

Time Line on Humanity's Dependence of Material

How did materials help us become what we are today?

Join Professor Stephen L. Sass as he discusses his book, *The Substance of Civilization: Materials and Human History From the Stone Age to the Age of Silicon*.

(60-plus minute lecture) Video: <https://www.cornell.edu/video/stephen-sass-the-substance-of-civilization>

Chart from Cornell University: *History of Materials Science and Engineering*
<http://www.ccmr.cornell.edu/education>

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From the Our point of view is that the standard for dividing the stages of the substance civilization of human society is based on the point of view of the tools of production but not of the production relations. Stated differently, the standard for dividing the stages of the substance civilization of human society is the materials of manufactured tools and devices. This is in agreement with the point of view from Marx and Engels [2], because they used the materials of manufactured tools and weapons to divide the Stone, Bronze and Iron Ages at least as mentioned previously. The scholars from the Connell University also hold the same opinion (Fig. 1). However, they introduced the Information Age to represent the so called Late-Silicon Age, which is not based on the materials. In addition, several Ages overlap, which also seems inappropriately.

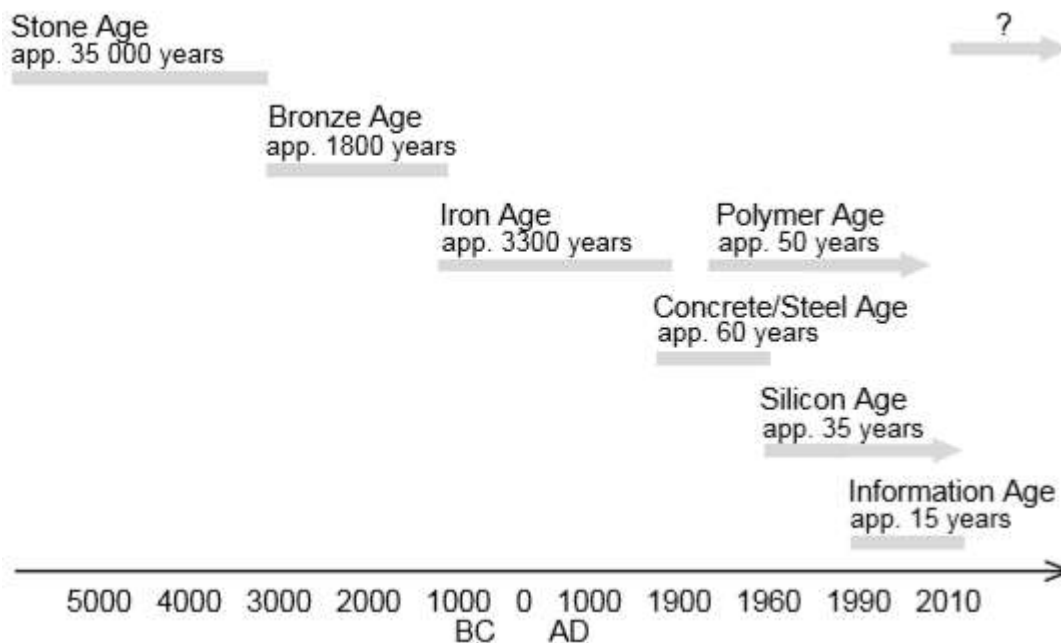


Figure 2. The proposed division of substance civilization of human society by the author. Time axis is not in scale.

Table 1. Division and date range of substance civilization of human society.

Age	Time period
Stone Age	3 million - 3300 years BC
Old Stone Age	3 million - 10 000 years BC
Lower Paleolithic	3 million - 0,2 million years BC
Middle Paleolithic	0,2 million - 35 000 years BC
Upper Paleolithic	35 000 - 10 000 years BC
Middle Stone Age	10 000 - 6000 years BC
New Stone Age	6000 - 3300 years BC
Bronze Age	3300 - 1400 years BC
Iron age	1400 years BC - 1900
Steel and Cement Age	1900 - 1960
Si-materials Age	1960 - 2000
Nano Materials Age	2001 -

Division of human society from Cornell University [6]. Making a general survey of the developing history of human society, the development and their application of materials always are the milestone for the civilization and economic progress.

The introduction and application of a new type of materials has always caused the important change for human society. The reason is obvious since everything is either made or depends on materials. Not to mention the food eaten, clothes worn, things utilized, all of the devices, all of the tools, and various weapons which all cannot be manufactured without materials. Even the so-called spiritual food such as books, films, radio, television, internet, etc also cannot work without materials, but must rely on them. Materials are the bases of all things including people's life, human progress and the substance civilization of human society. Use of the typical materials to designate the stages of the substance civilization of human society just reflects the basic role of materials in the process of development for human society, because any name of devices, articles and things, or some kind of abstract name cannot replace it.

We know that a lot of great devices, buildings and other things were created by our humankind, such as The Great Wall, The Pyramids, various skyscrapers, various great bridges, automobiles, trains, planes, spacecrafts, satellites, internet etc. They are all important symbols for the substance civilization of human society, and we are proud of them.

However, who can imagine that such great things can be created without materials? Or from the other point of view, can we have The Great Wall Age, The Pyramid Age, or automobile, train and plane age? Of course, we cannot do so though sometime some people has referred to the world as to the automobile age or plane age.