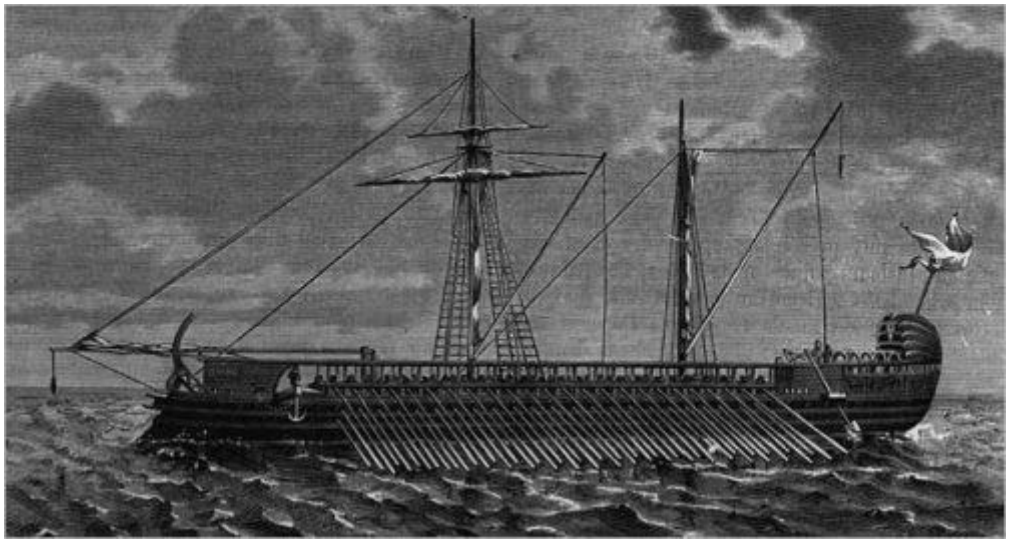
How the Ancients thought about Mechanics

The New York Times has a nice article about mechanics in the pre-renaissance era and how the ancients thought about Mechanics. Its worth a read. It is definitely relevant to anyone interested in writing Clockpunk. Its a window for us into the minds of the ancient equivalent of mechanical engineers i.e., people like Archimedes. Thanks to Meika for pointing this out. Here is an excerpt.



Dr. Schiefsky teaches Greek and Latin as his day job and reads Thucydides and Sophocles in ancient Greek for fun. He also majored in astronomy as an undergraduate, and about nine years ago, feeling science-deprived, he joined a multinational research endeavor called the Archimedes Project, based at the Max Planck Institute for the History of Science in Berlin.

The Archimedes team studies the history of mechanics, how people thought about simple machines like the lever, the wheel and axle, the balance, the pulley, the wedge and the screw and how they turned their thoughts into theories and principles.

The textual record begins with “Mechanical Problems,” moves to Rome and then through the medieval Islamic world to the Renaissance. It ends, finally, with Newton, who described many of the basic laws of mechanics in the 18th century.

There are a surprising number of old, and extremely old, scientific texts that have survived the ravages of time in one form or another. The Archimedes Web site lists far more than 100, including Euclid's geometry, Hero of Alexandria's Roman-era technical manual on crossbows and catapults, medieval treatises on algebra and mechanics by Jordanus de Nemore and Galileo's 17th-century defense of a heliocentric solar system.

The nice thing for Dr. Schiefsky is that hardly anyone reads the stuff. Scientists generally are not into ancient Greek or Latin, let alone Arabic, and most of Dr. Schiefsky's colleagues work on literature, philosophy, philology or archaeology. In fact, Dr. Schiefsky suggests "about 100 people" worldwide work on both science and the classics.

By following the historical record, the Archimedes researchers have discovered that the evolution of physics — or, at least, mechanics — is based on an interplay between practice and theory. The practical use comes first, theory second. Artisans build machines and use them but do not think about why they work. Theorists explain the machines and then derive principles that can be used to construct more complex machines.

The Archimedes researchers say that by studying this dialectic they can better understand what people knew about the natural world at a given time and how that knowledge may have affected their lives.

"What do you do when you want to weigh a 100-pound piece of meat and you don't have a 100-pound counterweight?" Dr. Schiefsky asked. "You use an unequal-armed balance, with a small weight on the long arm and the meat on the short arm."

The uneven balance, known as a steelyard, is a kind of lever, and Dr. Schiefsky notes that it has a cameo in Aristophanes' "Peace," a comic fantasy about ending the Peloponnesian War. When a furious arms dealer cannot figure out what to do with a surplus war trumpet, Trygaeus, the central character, suggests pouring lead in the bell to make a steelyard.

Source: http://davinciautomata.wordpress.com/2008/04/06/how-the-ancients-thought-about-mechanics/