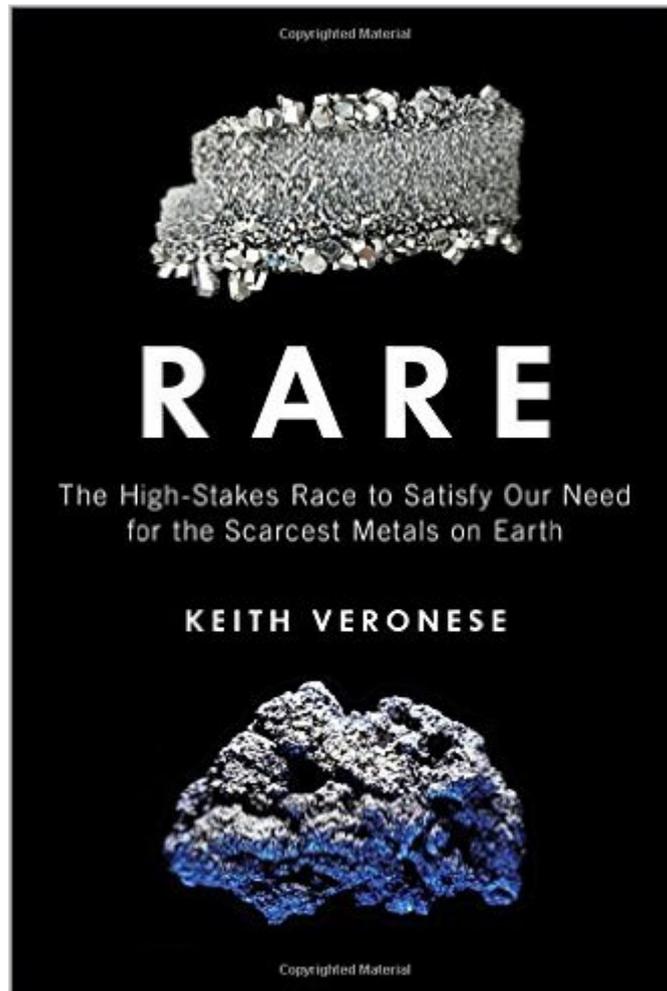


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# Rare: The High-Stakes Race To Satisfy Our Need For The Scarcest Metals On Earth



## Synopsis

How will your life change when the supply of tantalum dries up? You may have never heard of this unusual metal, but without it smartphones would be instantly less omniscient, video game systems would falter, and laptops fail. Tantalum is not alone. Rhodium. Osmium. Niobium. Such refugees from the bottom of the periodic table are key components of many consumer products like cell phones, hybrid car batteries, and flat screen televisions, as well as sophisticated medical devices and even weapon systems. Their versatile properties have led manufacturers to seek these elements out to maximize longevity, value, and efficiency, but not without a human price. In addition to explaining the chemistry behind rare earth metals, Rare delves into the economic and geopolitical issues surrounding these "conflict minerals," blending tales of financial and political struggles with glimpses into the human lives that are shattered by the race to secure them. In the past decade, the Congo has been ravaged by tribal wars fought to obtain control of tantalum, tungsten, and tin supplies in the region, with over five million people dying at the crossroads of supply and demand. A burgeoning black market in China, Africa, and India is propped up by school-age children retrieving and purifying these metals while risking their lives and health in the process. Fears of future political struggles inside China, the world's largest supplier of these metals, have already sent the United States, Great Britain, and Japan racing to find alternative sources. Will scientists be able to create lab substitutes for some or all of these metals? Will Afghanistan be the next big supplier of rare metals? What happens when the limited supply runs out? Whatever the answers, it is clear that our modern lifestyle, dependent on technology, is far from stable.

## Book Information

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## Customer Reviews

I learned quite a bit from this fascinating book. The author's main focus is on the rarity and/or value of various metals, e.g., the rare earths, gold, silver, platinum and several others. In doing so, he discusses our planet's natural resources as well as their distribution, geology, chemistry and the technologies that would benefit from these metals. He also delves into various quite interesting issues such as politics, both national and international, military conflicts, economics, waste disposal and even the possibility of acquiring these metals from outside our planet. I found the author's breadth and depth of knowledge to be quite impressive, especially on the related socio-political issues in the world. I also found the writing style to be clear, lively, friendly, often witty and widely accessible. On the down side, I found a number of inaccuracies mainly in the early chapters where nuclear physics is discussed. I have listed the main ones at the end of this review for those who are interested as well as for consideration by the author should a revised edition of this book be published in the future. Overall, I found this book to be quite captivating. It can be enjoyed by anyone, particularly science enthusiasts as well as those interested in the social, political and scientific problems that may be faced in the development of new technology.

**Inaccurate/Misleading Information**  
1) At the bottom of page 53, it seems to be implied that plutonium was used in both bombs dropped on Japan during World War II. In fact, the Hiroshima bomb was a uranium bomb.

This book covers a topic which most people would know little about. I found the book to be very interesting and I learned quite a lot about so called "strategic metals". I found a few errors in the book. Mostly typos and incorrect grammar that a good proofreader would have minimized. These occurred mainly in the first 25% or so of the text. Also found were some instances of just being factually incorrect. The Fat Man and Little Boy weapons that were deployed against Japan were both referred to as containing plutonium. Little Boy was a uranium bomb. On page 57 phosphine was said to be a form of poison gas used in WW I. The gas used in the war was phosgene. Phosphine is commonly used to fumigate grain. Gold is said to be a spectacular conductor and that is why it is used as a plating on HDMI cables and a plethora of computer parts. Silver is the best conductor followed by copper and then annealed copper. Next comes gold and then aluminum. Gold is used as a plating because it will not tarnish and is still a very good conductor. On page 203 the feasibility of mining the ocean floor for manganese nodules comes up and also the ruse used by the United States of the Glomar Explorer supposedly built by Howard Hughes to conduct the mining

operation. The United States was actually attempting to raise K-129, a submarine that the USSR owned which had gone missing after a catastrophic accident at sea. Veronese says that the Soviets knew the general location of the sub but couldn't locate it. They didn't actually have any good idea where it was. The US knew where it was from "hearing" the death throes of the sub with SOSUS, a network of listening devices on the ocean floor. Through triangulation they did locate the sub.

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