

What kind of water is good enough to drink? The evolution of perceptions about drinking water in Paris from modern to contemporary period

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Abstract Today, a knowledge of how consumers perceive the water that comes out of their taps is essential to understanding the evolution of domestic uses of water and water availability. This paper examines changes in the drinking water perceptions of the inhabitants of Paris, France from the seventeenth to the twentieth century, taking into account the strong influence of prevailing political, economic, technological, health and social context over time. This original anthropo-historical study explores consumer perceptions of the quality of water and compares the manner in which those perceptions are constructed with the approach taken by scientists to analyzing the resource. What kind of water is “good”? Do consumers have a choice? Indeed, it is often on the basis of taste and smell, as well as visual and tactile memory that consumers determine individual criteria used to judge the quality of water. Three major periods highlight the evolution of perception about drinking water in Paris: observing water, monitoring water, mastering water.

Keywords Drinking water · Perception · Water quality · Uses · Paris · Seventeenth-twentieth century

Introduction

While the water now distributed in major cities such as Paris meets precisely defined quality standards, the perceptions of individual consumers concerning the resource vary: some find it good, others do not like the taste, and some even think that it has nefarious

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effects on their health. This disjunction between consumer perceptions and the results generated by objective scientific analysis has led to the development of new practices (Euzen 2007). In order to understand contemporary behaviors, it is necessary to analyze how perceptions concerning the quality of water have changed over time.¹ In fact, those perceptions are at the heart of a complex and specific dynamic which evolves in response to transformations in the natural and urban milieus, sanitary concerns and socio-economic dynamics, and scientific discoveries and technological innovations. The act of drinking water does not merely fulfill a biological need; it is also a kind of ritual expressing the most fundamental values of a specific culture or of a particular era (Poulain 2002).

The aim of this article is to gain an understanding of how perceptions concerning the quality of water are elaborated by examining their evolution from the seventeenth-century to the present day. The main texts written in the seventh century are an antic and medieval knowledge heritages (Vitruve 25BJC, Palissy 1580). Starting in the seventeenth-century, domestic water distribution systems were gradually introduced in a number of major European cities including Paris (Dickinson 1954; Robins 1946; Evans 1987; Hamlin 1990; Reid 1991; Melosi 2000; Jenner 2003). In terms of scale and organization and of the construction of rationalized, inter-connected networks, the new distribution systems were different from anything that had preceded them. These developments prompted contemporary scientists, especially in France, to produce a substantial amount of literature on the nature and quality of water to be supplied to the general population (Parmentier 1787; Coiffier 1807). In this context, Paris is particularly relevant in that, throughout the period under discussion, it provides an example of a major city in which various issues, projects and approaches to the consumption and distribution of “high quality water” coalesce.

Using this significant example as a point of departure, we will attempt to address a number of different issues. How do perceptions about drinking water in Paris change over the course of time? What influences are consumers subject to when they decide what constitutes “good water”? How does the successive appropriation of knowledge about drinking water on the part of a series of actors (scientists, doctors, engineers, entrepreneurs, and, indeed consumers themselves) influence the perceptions of water drinkers in Paris?

The study is based on an analysis of archival texts dating from the seventeenth to the twentieth centuries. Most of the texts are original, primary and secondary sources. They were written by doctors, engineers, industrialists, scientists and chroniclers. Works by historians (Guillaume 1983; Roche 1984; Vigarello 1985; Claude 1989; Goubert 1986; Merrien 1993; Cébron de Lisle 1991; Haghe 1998; Barles 1999) on the issue of public hygiene in the nineteenth-century were also explored. Combining the perspectives of an anthropologist and a geographer, a detailed analysis of this corpus demonstrates that the criteria employed to judge drinking water form part of a dynamic continuity in which a number of invariant factors nevertheless emerge. Even that, three major periods highlights the evolution of perception about drinking water in Paris: Observing water, monitoring water and mastering water.

¹ According to Paul Veyne, a disciple of Michel Foucault, the work of the historian does not consist of providing explanations for particular practices, but of explaining the social determinants which influence their emergence and modes of functioning (Veyne 1971).

Empirical knowledge: water as an object of observation

Water in nature

From ancient times, men and women have used their knowledge of the environment to distinguish between what is good and what is bad, between what is pure and what is impure or contaminated (Bachelard 1942; Douglas 1966). Hippocrates explained that the quality of the milieu, the orientation of the land, and the speed, direction and frequency of the winds influenced the quality of water (Staszak 1995). Natural determinism of this kind was to have a profound influence of scientists and doctors up until the nineteenth-century. For example, the doctor and man of science, Jacques Besson, claimed that the quality of water depended on “a bountiful presence of vines, clover and cress, and an absence of vermin” which, since no unpleasant smells were generated, created a favorable milieu. Besson also maintained that water filtered through “pure” silt could not be other than of good quality since it would be at once tasteless and odorless (Besson 1569).

Empirical knowledge was also taken into account in evaluating the quality of water. For Father Jean François its quality could be gauged by observing the health and tone of skin of those who drank it (Father Jean François 1665). According to the scientist, Parmentier, water from the Seine met the standards defined by Jean François since it could be used “without the blooming complexions of the most amiable and prettiest women in France undergoing the slightest alteration no matter how many times they use it, especially in the ablutions in which they indulge in order to nurture the suppleness and flexibility of their sensitive and delicate skins.” (Parmentier 1787). To ensure that water was safe it was necessary to interpret information associated with its place of origin and the health of those who used it, fundamentals which led to the development of an authentic semiological system based on the smell and taste of water and the visual appearance of places and people.

During this period, experiments based on alchemy were also employed in the analysis of favorable natural milieus. Besson suggested an approach to analyzing water quality based on procedures used by alchemists to measure the purity of gold chloride, a substance referred to at the time as “drinkable gold” and used as a potion or elixir. He explained that water is drinkable when, having been filtered a number of times through several layers of pure sand, silt and clay, the elements in the filter are completely pure, or, in other words, colorless, odorless and without any unpleasant taste, with no traces of sulfur, bitumen or salinity,² and provoking no sensations of sourness or bitterness (Besson 1569). A similar “natural” filtration technique was to be exploited in Paris from the mid-eighteenth-century by companies selling filtered water and by domestic filter salesmen (Amy 1749, 1751). Indeed, its “natural” characteristics were frequently used as a sales argument.

Water and the senses

As well as perceptions associated with an empirical knowledge of the natural milieu and to early pre-scientific experiments, observations and experiences based on sensorial perceptions also played a part in the gradual construction of individual and collective knowledge about water. Sight, smell, taste and touch made it possible to elaborate, in an empirical fashion, a hierarchy of different kinds of water based on the sensations they produced as they were being consumed. As early as the sixteenth-century, treatises and learned texts on

² Salt content.

water included judgment criteria established by water drinkers; indeed, they represented the basis of a standard for drinking water which remains valid to this day. For Father Jean-François, water was judged according to the presence, or otherwise, of taste, smell and color, as well as on temperature. He even claimed that “there are those who taste and distinguish between different waters as others do with wine” (Jean-François 1665). This kind of terminology was still being used in the seventeenth-century. The author of a text published in 1684 stated that a thing can be described as “tasting of water” when it was bereft of “both saltiness and flavor” (Furetière 1684). In the eighteenth-century, olfaction began to play a central role in evaluating the quality of water. The bourgeoisie detested the unpleasant smells associated with insalubrity and contagion (Corbin 1986). The stench emanating from local rivers, particularly the Bièvre, triggered mass panic. In 1790, Doctor Halle meticulously listed the different kinds of smells emanating from the banks of the Seine in Paris as part of his appraisal of the river’s water (Halle 1790). In 1762, the decision was taken to stop using water from the foul-smelling River Yvette to supply the needs of the Parisian population due as a source of supply the population of Paris (Deparcieux 1768).

Judgments about the quality of water were based not only on sensorial perceptions, but also on the intrinsic qualities of water used for culinary purposes. In his medical thesis, published in 1807, Guillaume Coiffier defined drinkable water as the kind that could be “easily boiled without becoming cloudy or revealing the presence of foreign bodies; be used for cooking vegetables, herbs and meat without their becoming hard; which does not spoil the teeth, passes easily though the stomach (...) and encourages digestion ...” (Coiffier 1807). Later, the famous French gastronome, Brillat-Savarin, summed up the situation, opining that only limpid, clear, cool and aerated water free of taste and smell was good enough to drink (Brillat-Savarin 1838).

Different places, different types of water

The place from which the resource derived was also an influential factor in terms of the perception of “good water.” Specific values were attributed to its origin, values that were sometimes, over the course of time, the object of controversies and differing interpretations. Generally, water from springs, streams and rivers was thought of as superior to water from tanks, wells and swamps, which was regarded as less salubrious (Jean-François 1665; Besson 1569; Palissy 1580; Deparcieux 1768; Parmentier 1787; Coiffier 1807). Nevertheless, especially insofar as the Seine in Paris was concerned, this classificatory approach was gradually called into question. Although, as it flowed through the French capital, water from the Seine served a broad range of purposes, the quality of the river’s abundant and easily accessible water long went practically unquestioned. In the early nineteenth-century, Doctor Coiffier claimed that it was “generally recognized to be of very high quality” both on its way into and out of the city. However, from the late eighteenth-century, some commentators started to air the view that water from the Seine, especially from the areas near the river’s banks, was suspect (Hallé 1789). In the 1830s, the river was increasingly used as an outlet for waste. Urban growth and the dawn of industrialization prompted a gradual change in the urban water cycle and the process of recycling urban waste. The pollution caused had a marked effect on the perception of the quality of Seine water, which was viewed with increasing suspicion (Tissandier 1867). Perceptions of the quality of river water were undermined by industrialists who suggested that it should be filtered before use, as well as by chemists and, later, doctors who measured its nefarious effects on health.

Table 1 Estimates of water consumption in Paris in the eighteenth century—Sources

Years	Population of Paris ^a	Total water consumption ^b	
1700	510 000 inhabitants	3,570 m ³ /day	1,303,050 m ³ /year
1750	570 000 inhabitants	3,990 m ³ /day	1,456 350 m ³ /year
1789	620,000 inhabitants	4,340 m ³ /day	1,584,100 m ³ /year

^a Dupaquier (1988)

^b Evaluation based on the work of Guillerme André (1990) who estimates that the average daily consumption per Parisians in 1795 was 7 l

Well water, which was a source of supply for Parisians up until the 1880s,³ was considered by most people to be cold, stagnant, untreated, and heavier and more viscous than river water. Moreover, in every neighborhood of the city, disputes involving well owners and owners of cesspools were common, with the former accusing the latter of infecting their water (Pardaihé-Galabrun 1988). For Doctor Coiffier, “well water should not be consumed either by human beings or animals unless it has been treated beforehand in the prescribed manner. (...) Paris gardeners only use well water, which ensures that some plants flower later after storm rain has fallen. It is ill suited to cooking meat and, especially, vegetables; it will not dissolve soap, and incommodes those who are not used to it” (Coiffier 1807). Later, in the nineteenth-century, analyses undertaken by pharmacists demonstrated that well water contained large quantities of minerals which had an adverse effect on health. Thus, for several 100 years, it was generally considered that, in large cities, well water was not fit for human consumption. In Paris such views fuelled recriminations against local bakers who were accused of using well water. However, according to Eugène Belgrand, who was made responsible in 1850 for developing the city’s first generalized water distribution system, the poorest section of the population had no choice but to drink from that source (Belgrand 1872).

Confronted by such constraints, which obliged them to alter their traditional views and beliefs, consumers were sometimes forced to employ techniques that would, at least to some degree, improve the quality of water. Filtration, decanting and/or aeration, and adding white vinegar were just some of the methods used by Parisians up until the end of the nineteenth-century when residential buildings were first linked to the water distribution system (Smith 1801; Coiffier 1807; Belgrand 1872).

Filtering water

In the eighteenth-century, acceleration in the urban growth rate led to an increase in demand for water (Table 1).

The needs of the population had to be met. The question of quality took a backseat to the problem of quantity. The late eighteenth-century witnessed the emergence of new financial and economic issues which prompted a variety of responses from different economic actors (Jenner 2003). The companies run by the Perrier brothers, who set up the world’s first commercial water distribution network, provide a good example of this phenomenon. In effect, the Perriers were more concerned with increasing profits by boosting volume sales than with optimizing the quality of the water they distributed, unlike their rivals, the Vachette brothers, who sold filtered Seine water (Vachette 1791). As their

³ In 1871, a list of 30,000 wells was drawn up during the Prussian army’s siege of Paris.

value became increasingly evident, the popularity of filtration techniques grew, to the point where they were regarded as symbols of modernity and social distinction (Euzen and Haghe 2007). In 1783, the journalist and playwright Sébastien Mercier opined that the sale of clarified and filtered water from the Seine was an astonishing innovation (Mercier 1793). These new purification techniques, which quickly became part of people's everyday routine, altered consumer perceptions of drinking water. Indeed, only 40 years later, in 1820, another chronicler, Etienne de Jouy, asserted that the fact that a good half of the Paris population drank unfiltered water at a time when the practice was already generalized in other parts of Europe was nothing less than archaic (de Jouy 1812).

The empirical approach taken by water drinkers evolved over the course of time. Nevertheless, that approach was gradually called into question by scientists who eventually claimed ownership of the issue, appropriating for themselves not only water destined for human consumption, but also all the water in the city that was either stagnant, flowing or prone to evaporation (Barles 1999).

Perceptions of water influenced by scientific and technical knowledge: monitoring water

From chemical analysis ... to the emergence of tools for measuring the quality of water

1840 marked a rupture in terms of the perception of water and the uses to which it was put. The development of new distribution networks around this time made it possible to supply water to the courtyards of apartment buildings. (Water was first supplied to individual apartments in the early twentieth-century). Mastering the logistics of water, as well as analyzing, treating and distributing it, became priorities in terms of urban sanitation and public health. Thus, water, a resource that everyone was attempting to appropriate, gradually became a technological object.

Research carried out by scientists in the late eighteenth-century marked the first stage in this process of appropriation of knowledge about water. It was during this period that Cavendish, Lavoisier, Laplace and Meunier discovered the chemical composition of the liquid. H_2O was born. Based on the identification and quantification of the physico-chemical properties of water, chemists and pharmacists differentiated between various types of water based on the concentration of mineral and organic substances contained in them. These scientists claimed that their research enabled them to identify the types of water that were most appropriate for consumption and to introduce new parameters to define the resource and, consequently, the perceptions that people had of it. It was during this period that a number of chemical analytical procedures were developed (Lestel 2005; Carbonaro-Lestel and Meybeck 2009) and new tools such as the hydrometer were first used to determine the calcium and magnesium content of water (Boutron and Boudet 1856; Poggiale 1856). Work of this kind contributed to defining specific indicators which made it possible to monitor the quality of water in the Seine river basin and measure variations in the quality of the river's water along its course throughout the year. Doctors maintained that an annual report was indispensable if public health concerns were to be properly addressed. The first Annual Report on the Rivers of France was published in 1851 by scientists from the National Academy of Medicine and the National Central Society of Agriculture. Mindful of theories about the atmospheric cycle of water, the authors paid a good deal of attention to the issue of pollution. An analysis of samples taken from the

Seine revealed that there was a higher concentration of “putrid materials” and “sludgy substances” downstream of the city than there was upstream.

Aquatic life, an object of scientific study

The decline, revealed by scientific analyses, in the quality of river water in the Paris agglomeration associated with the development of industrial and urban activities over the course of the nineteenth-century (Barles 2007) did not go unnoticed by the city’s inhabitants, whose views of water were consequently modified. A focus of intense social activity, the banks of the Seine were lined with *ginguettes* (traditional restaurants), boating houses, laundries and public baths (Guillerme André 1990; Backouche 2000; Farge 2004). The pollution causing not only bad smells but also massive mortality in the fish population in the Seine and the rivers flowing through the capital and its suburbs (the Bièvre, the Croult, the Orge, the Marne, etc.) was thus a matter of public concern (Gérardin 1875). It seemed that chemical analysis alone was insufficient for evaluating the quality of water and the environment. Although water from the Ourcq Canal used to supply part of the capital was, according to measurements designed to define its degree of hardness, was potable, Figuiet⁴ felt justified in describing it as “liquid manure” (Figuiet 1873). In 1863, Peligot, a professor of chemistry, had already called into question degree of hardness as a criterion for measuring the quality of water (Lestel 2005). New approaches based on biological analysis were required. In 1869, at a session of the French Academy of Sciences, the chemist, J. B. Dumas, suggested that there was no better way of defining the character of water than by observing whether or not it could support fish and aquatic plants: “Do the fish die? Do my plants perish? The character of the water is certain; it is infected and cannot be used for domestic purposes.”⁵ It was the doctor and chemist Gérardin who, in the nineteenth-century, first took into account the environment in his analyses of the quality of water destined for domestic use. He demonstrated that the distinction between safe and infected water should not be based exclusively “on either color, odor or taste, nor on chemical analysis. Water is safe to drink when advanced flora and fauna are able to live in it” (Gérardin 1875). The chemist’s observations led him to establish a relationship between the quality of water and the amount of oxygen it contained. This new criterion enabled Gérardin, along with Boudet, to demonstrate the harmful influence sewage flowing into the Seine at Clichy, upstream of Paris, on the quality of the river’s water (Lestel 2005).

Increasingly taking into account human activity and its influence on the environment, analytical techniques became ever more sophisticated. Whereas scientists had previously focused on analyzing the chemical components of H₂O, now the emphasis had switched to examining the quality of water in aquatic milieus.

Towards a standardization of the quality of drinking water

The degree to which various methods and analytical approaches overlapped gradually led to the definition of thresholds defining the quality of domestic water and specific norms concerning water used for human consumption. In 1885, Doctor G. Poucet established a table for the French Advisory Committee on Public Health categorizing water according to a number of different parameters, distinguishing very pure water, drinking water, suspect

⁴ Figuiet, a professor at the Paris School of Medicine, is best known for his educational books which were, at the time, as popular as the novels of Jules Verne.

⁵ French Academy of Sciences, Paris. Session of November 29, 1869.

water and bad water (Bechmann 1905). During this period, the scientific community's perspective on the issue of drinking water was to be altered by the emergence of the science of bacteriology. Municipal Departments of Hygiene were charged with monitoring drinking water with a view to preventing the outbreak of epidemics. Developing Paris's sanitary networks and ensuring the quality of drinking water became a priority for the public authorities and hygiene scientists alike (Goubert 1986).

By the end of the nineteenth-century, Pasteur and Koch's work on bacterial contamination prompted a renewed interest in hygiene, water and water quality, concerns which were to become guiding principles in matters of public health (Lederberg 2000). In addition to chemical evaluations, bacteriological analyses made it possible to identify the presence of microbes and microorganisms. In 1885, a link was established between the quality of drinking water and typhoid fever (Hardy 1993). In 1897, Doctor Imbeaux emphasized that "blackish water with a foul smell and a disgusting taste" should be immediately rejected.

Thus, in spite of Imbeaux's admonition that "analyzing water either chemically or bacteriologically is no mean feat", the growth of scientific knowledge based on chemical and bacteriological analyses enabled hygiene experts, like those working for the Paris Hygiene Department, to effectively gauge the quality of different types of water.

According to the French Superior Council for Public Hygiene, "drinking water must not contain any mineral or organic substance capable of harming those consuming it." However, scientists maintained a vigilant stance, taking the view that the fact that water was limpid and bacteriologically pure did not guarantee that it was safe to drink.

From 1840 on, the knowledge generated by scientists and engineers, who had appropriated expertise about water for themselves, provided a framework for the elaboration of public health policy. But their increasing influence also had the effect of reducing the importance accorded to the views of consumers. Indeed, it was no longer up to consumers to decide whether or not water was "good"; analyses provided by scientists would take care of that task for them.

Parisians and drinking water: mastering water

Changing perceptions

Up until the beginning of the nineteenth-century, Parisians based their perception of the water they drank on their knowledge of its origin. They constructed a spectrum of notions concerning the quality of water from the Seine, water from wells and public fountains, water sold by vendors and rainwater collected in tanks. They chose the source of the water depending on the uses it was put and the money they had at their disposal to pay for it. Experience and sensorial perceptions were long employed to select what was regarded as "good water", the kind that would not provoke illness; the kind that it would be advisable to decanter or filter; the kind to which certain substances should be added in order to improve its quality. For example, the pollution of the Seine first observed in the early nineteenth-century encouraged people to opt for commercial filter fountains sold by water sellers. Furthermore, since they no longer knew where their water was coming from, Parisians who wanted to be certain that the water they were drinking was of an adequate quality often used individual filtration fountains, items which became an increasingly common feature in homes from around 1850. Indeed, doctors counseled against the use of Seine water. Visitors to the city should, they said, be especially aware of the warning since

they were more vulnerable to the harmful effects of the river's water than were the city's inhabitants (Euzen and Haghe 2007).

From the mid-nineteenth-century, as distribution networks were improved and extended, Parisians had increasingly less choice in terms of the water they consumed. Some had recourse to a default position. In order to avoid water that was imposed on them and which they considered to be of questionable quality, they opted for wine instead. This kind of attitude in regard to newly introduced water supplies prompted a sharp rise in wine consumption in France in the late nineteenth-century. During this period, wine, unlike water, was considered to be hygienic, in that it did not act as a vehicle for dangerous germs (Nourrisson 1990; Marty 2006).

While consumers were gradually deprived of any choice in the matter of the water they drank, scientific experts, be they chemists, pharmacists, doctors or engineers, appropriated the sector for themselves by developing ever more efficient analytical techniques. Water was subjected to a growing number of quality control procedures. Drinking water came to be thought of as a technological object, a kind of industrial food product (Frioux 2007). This way of thinking about water has survived to the present day with the growth of an increasingly complex technological water sector, the implementation of myriad norms and standards, the introduction of ever more sophisticated analytical techniques and, in the early twenty-first century, by the governmental application of the precautionary principle.

The return of individual expertise

Today, thanks to the existence of a generalized water distribution network which meets current norms, Parisians have access to a supply of water which is at once safe and pleasant to drink. However, while in 2007, over 90 % of the city's inhabitants claimed that they were satisfied with the quality of their tap water, only 83 % of them drank it on a regular basis. In fact, 47 % of those who consumed tap water on a regular basis also drank bottled water, while 42 % of respondents claimed that they did not like the taste of their tap water (Euzen 2007). Thus, in spite of improvements in techniques for analyzing water and the introduction of norms based on a wide spectrum of technical parameters,⁶ consumers still use sensorial impressions before deciding what they drink (Euzen 2002). Today, the positive quality most readily associated with tap water is its lack of taste, a phenomenon reminiscent of the idea expressed by Brillat-Savarin in the early nineteenth-century that "an insipid drink, like a glass of water, has neither taste nor after-taste. As an experience, it is insignificant; one drinks it and that's all" (Brillat-Savarin 1838).

In increasingly demanding times, consumers who do not appreciate the taste of tap water have a number of alternatives at their disposal. The development of the bottled water market⁷ means that they can now choose the kind of water they prefer (Euzen 2006;

⁶ Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption refers to 53 different parameters.

⁷ In France, from the 16th century, bottled water is medical water. The medical quality, which depends on the mineral composition, related to the source origin, was predominant at this time. From 1740, bottled filter water from the Seine is sold to Parisians who are looking for purified water. In France, the bottled water industry has grown dramatically since the 1950s. Two main types of bottled water are commercialized: *mineral water* which are authorized by medicine academy and *source water* which is potable water. Between 1947 and 1998, the industry expanded by a factor of just under twenty, rising from 270 million liters to 5.5 billion liters per year. (*Energies et matières premières*, Quarterly Letter, No. 10, 4th Quarter 1999). Between 1944 and 1994, consumption rose from an annual 6 liters per inhabitant to 105 liters (Marty 2006).

Marty 2008). But consumers are also subject, via the media (Zhao 2009), to advertising campaigns launched by companies extolling, amongst other things, the origin, chemical make-up, positive health effects, and weight loss advantages of their products.

Thus by selecting a particular bottle of mineral water at the expense of another, consumers are able to reappropriate the vitality associated with the resource, meeting both their needs and, importantly, assuaging their desires. As Roland Barthes noted, food is not merely “a collection of products (...). It is also a system of communication, a body of images, a protocol of usages” (Barthes 1961; Benito and Enrique 2005). Human beings project their desires onto this alimentary product (Fischler 1990; Hubert 2001; Poulain 2002; Marty 2006; Regnier 2009). For example, the choice of water from the Alps will be informed by images of an immaculate mountain landscape and the natural environment that it represents (Bachelard 1942). Consumers are able to break free from the public distribution network and personally reappropriate the water they drink by turning to private sector companies which, in turn, exert an influence their choice (Marty 2008). Those who, rather than purchasing bottled water, with all the lifestyle connotations associated with it, prefer instead to filter their tap water, either use water filters or install a device in the plumbing system of their homes.⁸ These various alternatives, often sold on the premise of the supposed inferiority of tap water, encourage people to think of water as an object of consumption which must respond to specific individual quality criteria. Such alternatives are consonant with new attitudes to food consumption that started to emerge in France in the 1970s. Food was no longer merely a source of energy; people were encouraged to learn what foods to select, to vary their diet, to choose original products, to be discriminating and, not least, to minimize health risks (Bauer 1960; Bettman 1973; Bettman et al. 1998; Fischler 1999; Rochefort 2001).

Conclusion

The article has demonstrated that Parisians apply a range of criteria, which develop and evolve over time, to the ways in which they perceive and appreciate drinking water. The experience of living in a large, urbanized city has gradually distanced its inhabitants from natural and aquatic environments, triggering the development of new kinds of relationship with the natural milieu. Sensorial perceptions continue to play an important role in decisions about the quality of water. Since the seventeenth-century, taste and smell, color, limpidness and freshness have been the main criteria on which choices have been made. People base their appreciation of water on their perceived knowledge of its origin and the quality of the environment from which it derives. Prior to the eighteenth-century, when scientists and engineers began to define health norms, people preferred water from dynamic rather than stagnant sources. Individual consumers fell back on their own personal experience in order to decide which water was safe to drink. Such indicators have evolved over the course of time in line with people’s individual perceptions, experience, education, knowledge and beliefs.

The relationship between Parisians and the water they drink from the seventeenth century to the present day can be divided into three major periods (see Fig. 1).

⁸ It should nevertheless be pointed out that this market is smaller in Paris than it is in the rest of France.

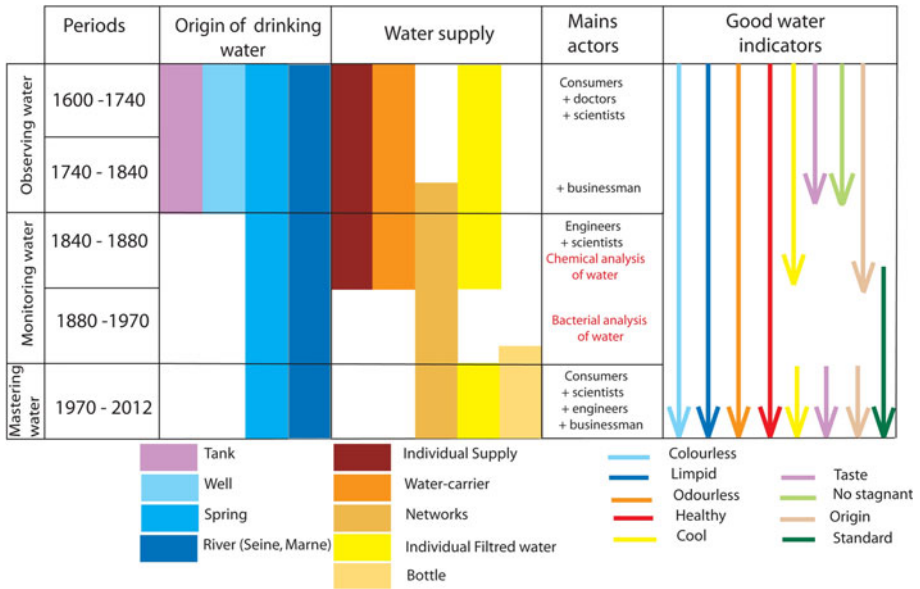


Fig. 1 Drinking water in Paris: seventeenth-twentieth century Euzen and Haghe 2007

Observing water

Before work on extending the water distribution system to the entire city was begun in earnest, Parisians were relatively free to choose where they procured their drinking water from. Depending on their perceptions of its quality, on their personal experience, on individual and collective ideas and on their social status, they took their water from the Seine or from wells or fountains. Consumers’ preference for untreated water from the Seine, which, at the time, was considered superior to all other sources, illustrates the persistence of a link with the natural environment and its role in selecting water considered good enough to drink. Taste, smell, transparency, the degree of oxygenation, the number of fish and aquatic plants supported by the river from which it was taken, the quality of the environment, and the amount of time that people had been using it without adverse effect all served as criteria on which to judge whether water was good enough to drink. This approach began to change with the emergence in the 1740s of companies selling water from the Seine who effectively changed the status of untreated river water from that of a naturally occurring resource into that of a costly commercial product. Natural water became an artificial, commercial object sold, in the advertising campaigns launched by those companies, on the basis of its sanitary merits.

Monitoring water

The construction of distribution networks initiated in the early 1840s radically transformed the relationship between Parisians and the aquatic milieu. Scientists, doctors and engineers appropriated knowledge about water destined for human consumption, analyzing its composition and laying down quality norms. During this period, which was characterized by a series of scientific discoveries and the introduction of new methods of analysis and

measurement, water became a technological object. The supply of safe drinking water on a previously unimagined scale contributed to the transformation of the city into a beacon of modernity. The empirical expertise of water drinkers was superseded by scientists whose job it was to monitor and isolate the health risks associated with it.

Mastering water

In the 1970s, consumers began to reappropriate their drinking water by taking advantage of newly introduced alternatives to tap water. Although tap water respected health norms, it did not always meet consumer needs in terms of wellbeing, health and comfort. New alternatives had recently become available, with the development of home filtration products and the introduction of a wide range of bottled waters. Thus, today, many Parisians consider fresh, limpid water with neither taste nor smell to be ideal for both the palate and for health. These criteria also fall into line with the public's idea of water as it occurs in the natural environment, untainted by human activity. The emergence of choice gave consumers the possibility of selecting water according to their personal needs, tastes, beliefs and ideas.

Our analysis raises a number of questions. Faced with demographic, social, urban and industrial change as well as with new styles of consumption, with the power of industrial enterprises and the ensuing effects of standardization, and with technological and scientific innovations, how will the perceptions and practices of individual consumers of drinking water evolve in the twenty-first century?

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