

No need to worry about the future

Environmentally, we are told, 'things are getting better'.

The Skeptical Environmentalist: Measuring the Real State of the World

by Bjørn Lomborg

Cambridge University Press: 2001, 515 pp.
£47.50, £17.95

Stuart Pimm and Jeff Harvey

The subtitle gives the book away. It rehashes books such as Ronald Bailey's *The True State of the Planet* (Free Press, 1995). As Bjørn Lomborg tells us, the book's origin was a class he taught in 1997. The original Danish version appeared a mere year later — remarkably fast, given the delays of academic publishing. It shows, too. This survey of global environmental problems — food, forests, energy, water, pollution, biodiversity, global warming — reads like a compilation of term papers from one of those classes from hell where one has to fail all the students. It is a mass of poorly digested material, deeply flawed in its selection of examples and analysis.

Lomborg admires the late Julian Simon, author of *The Ultimate Resource* (Princeton University Press, 1996). Beside Simon, Voltaire's optimistic Dr Pangloss is gloomy and Albert Einstein a theoretical novice. Simon impressed the US political right by his assertion that we have "the technology to feed an ever-growing population for the next 7 billion years". Ecologists were challenged by this remarkable rejection of basic ecological laws. At present growth rates, the human mass would exceed that of the biosphere within the millennium. Physicists should be in awe, too. Well before the allotted time, human mass would be expanding faster than the Universe.

Thus influenced, Lomborg begins with "the litany" — the list of things wrong with the planet, and why, when we see things his way, "things are getting better". The litany quotes news magazines and a book by two science-fiction writers, but not scientists directly. No external references support the ensuing paragraphs justifying that 'things are getting better'. Quoting the primary literature troubled Simon, too.

Like bad term papers, Lomborg's text relies heavily on secondary sources. Out of around 2,000 references, about 5% come from news sources and 30% from web downloads — readily accessible, therefore, but frequently not peer reviewed. A mere 1% are original papers in *Nature*, half as many again come from contributors to Simon's books. This bias towards non-peer-reviewed material over internationally reputable journals is sometimes incredible

— for example, the claim that the evidence for pollution at New York's Love Canal was "jaded". At other times it seems fictional. "Scientific luminaries such as Harvard biologist E. O. Wilson and Stanford biologist Paul Ehrlich are the enthusiastic supporters of an ambitious plan ... to move the entire population of the US. ... people would live in small enclosed city islands." The reference is directly attributable neither to Wilson nor to Ehrlich. "Is it true?" we asked them. Ehrlich: "I know of no such plan. If there were one, I wouldn't support it." Wilson concurred.

Lomborg's great optimism about humanity's future shows up in the way he presents statistics. In the hell-hole that is so much of sub-Saharan Africa, "starving people" constituted "38 percent in 1970 ... [but only] "33 percent ... in 1996. [The percentage is] expected to fall even further to 30 percent in 2010." The absolute numbers of starving are curiously missing from these paragraphs. Roughly, the region's population doubled between 1970 and 1996. To keep the numbers of starving constant, the percentage would have had to have dropped by more than half. The absolute numbers of

malnourished in the region — as well as those whom fate will spare through their death from the myriad consequences of poverty (including AIDS) — are surely inconsistent with the first-listed "global trend" in a chapter entitled "Things are getting better".

Often, Lomborg misses the critical literature in exactly the same ways as did Simon. For example, consider the chapter on biodiversity. It starts out with the by-now standard denigration of consensus estimates on extinction rates and omits relevant papers in even obvious places — including the paper demonstrating that Simon's estimates are three to four orders of magnitude below everyone else's.

The text employs the strategy of those who, for example, argue that gay men aren't dying of AIDS, that Jews weren't singled out by the Nazis for extermination, and so on. "Name those who have died!" demands a hypothetical critic, who then scorns the discrepancy between those few we know by name and the unnamed millions we infer. Exactly repeating Simon, Lomborg juxtaposes the small number of named dead species against the huge number of species

Those with no future

The long, curved beak of the huia (*Heteralocha acutirostris*) distinguishes the female of this species of lost New Zealand bird from the shorter-beaked male. The bird was last sighted in 1907, and its distinctive tail feathers, prized by the Maori and by European trophy hunters, probably hastened its demise. *Extinct Birds* (new edition) by Errol Fuller (Oxford University Press/Cornell University Press, £29.50/\$49.95) tells the huia's story, together with those of other recently extinct bird species.



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for which we have no knowledge at all. After pages of confused argument, his extinction estimate of "0.7 percent over the next 50 years" is strikingly discordant with the 10–40% of well-known species that teeter on the brink of extinction just from human actions to date. About 2% of well-known species are already so desperately rare that we don't know whether they do survive. Lomborg finds comfort when some are rediscovered. Like terminally ailing humans, their lingering survival does not allay fears about the unfolding epidemic.

On future trends based on forest losses, his flawed examples are unoriginal. "In the US, the eastern forests were reduced ... to fragments totalling just 1–2% of the original area ... this resulted in the extinction of only one forest bird". The correct percentage is close to 50%, and the number of extinctions four, plus two seriously wounded. Those extinctions constitute 15% of the bird species found only within the region (the only ones at risk of global extinction). They strikingly confirm the predictions made from the species-area models that Lomborg disparages.

An industry has arisen debunking this book chapter by chapter. At present, it includes a website (www.anti-lomborg.com); a series of essays planned for *Scientific American*; a guide for journalists documenting Lomborg's more egregious errors being assembled by the Union of Concerned Scientists; and various published pamphlets. We have provided only a sampler.

But *Nature* instructs its reviewers to do more than merely describe a book's contents; we must examine its wider implications. The only such implication we see causes us to ask why Cambridge University Press would decide to publish a hastily prepared book on complex scientific issues which disagrees with the broad scientific consensus, using arguments too often supported by news sources rather than by peer-reviewed publications. Certainly, controversy is part of science, but extraordinary claims require the extraordinary scrutiny that comes from competent peer review — something that appears to be missing in this case. ■

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More on environmental risk analysis The Precautionary Principle: A Critical Appraisal of Environmental Risk Assessment

by Indur M. Goklany
Cato Institute, \$17.95



Bleak prospect: Scott's diligent study of the polar weather could not prepare him for what lay ahead.

Tragic outcome of extreme conditions

The Coldest March: Scott's Fatal Antarctic Expedition

By Susan Solomon
Yale University Press: 2001. 416 pp.
\$29.95, £19.95

Cornelia Lüdecke

Many books have been written about Robert Falcon Scott's final, ill-fated expedition to Antarctica in 1910–12, where he died during the return trip from the South Pole, only a few miles away from the nearest safe depot. It is well known that Scott relied on motor sledges, used weak ponies and allowed five men to go south instead of the planned four. These facts have contributed to the legend that Scott's failure was a result of ineptitude. Susan Solomon, an experienced polar researcher and leader of the American National Ozone Expedition, shines new light on Scott's tragic leadership error in not being able to predict the unexpected — unlike Roald Amundsen, who won the race. She analyses both published and unpublished material to show why Scott died — disproving the criticisms of the legend. An important aspect of her analysis is the emphasis she places on data provided by automatic weather stations installed close to Scott's route, which have been used since 1985 to facilitate flights to the scientific station at the South Pole.

Each chapter is introduced by modern reflections of a 'visitor' strolling around the Pole Station, whose experiences are compared with those of Scott; the identified problems are addressed in the ensuing text. The first three-quarters of the book follow Scott's expeditions chronologically. We are told what his experiences taught him during his first expedition to Antarctica between

1901 and 1904, and about his preparations for the second — his transport planning, and his questionable decisions. But the text focuses on the extremely cold temperatures experienced by Edward Wilson and his two comrades on the Windless Bight south of Ross Island, and, even more so, on the bad weather Scott's group encountered during their trek to the pole. We follow the group of five beyond the "H of Hell" to the "awful place", shivering with them from blizzards and very low temperatures, and sharing their hunger and thirst. The human story, which has been pieced together from the accounts of the men involved, is illuminating.

Modern weather data are used in a new way to provide insight into the misfortune of the fatal journey. Scott was aware that meteorology would play a major part in this polar trek. He thoroughly investigated weather conditions during various trips in March, July and September 1911, and discovered that temperatures at the barrier (the Ross Ice Shelf) were about 20 °F lower than at the Cape Evens base camp. A minimum thermometer at One Ton Camp (on the barrier) recorded a temperature of –72 °F in 1911, whereas measurements at Cape Evens revealed a long, 'coreless' winter with mean temperatures of about –23 °F. George C. Simpson, the expedition's meteorologist, predicted that Scott would have to face a short and cold summer during his trek, with temperatures rising by 20–30 degrees during blizzards and falling afterwards.

Unfortunately, Scott decided to start late in 1911, because of the poor condition of his ponies, which should have pulled the equipment. After the ponies collapsed, man-hauling the heavy sledges became an exhausting task. Despite this, they arrived at the pole on 17 January 1912. On their way back, very cold temperatures caused the snow surface to become like sandpaper — the sledges could barely be moved, because there was no further melting of ice crystals

FROM THE VOYAGE OF THE DISCOVERY VOL. I