews to guess and prophesy, many years in advance, the diseases which will reign every year and every month, perhaps even every week (and why not every day?), in all the countries and even in all the spots of one and the other hemisphere. So, they will keep a treatment always ready to fight successfully those diseases foreseen by temperature that could not vary, according to the meteorological order - order invariable and immutable.*<sup>17</sup>.

Going back to Antiquity, this « meteorological system » has been established in modern times by scholars like Prospero Marziani, dit Martianus, who edited Hippocrates with commentaries<sup>18</sup>, or Thomas Van den Berghe, or Montanus, a Flemish physician who studied in Leuven before he came to Brugge<sup>19</sup>. The latter observed the pest which affected this town in 1666, coming from England and the Low Countries “by infected wools”. “The scourge progressed with an astonishing speed...” Montanus turned out to be a “tireless chief of the health council”, being himself reached by the illness. He wrote the history of this episode in a 1669 book entitled *Qualitas loimodea sive pestis Brugana hippocratico-hermeticè discussa*.

## Ramel and the diseases of the waters

At the beginning of the book published in the “an X” under the title of *De l'influence des marais et des étangs sur la santé de l'homme*, Ramel had written: “In a *Mémoire* printed in 1784 in a periodical [the *Journal de médecine*], I promised to give my Observations on the influence of the marshes and the ponds on the animal economy”<sup>20</sup>. But the latter could not be published: “this

---

16 *Op. cit.* p. 19 ; *Encyclopédie méthodique. Médecine*, t. X, 1821, article « Météorologie », p. 46-48.

17 *Op. cit.* p. 22-23.

18 *Magnus Hippocrates Cous Prosperi Martiani medici romani notationibus explicatus, opus desideratum*, Rome : Mascardi, 1626. - <http://www.biusante.parisdescartes.fr/histmed/medica/cote?00014>

19 *Biographie des hommes remarquables de la Flandre orientale*, Bruges : Vandecasteele-Werbrouck, 1843, t. 1, notice signed « J.D.M. » [J. de Mersemann], p. 345-48.

20 Marseille : Mossy, an X, p. vi.

production of 419 pages, in-12, was already too voluminous". The same announcement appeared once more in 1787 in the *Aperçu et doutes sur la météorologie appliquée à la médecine*. « Some time after this », the Society of Medicine proposed a price upon the question which occupied Ramel for many years: "I was happy to have postponed until today the publication my *Mémoire*".

Like in the *Aperçu*, he criticized the importance given to "the humidity of the air joined to heat" among the endemic diseases in swampy countries and we may imagine that the priority was assigned to "nature" and the quality of feeding<sup>21</sup>. Was mentioned the effect of the water drawn from well close to the sea or to a pond. Ramel was referring to John Pringle and his *Observations on the Diseases of the Army in Camp and Garrison* de 1752, translated in French in 1755<sup>22</sup>. Pringle had stressed how « the farms and smaller villages are crowded with trees, which not only confine, but moisten the air by transpiration »<sup>23</sup>.

*To these causes of endemics, in flat and marshy countries, must be added the impurity of the common water; which being here either collected from rains, and preserved in cisterns, or drawn from wells extremely shallow, is, in hot and dry seasons, soon corrupted.*

Hippocrates himself definitely implicated the stagnant waters of some wells, which spoil "the spleen, the ventricle".

Pringle also refers to Richard Mead - called Dr Kunstrokius by Sterne - author of a *Short Discourse concerning Pestilential Contagion, and the Method to be used to prevent it* (1720) and of *Monita et praecepta medica* (1752). Mead also discussed the observation, "remarked in all times", "that the stinks of stagnating waters" - especially those of the Thames used by the London brewers - corrupted by "putrid exhalations from the earth" and "above all" by "dead Carcasses lying unburied", "have occasioned infectious diseases"<sup>24</sup>. The water of the Thames was also implicated by Joseph Raulin in his 1766 *Traité des fleurs blanches* : « closed in barrels, it contracts after eight days an intolerable stench". "Being carried in wood-barrels into foreign countries, it converted, in eight months, into a liqueur full of blazing spirits"<sup>25</sup>..

In a "Topographie de la ville et de l'hôtel-dieu de Loudun » published by the *Journal de médecine, chirurgie, pharmacie, etc.* in 1787 , « M. Nosereau », physician of that hospital, recorded <sup>26</sup>.

*We do not find in the vicinity of the town any marsh, any pond; the only thing that could inspire some fear concerning the qualities of the atmosphere, it is a cloaca situated at the south-west of the city, which is used as a reservoir for the waters and the refuse. One could believe that the exhalations which rise from this cesspool, where always proliferate vegetable and animal substances in putrefaction, carry in the air a mephitism likely to alterate it;*

---

21 *Op. cit.*, 61.

22 *Observations sur les maladies des armées dans les camps et dans les garnisons, avec un traité sur les substances septiques et anti-septiques, ouvrage traduit de l'anglais sur la seconde édition*, Paris : Ganeau, 1755, I, p. 30. See I. Milne, « Sir John Pringle's *Observations on the Diseases of the Army* - an early scientific account of epidemiology and the prevention of cross infection", *Journal of Epidemiology and Community Health* 59, 2005, p. 966.

23 *Op. cit.*, p. 4. Not mentioned by Janković.

24 *Op. cit.*, p. 3. Not mentioned by Janković.

25 *Traité des fleurs blanches, avec la méthode de les guérir*, Paris : Hérisant, 1766, I, p. 180.

26 JMCP, novembre 1787, p. 174-75.



*but, since three years I am living in that town, I did not notice that the emanations rising at that point exert any influence upon the inhabitants: anyway, the position of that sewer may reassure. It is far from the houses and surrounded by vast fences of vineyards and gardens, which form an immense atmosphere, likely to drown and destroy a large amount of mephitic vapours.*

We have seen that Dehorne's program recommend to consider "the distribution of micro-organisms" and it is not the place to go back here to the history concerning the harmful influence of "miasmas". What could be stressed, first of all, after a quick run of the eyes over the topographical literature, is the increasing - and expected - attention devoted to public hygiene. "M. Rambaud, Médecin Consultant des Armées du Roi, et premier Médecin de l'Hôpital militaire de Sedan », gives in 1782 to the *Journal de médecine militaire* a « Mémoire sur la nature et le traitement des dartres ». This disease not only develop by the « communication with infected persons », but in conditions of dirtiness. "The grime that we leave upon the skin fills the pores, reduces transpiration, pushes it into the cutaneous glands", etc. But Rambaud adds a peculiar observation. It is the reason why, « we see dirty peoples, and especially the Jews in some countries, who shows a pale and livid complexion with all the appearances of cacochymia"<sup>27</sup>.

Thus, another step is crossed in what was designed by Dehorne as « the effects of social life ». « M. Mouillard », major-surgeon of the military hospital of Briançon, acknowledges the same fact in a 1784 issue of the *Journal de médecine militaire*. « The bad foods, the dirtiness, the humid houses favour the scabies: it is proved by the experience and by the example of some provinces where this disease is in a way endemic among the people; almost all the Jews are affected, for the same reasons..."<sup>28</sup>. Of course, those reflections are deeply rooted in the anti-Semitic traditions: it is sufficiently illustrated by the *Jüdische Merkwürdigkeiten - Jewish Oddities* - of Johann Jakob Schudt (1714-1717), who testifies that Jewish butchers wear an apron covered with excrement. In Pierre Boaistuau's *Histoires prodigieuses* of 1569, a Jew poisons a well into which the devil is urinating... A Voltaire's remark could be mentioned here. In a text entitled *Coutume de Franche-Comté, sur l'esclavage imposé à des citoyens par une vieille coutume*<sup>29</sup>, he attacks the custom peculiar to that province where the « title deed is reduced to a perpetual lease " so that the man who was born free could die in the condition of the slave. The transmission of that condition could have the result that it "will populate a full province, a full country with small *slaves by birth*" - what is called a sort of "disease *inherent in the bones*" by the author with whom Voltaire is debating<sup>30</sup>. That "disease" should affect all the inhabitants of the Franche-Comté, "even if they were Turks or Hebrews and it will "resist to all the remedies by Keiser and Agironi". The Dutch entrepreneur Keiser was famous for dominating the anti-venereal market with his *dragées*. He had to compete in this field with the French botanist Barthélemy Agirony, also well-known for his treatment<sup>31</sup>. We could suspect that Voltaire was implicitly referring to the bad health affecting the Jews as it will be registered by the medical

---

27 *Op. cit.*, p. 447.

28 *Op. cit.*, p. 85.

29 *Œuvres*, ed. Beuchot. t. 46 (*Mélanges – Tome X*), Paris : Lefèvre et Didot, 1832, p. 470-83.

30 François-Ignace Dunod de Charnage, who gave in 1733 a book on the *Traité de la mainmorte et des retraits*.

31 Brockliss, Laurence ; Jones, Colin. *The medical world of early modern France*. Oxford : Clarendon, 1997, p. 634-637; Karamanou, Marianna, *Cinq siècles du combat antisyphilitique*, thesis, Athens University, Medicine Faculty, 2012.

topographies. A bit of anti-Semitism, familiar to the philosophe and suggesting some sexual habit, is not excluded.

The types of observations collected by Ramel and the medical topographies were not at all new or original. With regard to the air, they are going to take in his work a form perhaps implying more critically a human intervention. The “atmospheric system” was crossing the medical tradition of the professional diseases, which reached a new era of observation with the famous Bernardo Ramazzini, medicine professor in Modena from 1682 to 1700, who published in that last year his *De morbis artificum diatriba*. The book will be translated in French by Fourcroy in 1777<sup>32</sup>.

### « Let us move to the dirty workshops...»

Ramel then writes:

*In order to prove, first of all, that the air, this necessary element of our existence, does not exert upon the animal body a methodically tyrannical and destructive empire, a constantly oppressive and poisonous influence, let us examine the slow and insensible effects of the air which is considered as the most pernicious and the most harmful. Let us move to the dirty workshops of the craftsman...*

He first mentions the arts and crafts which were most generally considered, during the 18<sup>th</sup> century, as producing bad exhalations:

*The tanners, the leather curriers, the tallow-founders, who, except during the holidays, spend their whole life in an atmosphere loaded with putrid and mephistic emanations, whose smells sufficiently characterizes the nature - could they push so far their carrier, and do you think that they could avoid, since the first days, a serious and mortal illness ...?*

To those crafts are assimilated the activities of the glassworkers, locksmiths and “all the blacksmiths” who “spend their life near their forges and crucibles”<sup>33</sup>. Where do we see that there is any “acute disease attached to those jobs”? If those workers suffer from to « inflammatory diseases », it is because they « expose themselves in a sweat and carelessly to the outside air”. We could be surprised to read after this a rather detailed reference to “the dirty workshops of the hat-makers”<sup>34</sup>. Ramel urges the authors obsessed by the ravages of the “bad air” to “place there their eudiometers”, “if they have the courage and the strength”.

*What a fetid smoke ! what a stink! what an atmosphere! what an awful mix of acid, mephistic, inflammable miasmas, of particles of hot water saturated with mercury, emanations of the coal that they burn and of the acid dregs of wine!*

---

32 Felton, J.S. “The heritage of Bernardino Ramazzini“, *Occupational medicine* 47/3, 1997. p. 167-79 - on line on [ocmed.oxfordjournals.org](http://ocmed.oxfordjournals.org).; Nosko, Jan, « De morbis artificum diatriba by Bernardino Ramazzini (The tercentenary of the first edition) [in Polish]”, 2000 - On line on *Med Pr.* 51/6, 689-95; Skrobonja, Ante, Kontosic, Ivica, « Bernardino Ramazzini’s *De morbis artificum diatriba* or three hundred years from the beginning of modern occupational medicine », *Arh Hig Rada Toksikol* 53, **2002**, p.31-36, etc.

33 *Op. cit.*, p. 50.

34 *Op. cit.*, p. 48-49.

Such an atmospheric should normally produce quick effects, while “the hat-makers are suffering from some slow diseases, and especially by pulmonary consumption”: kind of “chronic” disorder linked to a predisposition acting in a “progressive, imperceptible way, and with far less energy and speed than it is supposed”. Should a more real cause be invoked? “Everybody knows the diet of the hat-makers and their appeal for wine...” It is clear that Ramel is referring here to a prize assigned in 1784 to a dissertation “determining the nature and causes of the diseases of the workers employed in the factories of hats”, award attributed by the Royal Academy of Sciences. The *Journal de médecine* of 1783 tells that the prize has been created by « a citizen wishing to remain unknown”<sup>35</sup>. The candidates had to submit their work to the “Life Secretary of the Society”, Condorcet.

Thus, Ramel is convinced that he has sufficiently demonstrated that air, even « when it is the most loaded with emanations”, does not create any disease among the most exposed workers, but also among the people living around the workshops or factories. Those crafts cannot corrupt “the free and pure air of the countryside, the villages and the small towns”, which remains “very fit for keeping the man healthy and vigorous”. Straightaway, the question of collective health was inscribed in a wider prospect than the circumsphere of the working places.

### **From inside to outside: the three steps of pollution**

Sebastien Mercier writes in his famous *Tableau de Paris* (1781), in the chapter entitled “Determination of the custom: How does the population living in big towns where are established those workshops endure such infections?

*If somebody asks : how do we stay in this dirty den of all the vices and all the troubles piled up the ones upon the others, in the middle of an air poisoned by a thousand of putrid vapors; among the butcher’s shops, the cemeteries, the hospitals, the sewers, the streams of urine, the heaps of feces, the shops of dyers, tanners, curriers; in the middle of the constant smoke of this unbelievable amount of wood, and of the vapor of all that coal; in the middle of the arsenical, sulfurous, bituminous parts which continually rise up from the factories where copper and metals are tormented (...)? I shall answer that custom familiarizes the Parisians with the humid fogs, the inflammatory vapors and the obnoxious mud.*<sup>36</sup>

Ramel, in accordance to his theory, had an opinion rather different from Mercier concerning the effects of coal.

*Those who draw the coal of ground from the deep quarries which contain them, the men who make the ordinary and vegetable coal and who receive its first emanations, are the strongest and the most vigorous men that we know.*<sup>37</sup>

---

35 *JM*, t. 60, July 1783, p. 85-87.

36 *Op. cit.*, p. 62 sv. But Mercier also wrote: “So much smoke! So many flames ! What an inundation of vapors and fumes ! (...) This perhaps explains the lively and unserious outlook that distinguishes the Parisians, this distractedness, that turn of mind which is unique to them. Or, if it is not these living particles that set their minds vibrating and thus give rise to ideas, surely their eyes perpetually struck by this infinite number of arts, of trades, of jobs, of different occupations, cannot avoid being opened at an early age, and learning to see the meaning of things at an age when everywhere people have not begun to reflect on such matters”, etc. Quoted by Jeremy D. Popkin (ed.) in *Panorama of Paris. Selections from Le Tableau de Paris. Louis-Sebastien Mercier*, based on the translation by Helen Simpson, edited with a new preface and translations of additional articles by J. P., Pennsylvania State Univ. Press, 1999, p. 19-30.

37 *Op. cit.*, p. 50.

Ramel is here reproducing the type of arguments developed by the physician Jean-François Morand, librarian of the Academy of the Sciences (1724-1784). The latter got some fame by sustaining, against German Friedrich Hoffmann, professor at Halle, that coal was innocuous for those who extract it and in domestic use. Morand published from 1768 to 1779 an *Art of exploiting the coal mines* which resulted from an inquiry led in the Liège area in 1761<sup>38</sup>. At first sight, we could believe that the « dust, always in motion and very abundant in some mines », constitutes a main factor of professional disease, when it affects the bronchi<sup>39</sup>. But, on the occasion of a thesis defended by one of Morand's students, the librarian appealed in his favor to a personal experiment of the industry. "He made a painting of the contentment and cheerfulness which characterize the Liège coal miners" (this story is told by Parmentier<sup>40</sup>). They give the image of healthy and privileged workers: they must be compared to "the peasants from some provinces, who have no wood for heating" or to "the poor living in big towns".

By shifting from the producers to the consumers, Morand crossed a second step in the debate concerning the "charbon de terre". He developed this other aspect of the question in a 1770 volume entitled (in French) *Reports on the nature, effects, properties and advantages of the fire of treated coal, to be used comfortably, economically and without disadvantage, for heating and any domestic use*<sup>41</sup>. Morand mentions "the example of a lot of peoples who use this heating, and do not feel any inconvenience".

A third step will be crossed when some authors extend the problem of nuisance to the extra-domestic world. In fact, an old tradition called into question or condemned coal as damaging for the urban environment. As using for a long time - far before France - the "ground coal" in domestic heating, the country of Liège was a special target of this charge. As soon as the beginning of the 17<sup>th</sup> century, the French traveler Philippe de Hurges wrote that, as he was approaching Liège, "we started to feel the same air as in Paris, it means an air stench and rough, caused by the muds that the coal-carts produce and maintain"<sup>42</sup>.

That kind of complaint had of course to increase with the rise of industrial revolution. The environmental concern was more insistent in the article "Workshops (Insalubrity)" by Nicolas-Pierre Gilbert, published in the tenth volume of the "Medicine" collection of the *Encyclopédie méthodique* (1821)<sup>43</sup>. The article is deeply inspired by François Emmanuel Fodéré's *Traité de médecine légale et d'hygiène publique*, first printed in 1798 and reprinted in six volumes in 1813-1815.

---

38 *Art d'exploiter les mines de charbon de terre*, without place, 1768-1779. See Florkin, Marcel, *Médecine et médecins au pays de Liège. II. Un prince, deux préfets*, Liège : Vaillant-Carmanne, 1957, p. 67-69 ; Id., « L'apport scientifique dans la Wallonie aux XVII<sup>e</sup> et XVIII<sup>e</sup> siècles », *La Wallonie, le pays et les hommes. II. Lettres-arts-culture*, Bruxelles : La Renaissance du Livre, 1978, p. 367-388 ; Kelecom, Jean, « Jean-François-Clément Morand », *ibid.*, notice 160.

39 *Op. cit.*, Seconde partie, quatrième section, p. 977 sv., publié par les soins de l'abbé Rozier : « Recherches et conseils de médecine sur les maladies et accidents qui mettent en danger la santé et la vie des ouvriers des mines » ; « Incommodités ou maladies que les houilleurs peuvent contracter à la longue ».

40 Related in Model, Johann Georg, *Récréations physiques, économiques et chimiques, ouvrage traduit de l'allemand, avec des observations et des additions, par M. Parmentier*, Paris : Monory, 1774, p. 488-89.

41 Paris : Delalain, 1770.

42 Quoted by Piron, Maurice, « Pays de Liège », *Regards venus d'ailleurs sur Bruxelles et la Wallonie*, Dir. Georges Sion, Bruxelles : Trois Arches, 1980, p.134.

43 « « Métiers (Insalubrité) », *Encyclopédie méthodique, médecine, par une société de médecins*, t. X, Paris : Vve Agasse, 1821, p. 62 sv.

Chief-physician in the Great Army, Gilbert provided those observations in the section devoted to the « Factory of guts strings, tanneries, etc. ».

*It is also advisable that must be moved away from the circle of towns-areas the fullers-workshops, the factories of guts strings, the shops held by tanners, leather-workers, dressers, and all the factories where are employed animal materials in a more or less advanced state of decay. The sense of smell is first unpleasantly affected ; the relationships between the inferior organs and those of smell and taste soon make accidents of all type.*

From a wider environmental concern, he also wrote that “the mines where are executed the metalworks, and especially those concerned by the cast iron, may be harmful to the health of the people living in the neighbouring houses”. The reason of this harm alternately lies in the “too large quantity of carbon dioxide which mixes with the atmosphere and in “the volatilization of the metal materials that are treated”. Some measures must be taken: “It is important to isolate the factories where those materials are treated on a large scale by fire, and especially the laboratories where are prepared the mercurial salts, the soft mercurial muriate, the over-oxygenated muriate of mercury, the calcination of cobalt for the evaporation of arsenic, etc. etc.”<sup>44</sup>. That does not sound so trivial.

---

44 *Loc. cit.*, p. 63.

## Authors



**Muriel Collart** is scientific collaborator of the Free University Brussels (sociAMM / Histoire, arts, cultures des SOCIÉTÉS Anciennes, Médiévales et Modernes) and member of the Scientific Committee of the collection “Météos” / Editions Hermann (Paris). She has published Théodore-A. Mann. Mémoires sur les grandes gelées et leurs effets, où l’on essaye de déterminer ce qu’il faut croire de leur retour périodique, et de la gradation en plus ou moins du froid de notre globe, Paris : Hermann, 2012 ; « Prendre la mesure du temps : le réseau météorologique international de James Jurin (1723-1735) », in La communication en Europe : de

l’âge classique au siècle des Lumières, ed. P.-Y. Beaurepaire, Paris : Belin, 2014; « Une polémique spadoise. L’appel au public du Chevalier Limbourg contre Lord Hamilton dans l’affaire des volcans éteints », in Spa, carrefour de l’Europe des Lumières. Les hôtes de la cité thermale au XVIIIe siècle, ed. Daniel Droixhe and Muriel Collart, Paris : Hermann, 2013, etc.

muriel.collart@skynet.be



**Daniel Droixhe** is Emeritus Professor of the Free University Brussels, fellow of the Liège University and member of the Belgian Academy of French Language and Literature. He has published more than 150 works on various historical and linguistic subjects (<http://orbi.ulg.ac.be/simple-search?query=droixhe>).

daniel.droixhe@ulg.ac.be