sitting down to a magnificent seven-course dinner with advice from the maitre d' and the wine steward.

Perhaps I am being unfair. The editors modestly promised a collection that they hope will help "the 're-thinking economics project'"(xviii). Even so, for this reader the *Handbook* falls short of even that objective. It simply does not help to reintroduce the normative dimension into a cohesive and coherent body of economic theory and analysis any more than a pile of jigsaw pieces represents a completed puzzle. It is quite telling that the collection does not have a final entry from the editors as to what has been accomplished or what difference it makes in the way we think about and teach economic affairs.

What the editors have accomplished is to remind us of the need for a book like Samuelson's *Economics*, which rewrote the principles textbook to incorporate Keynes' powerful insights and radically changed the mainstream economic way of thinking and teaching; one that is so well-done and compelling that even a veteran instructor of the principles course, who for years has taught from a standard textbook, upon finishing the breakthrough book would offer the simple remark: "Of course."

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Treasures of the Earth: Need, Greed, and a Sustainable Future

Saleem Ali

New Haven, Connecticut: Yale University Press, 2009 (304 pages)

This new book by ecologist Professor Saleem Ali is an interesting read chock full of facts about the ecology of extractive industries worldwide, written by a man who has explored widely but not deeply. In this short review, I hope to address two questions: who should read this book—who would both enjoy it and profit from it—and what are its weaknesses. There is no reason *not* to read it.

First, an initial, rather critical, observation leaps to the fore. The field of ecology is a branch of economics. Economics is the science of what we do to create value; this book is about what we do with the earth to create value. Like every science these days, the broad agenda of economics has been carved into innumerable franchises by a process that seems to be inevitable when our limited capacities have to cope with the magnitude of factual detail that attaches to each specialty. Nonetheless, economics is fundamentally and essentially "holistic." By means of economic activity, we transform any kind of thing or process or pastime of value into any other kind of thing or process or pastime. Economics rejects the notion of unique "values" as distinct from *value*. The dentist spends some of his earnings on fishing trips in Canada and in that way converts hours spent in dental school into pounds of Northerns in the freezer. The science of economics is sometimes condemned—a harsh predicate perhaps but not unfair—for pandering to the lowest of human values. The truth is that economics panders to your sense and my sense of value.

Economics is not life, but it is a science of what is. "What should be" is a perhaps nobler topic, but it is not a science.

Bringing this broad principle to bear on this particular book, we find the author focusing on activities and values associated with the use of the land, and especially with mining. That is an important science in itself and its study is commendable. Not commendable, however, is his notion of a *treasure impulse*. There is nothing wrong with the term itself; in fact, it is somewhat poetic. The problem is to disassociate it from the profit motive when in fact it simply *is* the profit motive. Tribesmen in Myanmar dig in the ground for emeralds for exactly the same reason that trained chefs open new restaurants in your town: they want to utilize the assets God has given them. It is somewhat revealing of the author's perspective that in the end he rediscovers the uses to which a wise God has bent the profit motive—the uses that Adam Smith is rightly famous for championing.

Now, who should read this book? It is an excellent read for anyone who wants to have in hand a summary of what is going on today in the ecology of extractive industries. That is a serious purpose, and it should not overshadow a more refined one, which is simply to enjoy the wealth of anecdotes about mining and extraction historically and contemporarily. The author has scoured the world for stories about the uses of the land, and his efforts have been generously rewarded, so he does not stint when it comes to reporting what he has found on seemingly every continent. Every science starts with the news; we have to know about what is actually happening. Obviously, no single book is going to satisfy that need, but this one is a useful piece of the whole.

Many of those stories, or stylized facts, are intended to generalize, and it is here that I find both value and deficiency in this book. In a nutshell, the treatment is broad but not deep. The author has studied widely, but he does not question probingly. The science of ecology is the branch of economics that deals with deferred or collateral consequences of the things we do. By custom, it has focused on the consequences that are registered on the physical environment but in principle is broader. For instance, it applies itself to activities that generate long-lasting pollutants harmful to persons later on. Similar but contemporaneous effects are important, too, like the problem of upstream pollution and downstream consequences. Ecology is not confined to studying these events; it has always had a normative function, searching for practical steps to ameliorate these harms. Economists conventionally see these ecological problems as problems in internalizing—which is to say *pricing*—the consequences, though in some cases there really is no pricing solution and direct intervention by regulators or courts is necessary. The physical environment needs to be managed and not just be studied.

All these issues come together in one of the most interesting examples the author presents, which concerns redeveloping old surface mining properties in the west of England. Mining, or indeed any activity that disturbs the earth, risks releasing harmful minerals whose effects, in the past, were only dimly understood. A current example from Bangladesh makes this point graphically. In the interest of providing people with safe drinking water, international aid organizations drilled many wells, but to save expense they drilled rather shallow wells—perhaps forty or fifty feet. At the same time, they were clearing forest to

expand the available acreage for farming. The newly cleared forest released byproducts from decaying leaves and such into the ground, which dissolved and leached arsenic from the subsoil. The arsenic migrated to the aquifer that the new wells were tapping, and, as a result, the peasants were exposed to high, in many cases fatal, doses of arsenic. It was the combination of the two actions—clearing forest and drilling shallow wells—that created the problem. Solutions include drilling deeper wells, drilling them away from new clearings, or giving people water filters to remove the arsenic. There are always many ways to address any need. In any case, we know now that there was a problem, but evidently we did not know it at the time.

There are many other examples in which disturbing the earth has released dangerous metals into the environment. They are usually transitional problems, in the sense that the metals will eventually fix somewhere, as they were once fixed in the old earth structure, and cease to be a further problem (though that does not help the Bengalis today). The abundant examples that Professor Ali recounts are valuable reminders of the need to look deeper when we start to move the earth around and to try to anticipate harms. The author recognizes, as all ecologists do, the management aspect of their field, and he rightly recognizes also the need to harness the profit motive to address it where possible. The aid workers were not rapacious pirates of the land; they were simply ignorant of some of the effects their actions would have. When it pays someone to find out these things, they are more likely to do it. There is in economics a *law of supply*, which says that any economic activity incurs some cost and that doing more of it generally incurs costs that rise more than proportionally, but where reward is present, entrepreneurs find themselves and step forward to serve the demand. When we recognize the need to identify unstable compounds of dangerous metals in the soil, for instance, ways will be found to test the soil for them, and when we then need ways to accomplish a work-around without sacrificing our objective, ways will be found to do that too. However, it all costs something. This book ends on that optimistic proposition, though it seems to flirt along the way with some rather conventional and too-superficial nostrums.

Finally, there is that open pit in the west of England. It is viewed as an exercise in reclamation, but it might more accurately be called a work of "clamation." Cornwall has now been endowed with a nice big pit, usable for several sorts of enjoyable recreational activities. Does it really matter how the pit came to be? All that matters now is that some crafty, entrepreneurial mind has found a way to utilize it.

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