

Using Water for Work

It is not at all rare for society to take influences from the great Mesopotamia or Ancient Egypt. Many staples of modern life - our laws, libraries and medicine, for example - have roots thousands of years ago. While it can often be unsettling to ponder how these men and women who assumed the world was flat were such a great influence on life today, they really did leave us a bevy of beneficial knowledge and tools. One such tool is hydropower. Hydropower is the process of harnessing the power of water; a process that our ancient ancestors found invaluable. The ancient Greeks used this in the form of a water wheel to power mills, which is sometimes even seen today. A running stream or river would “push” water into a wheel of buckets or a turbine, thus causing the wheel to turn and provide power. The use of waterwheels was the norm for several thousands of years, until society began to research other methods of power generation. Through this lull in activity, however, French engineer Bernard Forest de Belidor published a book describing the process behind all forms of the water wheel. This sparked further research into the power of water. By the late 19th century, the Industrial Revolution and the advent of electricity were upon us. Steam power became both possible and essential. It allowed factories that relied on a location by a stream for water power unnecessary, which in turn allowed greater industrial growth. Steam also was instrumental for much improved transport; first trains, and then the advent of the steam boat. We were also able to couple water power with the electrical generator, paving way for great new technology (hydroelectricity). Water was then soon used to create compressed air. In this system, water is mixed with air bubbles and then forced to fall down into a large underground chamber. The compressed air separates from the water and is trapped. This compressed air could then be used to power other machinery. Today, water is generally harnessed via hydroelectricity and to a lesser extent, by creating compressed air. Both technologies were born in the Industrial Revolution. Hydroelectricity is now responsible for 16% of global electricity generation and produced in 150 countries. Once a hydroelectric complex is constructed, no direct waste is produced and the cost is relatively low, making it a viable and competitive source of energy.

References

- [1] <http://www.angelfire.com/nt/Gilgamesh/influenc.html>
- [2] <http://environment.nationalgeographic.com.au/environment/global-warming/hydropower-profile/>
- [3] <http://www.britannica.com/EBchecked/topic/33016/Architecture-hydraulique>
- [4] <http://westerncivguides.umwblogs.org/2011/12/17/the-importance-of-steam-power-to-the-industrial-revolution/>
- [5] <http://www.worldwatch.org/node/9527>