

### Opinion

Our earth, is part of a vast universe. The universe is about 15 to 20 billion years old. The age of the earth is approximately 4 to 5 billion years, whereas human beings evolved only around 2 million years ago. The widely accepted theory of the origin of universe is the "BIG BANG" theory. The universe started with a huge explosion and matter (dust and gases) filled the entire space. The average temperature of the earth is 16 °C which is the most comfortable temperature for the living organisms to survive. Initially conditions on earth were inhospitable for life. Gases of the primitive atmosphere were primarily methane, ammonia, carbon dioxide and hydrogen. Water vapor filled the atmosphere but there was no free oxygen. It was thus a reducing atmosphere on primitive earth and no life existed. When earth cooled, water vapor condensed to form liquid water. Rains poured to form water bodies on earth. The molecules of life were formed in the water. The molecules of the life evolved bacteria, the earliest and simplest organisms. The oldest fossils of bacteria which were the first living organisms on earth have been found in rocks that are 3-5 billion years old. Various kinds of bacteria lived on earth. One of these evolved a green pigment called chlorophyll, the chlorophyll-containing bacteria used carbon dioxide and water and released oxygen through photosynthesis and started accumulating in the atmosphere. This means light and water are essentials for life to exist. Continued photosynthesis by such bacteria progressively accumulated oxygen in the atmosphere. Thus, the atmosphere gradually transformed from reducing to oxidizing. At one point of time oxygen content in the atmosphere become 21%, served as a big trigger for biological evolution to begin and progress and this led to the invasion of land by living organism. As time passed, protists evolved from bacteria. Both bacteria and protists are unicellular. Then came multicellular organisms, the fungi followed by plants and animals. Today the diversity of living organisms is comprised of five kingdoms of life. Monera, Protistista, Fungi, Plantae and Animalia. In brief biotic constituents like plants, animals and abiotic components like sunlight, water and heat constantly interacting with each other. These are vital important stages in evolution of human civilization. The Complete Story of Civilization by Will Durant [1] has represented in the most comprehensive attempt in our times to embrace the vast panorama of man's history and culture in 11 volumes. The fossils excavated throw light on the way in which today's civilized human came to existence. A team of scientists claim that they have found a mask depicting an Australopithecus afarensis, a human ancestor that could have possibly given birth in a way that combines the childbirth practices of chimpanzees and human beings. Now, researchers claim that this new finding could shed light on how modern human childbirth evolved and paved the way for large brains. The scientists detailed their findings online 12<sup>th</sup> April 2017, in the journal The Anatomical Record.

How did materials shape our culture? Stephen Sass, a professor of material science at Cornell University, first raised this question in brainstorming of his students. This teaching device embarked him in a long inquiry into the past. Half of the book [2] deals with prehistory and anthropology from the stone and clay ages to the Roman Empire. As regards the history of materials science Stone Age prevailed ~500,000 yrs. ago, early man used flint, bones and stones. Piltdown man used stone for knives, axes, and borers; 100,000 yrs ago [2]. Everything is made out of something for example semiconductors, metals, alloys, ceramics, polymers, concretes and so on. If we take away from our all of the materials from our lives and we are left naked, shivering in a muddy field. The sophistication of our lives is in a large part essentially borrowed from material wealth. The fundamental importance of materials is made clear from the naming of ages of civilizations – the stone, iron and bronze ages – with each new era being brought about by a new material. This 20th century is often called as the age of silicon, after the breakthrough in materials science that ushered in the silicon chip and the information revolution. The ages of civilization are named after materials precisely because they transformed and shaped society [3].

### References

1. Will DA (1935-1975) (Simon & Schuster) ISBN: 978-1567310238.
2. Sass Stephen L (1998) The substance of civilization: materials and human history from the stone age to the age of silicon. Arcade Publishing, New York, US, p. 292.
3. Miodownik M (2014) Why the story of materials is really the story of civilization.