

The History of Water Filters

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The History of Water Filters - Introduction

The history of water filters is indelibly tied to the history of water, itself. As human industry has grown and water has become more contaminated, water filters have emerged over the centuries in response to the growing recognition of the need for pure, clean water to drink and the realization that such water does not occur naturally.

Water has greatly affected humanity and civilization for millennia. Because water is so absolutely vital to our body systems, we, as living beings, are entirely dependent upon water. In fact, this simple substance, more than any other factor, guided the formation of civilization. Early civilizations were clustered around water sources, and it was water that initiated the first substantial agriculture in the Fertile Crescent, leading to more complex and sedentary civilizations. For centuries, water availability guided the type of foodstuff that could be grown in an area. Water was also the impetus and guiding force behind the first cross-cultural interactions. Early trade was completely dependent upon water, for transportation of goods and sustenance of people and animals.

Throughout the centuries, as technology developed, people have gradually gained more control of water. They have been able to transport water to arid lands, stop and redirect rivers, and even determine when, where, and how much rain will fall. Even with increased control of water resources, water still continues to dominate the political, economic, and social structure of all nations. This statement can be verified by looking at political struggles within the United States over water resources or throughout the Middle East over access to limited water. Concerning conflict in the Middle East, former World Bank Vice President Ismail Serageldin stated in 2000, "Many of the wars of this [20th] century were about oil, but the wars of the next century will be about water" (Smith, 2000).

In modern times, concerns over water quality remain supreme. Over the years, scientists have discovered more and more contaminants in fresh water sources, and these same scientists have noted a strong correlation between drinking water

contamination and many significant health problems. Due to the rampant impurity of water and the crucial, physiological need for clean, fresh drinking water, several treatment alternatives have emerged throughout the history of water treatment. Water filtration, one of the more viable and prominent of these treatment alternatives, has something of a remarkable past. Historians believe that the use of water filters began more than 4000 years ago! In the next several pages, the fascinating history of water filters will be addressed. Read on to learn more about this interesting history.

How did our water get so dirty?

In 1972, the United States legislature passed the Clean Water Act due to a crisis in the nation's water purity. The purpose of the act was to restore the chemical, biological, and physical nature of our nation's waterways that had been so damaged by pollution. The goal of the act was that, by 1985, no more pollutants would be discharged into the water supply and all of our nation's rivers, streams, and lakes would be fishable and swimmable once more. Every city was required to install a water treatment plant, and every industry was required to use the best available technology to limit the amount of pollutants that entered water sources (Outwater, 1996). Under these stringent demands, water quality began to improve slightly. Still, almost two decades after the year of supposed goal fulfillment, about a third of the nation's waterways continue to be polluted.

There is no doubt that industrial sites have cleaned up their act. They would no longer be in business today if they had not. So, why is our nation's water still so dirty? The answer is very simple. Water follows a natural cycle. It moves from the rain to the mountaintops, through streams and rivers to the sea, and then to the clouds once more. In the United States, the natural water cycle has been changed in a number of ways. Through dredging, damming, and tampering with or eliminating the ecological niches where water is able to clean itself, we have changed the pathways that water takes through the American landscape, greatly benefiting agriculture and the American economy. In the long run, we have ended up with dirty, impure water. Water treatment remains as the best available technology we have to rectify this problem.

Early Water Treatment

The earliest recorded attempts to find or generate pure water date back to 2000 b.c.e.. Early Sanskrit writings outlined methods for purifying water. These methods ranged from boiling or placing hot metal instruments in water before drinking it to filtering that water through crude sand or charcoal filters (Baker & Taras, 1981). These writings suggest that the major motive in purifying water was to provide better tasting drinking water. It was assumed that good tasting water was also clean. People did not yet connect impure water with disease nor did they have the technology necessary to recognize tasteless yet harmful organisms and sentiments in water.

Centuries later, Hippocrates, the famed father of medicine, began to conduct his own experiments in water purification. He created the theory of the “four humors,” or essential fluids, of the body that related directly to the four temperatures of the seasons. According to Hippocrates, in order to maintain good health, these four humors should be kept in balance. As a part of his theory of the four humors, Hippocrates recognized the healing power of water. For feverish patients, he often recommended a bath in cool water. Such a bath would realign the temperature and harmony of the four humors. Hippocrates acknowledged that the water available in Greek aqueducts was far from pure in its quality. Like the ancients before him, Hippocrates also believed good taste in water meant cleanliness and purity of that water. Hippocrates designed his own crude water filter to “purify” the water he used for his patients. Later known as the “Hippocratic sleeve,” this filter was a cloth bag through which water could be poured after being boiled (Baker & Taras, 1981). The cloth would trap any sentiments in the water that were causing bad taste or smell.

Water Treatment in the Middle Ages

The ancient civilizations of Greece and Rome designed amazing aqueducts to route water pathways and provide the first municipal water systems. On the American continent, archeological evidence suggests that the ancient Mayan civilization used similar aqueduct technology to provide water to urban residents. Further advancements in water technology ended, for the

most part, with the fall of these civilizations. During the Middle Ages, few experiments were attempted in water purification or filtration. Devout Catholicism throughout Europe marked this time period, often known as the Dark Ages due to the lack of scientific innovations and experiments. Because of the low level of scientific experimentation, the future for water purification and filtration seemed very dark.

The first record of experimentation in water filtration, after the blight of the Dark Ages, came from Sir Francis Bacon in 1627 (Baker & Taras, 1981). Hearing rumors that the salty water of the ocean could be purified and cleansed for drinking water purposes, he began experimenting in the desalination of seawater. Using a sand filter method, Bacon believed that if he dug a hole near the shore through which seawater would pass, sand particles (presumably heavier than salt particles) would obstruct the passage of salt in the upward passage of the water; the other side of the hole would then provide pure, salt-free water. Sadly, his hypothesis did not prove true, and Bacon was left with salty, undrinkable water. His experiment did mark rejuvenation in water filter experimentation. Later scientists would follow his lead and continue to experiment with water filtration technology.

To be continued in Spring 2005

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