By Shefa Siegel

I get a variety of reactions when I tell people I’m interested in the way mining influences economics and the environment. If I describe the millions of artisanal gold miners at work in Africa or South America, there is alarm and fascination that manual mining reminiscent of the California gold rush persists in the world. Meanwhile, my descriptions of mining companies working in these places elicit disdain and sometimes an appetite for stories of the harm they spread. A third response is boredom.

This spectrum – from apathy to outrage – reflects a common ambivalence about the materials we mine from the earth. Whether one is rich or poor, life is the end of a chain

**The source of all avarice**

A theory held by those who study mines is that the greater a country’s untapped resource wealth, the lower it will stand on development indices after that wealth is extracted. This is called the ‘resource curse,’ and nowhere has it been more evident in recent decades than eastern Congo.

**Consuming the Congo:**
War and Conflict Minerals in the World’s Deadliest Place, by Peter Eichstaedt. Lawrence Hill Books, 272 pages, $24.95

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Avarice

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that connects minerals to humans. In 1972, the United Nations' original environmental manifesto, "Only One Earth," calculated that individuals from industrial societies depend on 10 tons of steel and 130 kilograms of copper, lead and aluminum to meet their daily needs. This estimate, however, predates the emergence of our digital age and the proliferation of consumer electronics whose production raised demand for traditional metals and invented uses for many "new" industrial minerals.

It is not only the wealthy who need minerals. The Nobel Peace Prize-winning economist Muhammad Yunus has a list of 10 essentials a person needs to be free from poverty. Topping the list is a house with a tin roof. Yet, the perspective that mining is a regressive activity has ancient roots and modern sympathizers. There is a saying among the people of Piura – who live among mines active since Incan times – in northern Peru, "Agriculture is life, mining is death."

This view of mining as a destructive force is at least as old as Pliny the Elder, the 1st-century C.E. Roman naturalist, who called mining "an original vice." "The things that she [earth] has concealed and hidden underground," Pliny concluded in his book about mining, "can only not quickly come to birth, are the things that destroy us and drive us to the depths below."

Pliny's prejudice remained so influential in the study of mining that as late as the 16th-century, German physician Georgius Agricola, felt obliged to repudiate him. Agricola illustrated the first comprehensive study of European mining operations, "De Re Metallica," published posthumously in 1556, the book pushed the alchemical tradition into oblivion and dispelled beliefs in practices like the divine power of dowsering. It was also a vigorous defense of mining, fighting its reputation – apparently common to the time – of social breakdown rather than a foundation of civilization. "If there were no metals," Agricola writes, "men would perish in a world and wretched existence in the midst of wild beasts."

‘Germinal' and ‘Nostromo'

Minerals have long held an important place in literature and politics, in addition to providing the subject for Emile Zola's “Germinal" and George Orwell's "Agriculture is life, mining is death."

Curiously enough, the more relevant humanity became on mines and metals during the 20th century, the less attractive it became to examine the influence of these resources on economics, the environment, peace and war. Several new books about mining may signal a revival of sorts. One of these is Peter Eltzbach's "Consuming the Congo War and Conflict Minerals in the World's Deadliest Place." From 2006 to 2009, the author, a lawyer who served as the first director of economic development at the United Nations, explained in his memoir "On the Bridge of Time" (1982), "It was clear that the demand for mineral products was increasing at such velocity that unless there was a fundamental change in the economic fabric of human society, we would ultimately be faced with the exhaustion of many mineral reserves ... Cooperation was needed to avert eventual conflicts over shortages."

In concluding that mining is a "curse" on the land, Eichstaedt is aligned with an academic theory known as the resource curse. The concept is based on data showing an inverse relationship between resource abundance and human development; the greater a country's untapped resource wealth, the lower it will stand on development indices after the resources are extracted. Chief among the causes of the curse is the power of resource wealth to corrupt. Regardless of continent or context, profits from mining are captured by elites and fair distribution of resources. Hugh Keenleyside, the Canadian civil servant who served as the first director of economic development at the United Nations, explained in his memoir "On the Bridge of Time" (1982), "It was clear that the demand for mineral products was increasing at such velocity that unless there was a fundamental change in the economic fabric of human society, we would ultimately be faced with the exhaustion of many mineral reserves... Cooperation was needed to avert eventual conflicts over shortages."

The question that preoccupies observers of the mining industries today is whether
among other minerals – also force people into mining. When one Ugandan and Rwandan-backed militia pushed a rival out of a gold mine, the militia, having no mining expertise, coerced local miners into unpaid service as armed men stood guard. Another mine Eichstaedt visits is staffed by former child soldiers, now working freely, but formerly subjugated in mines by the militias.

**Fueling wars in developing countries**

A central contention of “Consuming the Congo” is that our consumer choices in the developed world fuel wars in developing countries in Africa, and, presumably, other parts of the world. When we use a mobile phone, open a tin can, we hold the lives and deaths of the eastern Congolese in our hands. Eichstaedt writes, referring to the use of tin and coltan in the circuitry of cell phones and computers. When a miner gives him a bag of coltan – a black metal used to store energy in electrical fields – he reflects, “I hold the source of years of conflict that has claimed many lives. A very small portion of this mineral could have found its way into the world markets, and perhaps even into the portable telephones that all of us carry. For such a minuscule amount, there has been so much bloodshed. The disproportionate feelings strangely haunting.”

Coltan from the DRC accounts for less than 10 percent of world supply and has, Eichstaedt explains, numerous applications beyond consumer electronics, including in nuclear reactors, aircraft engines and missiles. Eichstaedt is a proponent of certifying global supply chains, a fashion that began when the concept of “fair trade,” for such agricultural goods as coffee and cocoa, was introduced in 1988. Ten years ago, this trend was applied to mining as well, in response to the furor over so-called blood diamonds (or conflict diamonds), whose mining and trade is blamed for financing wars in Africa.

This renewed interest in supply-side mineral economics is vital to elucidating ourselves about the raw materials enabling the digital age. It used to be easy to count off the essential minerals and fuels such as iron, copper, zinc, lead, tin, mercury and coal. Early 20th-century steelmaking innovations, from which we got submarines, tanks and planes, led to the production of ferroalloys – chromium, nickel, tungsten – whose previous uses were restricted to laboratories. The breakthrough of consumer electronics over the last 20 years is equally revolutionary, and one whose impact, the environment, and war we are only beginning to understand.

The problem with comparing mineral chains to food chains, however, is that many of the miners Eichstaedt describes are part of extra-legal, or “informal,” economies, whose existence is not recognized by their host governments.

Photographs from a gold mine in Burkina Faso. “There is a saying among the people of Pluma of northern Peru: ‘Agriculture is life, mining is death.’”

Photographs by Shefa Siegel