

Metallurgy: History of Metal Evolution

Metallurgy is defined as the branch of science and technology concerned with the properties of metals and their production and purification. Metallurgy is used for the production of metallic components for consumer or engineering products. This involves the production of alloys, the shaping, the heat treatment and surface treatment of the product. There are three main branches of metallurgical engineering; physical metallurgy, extractive metallurgy and mineral processing. Physical metallurgy deals with problem solving, for example, the development of metallic alloys needed for many different types of manufacturing and construction. Extractive metallurgy involves extracting metal from an ore. Mineral processing involves gathering mineral products from the earth's crust.

Metallurgy has gotten much more efficient over the decades and with the help of the evolution of technology we are now able to mass produce metallic elements on a massive scale. We can manufacture cars, buildings, food and agriculture, and so much more with the expanse of metallic production. One historical figure who helped pave new advancements in metallurgy was Daniel Cowan Jackling, he was an American mining and metallurgical engineer who pioneered the exploitation of low-grade porphyry copper ores at the Bingham Canyon Mine in Utah. He graduated Missouri University of Science and Technology in 1892 and in 1903 he founded the Utah Copper Company, he also formed the Alaska Gold Mines Company in 1912. Daniel Jackling was instrumental in the establishment and expansion of mineral mines all across the U.S., without people like him pushing for the evolution of technology we would not have the

expansion of societal change and would still be in the stone age. Fortunately we have street lights on every corner, we can drive cars and fly planes all around the world, send people to the moon in rockets, design amazing architectural buildings that stand hundreds even thousands of feet in the air.

There are many reasons for why metallurgy is so important in the world, the biggest one being sustainability. Just for a second try to imagine everything that is a form of metal not existing, that means no phones, cars, televisions. As I started to learn in my metallurgy class, there are many forms of metal, as technology has gotten better we are able to understand the structure of metals a lot better and we are able to study the metal itself and learn how strong it can be or how flexible it can be. We have learned to manipulate our metals and create our own forms of them. It is only with the expansion of our creative minds and the evolution of technology that we are able to produce the types of metallic products that we do.

I think it is very important for people to understand the process of how we get from a metal ore and we are able to manufacture it into any shape, structure, strength and design. Metallurgy is a masterful combination of artistic and creative aspects as well as scientific and mathematical engineering aspects. Metallurgy has also allowed us to improve non-metal materials such as plastic and wood, in all, metallurgy has benefited society in many ways and it just continues to improve. We are able to use less materials that are made to be stronger and support more weight and last for a lot longer. We have perfected the process of manipulating metal into any form or strength that we desire and with the continuous evolution of technology and improvements in engineering we will continue to improve our metallurgy.