

Decolonizing Science

J. Scott Turner

With some virtue-signaling fanfare, *Nature* magazine recently invited four guest editors to “lead *Nature* on a journey to decolonize research and forge a path towards restorative justice and reconciliation.”¹ The four penned an editorial to let *Nature* readers know what was coming, trotting out familiar tropes for our admiration. “For centuries, European governments supported the enslavement of African populations and the subjugation of indigenous people around the world.” True enough, but would it be churlish to point out that European governments also stamped out the slave trade, and at least in the American case, at substantial cost of blood and treasure? Would it compound the offense to point out that indigenous African kingdoms were deeply complicit in the transatlantic slave trade, and would it be compounded even more to point out that slavery is still a widespread practice, enslaving somewhere between twenty-one and forty-five million people, according to one source, nearly all of it practiced by the BIPOC countries of the world?²

In any event, what has any of that to do with science? Sprinkled throughout the editorial are similarly flawed syllogisms (Jefferson was a scientist. Jefferson was a slaveholder. Science is slavery), all couched in a language of moral outrage, stoked by George Floyd’s death, that brooks no dissent or dispassionate examination of the claims. Do not ask what the connection of George Floyd’s unfortunate

1 *Nature*, June 9, 2022, <https://media.nature.com/original/magazine-assets/d41586-022-01527-z/d41586-022-01527-z.pdf>.

2 “Slavery Today,” End Slavery Now, downloaded July 16, 2022, <http://www.endslaverynow.org/learn/slavery-today>

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demise might be to science, or the flame of righteous anger will be turned on you.

Lurking within the article, however, is a serious question that one can actually explore critically: where “indigenous knowledge,” or “indigenous scholarship” as the guest editors phrase it, fits into the practice of modern science. The claim is made that neglect of indigenous scholarship by presumptively racist science has had “incalculably damaging effects on formerly colonized countries.” Left unspecified is precisely what the damage is, nor is evidence of the damage presented. But the claim of damage, incalculable or not, can at least be measured.

Nature itself is a good place to start. The magazine devotes a section of each issue to short articles about science careers. Six months prior to the guest editors’ article, *Nature* published an article by Saima Sidik, outlining a list of particulars where modern science has allegedly failed developing countries.³ There have been shortcomings, to be sure, but it’s hard to glean from the article the “incalculable” damage the four editors proffered. The complaint, rather, is the understandable annoyance that is provoked when scientists parachute into a country, do their work and leave, taking their data with them, and leave nothing for the country that hosted them.

Having spent the bulk of my research career working in a developing country, I can say such misbehaviors are quite real, and deplorable when they occur. There is nothing wrong with pointing out such shortcomings. Incalculable damage, though? Most visiting researchers of my acquaintance are, if anything, exquisitely sensitive to being good guests of the countries that host them. We usually take on foreign students as research assistants and graduate students, sometimes at personal expense. We include foreign researchers as co-authors on papers, and collaborators on research grants. International networking is almost an obsession, and we build close and enduring friendships. Word of rude scientific guests quickly gets around and are “unwelcomed” by various means. Hardly a story of oppression.

3 Saima Sidik, “Weaving the lore of the land into the scientific method,” *Nature* 601 (January, 13, 2022): 285-287.

What of indigenous knowledge? There are two issues. One is that foreign scientists deprive themselves. When these do not seek out and take the (often) deep knowledge of indigenes into account, they miss enriching novel perspectives indigenous knowledge could bring. The other is that foreign scientists steal indigenous knowledge, enriching themselves and their colonialist and corporatist masters, leaving the indigenes impoverished.

To the first issue: one of the subjects of Sidik's article was Daniel Hikuroa, who is an earth scientist at the University of Auckland. He is immersed in the "Maori way of knowledge," which is a significant area of governmental concern (there is even an official acronym, MEK, for "Maori Environmental Knowledge"). Dr Hikuroa is a prolific advocate of incorporating MEK into scientific practice. As an example, he raises the concept of *taniwha*, which are water spirits embodied in rivers, deep currents, oceans, and other bodies of water.⁴ *Taniwha* is an important component of Maori creation myths. It is invoked by the Maori to explain a variety of geophysical phenomena, including earthquakes and volcanic eruptions, tidal phenomena including tsunamis, and complicated turbulent flows in rivers and streams. Dr Hikuroa argues that geoscience is enriched by incorporating *taniwha*, and that doing so has "averted disasters."

No examples of averted disasters are given, but the article is short, and the claim should not be dismissed peremptorily. New Zealand is a mountainous landscape, carved everywhere by rivers, glaciers, and surrounded by treacherous oceans. It is easy to misread the land and seascapes, with bad results for roads, bridges, ports, and people. It is sensible, therefore, to incorporate the knowledge of people who have lived in these landscapes for centuries.⁵ This can be an important source of "geophysical natural history," and to be fair, a misunderstanding of turbulent flows is at the heart of many engineering blunders. And, there is certainly much left to explain about turbulence.⁶ But will *taniwha* lead us to a theory of turbulence that is superior to

4 "Stories of New Zealand's Extraordinary Landscape – Taniwha," <https://www.youtube.com/watch?v=f-bCr7Hlp3rQ>.

5 D.N.T. King, J. Goff, *Maori Environmental Knowledge in Natural Hazards Management and Mitigation* (Auckland, New Zealand, National Institute of Water and Atmospheric Research, 2006): 85.

6 Werner Heisenberg is supposed to have once said "When I meet God, I am going to ask him two questions. Why relativity? And why turbulence? I really believe he will have an answer for the first."

the Navier-Stokes equations? *Taniwha* is certainly colorful, and fascinating folklore, but it is at heart a mystical source of inspiration, not a scientific one. Furthermore, *taniwha* is indigenous to New Zealand: the Navier-Stokes equations apply everywhere there are fluids.

The *Nature* guest editors assert that science must be “decolonized” so as to avert visiting further damage on a developing world already sorely afflicted by Western science. The premise is wanting, but the rhetoric of decolonization underscores a convenient narrative: white colonists stealing natural resources upon which the prosperity of the non-white colonized depends. The narrative serves a larger program of wealth transfers from the developed world to the developing countries, ostensibly in lieu of royalties the indigenes would have been paid had their knowledge not been dispossessed of them by scientists working in service to rapacious colonialist and corporatist masters.

If only it were that simple! There is, in fact, a colonialist story to tell about science, natural resources, and the developing world, just not the story being promulgated by the rhetoric of the “Decolonize Science” narrative. An informative example is the saga of *Hoodia*, a succulent plant that is part of the folkloric tradition of the San tribes that inhabit the desert areas of Angola, Namibia, Botswana, and South Africa.⁷ Presently, the San comprise about 100,000 people, distributed among a number of small tribal groups following lifestyles that range from hunter-gatherer to pastoralist to agriculturist. The San speak several dialects of a distinctive language family known as Khoekhoe.

Hoodia is used by the San as an appetite suppressant (they also use it as an aphrodisiac). *Hoodia*’s potential as a weight loss drug has not been lost on the pharmaceutical industry. So, the question arises: who owns the rights to *Hoodia*? If any group of people can claim those rights as indigenous knowledge, it is the San. They are the aboriginal inhabitants of southern Africa, with a presence that goes back

7 S. R. Munzer, Phyllis Chen Simon, “Territory, Plants, and Land-Use Rights Among the San of Southern Africa: A Case Study” in “Regional Biodiversity, Traditional Africa: A Case Study in Regional Biodiversity, Traditional Knowledge, and Intellectual Property Knowledge, and Intellectual Property,” *William and Mary Bill of Rights Journal* 17, no. 3 (2009): 831-894.

roughly to 30,000 years, much longer than the Bantu tribes that colonized the region a few millennia ago.⁸

In 1996, the South African Council for Scientific and Industrial Research (CSIR) isolated *Hoodia's* appetite suppressing compound, labelled P57. Subsequent clinical trials showed that P57 suppressed appetite and promoted weight loss. Business ventures were planned to develop P57 into a marketable product. The CSIR patented the isolation method, and licensed its patents to a company, Phytopharm, which ultimately sublicensed it to Pfizer. Included in those plans were royalty payments to the San. So far, so good.

Despite the good intentions, the *Hoodia* venture was a failure. P57 was difficult to isolate and very expensive to synthesize. It proved to be no better at promoting weight loss than the usual regime of exercise and calorie reduction. Adverse effects on the liver hindered FDA approval. Pfizer could see no way to make money from P57, so no royalties from Phytopharm and Pfizer could accrue. This opened the door to a wild west market for *Hoodia* as a dietary supplement. Never mind P57, *Hoodia* in a pill would do the same as chewing the plant, so the reasoning went. Those *Hoodia* dietary supplements were no more effective than most other “dietary supplements” which promise the moon, but invariably fail to deliver. Dietary supplements are also under no obligation to prove effectiveness, as licensed pharmaceuticals are.

Finally, there were significant legal questions over just what intellectual property could be patented, and who could claim it. *Hoodia* supplements did not infringe the CSIR's patents, which covered the isolation of P57, not *Hoodia* itself. The San had had no role in developing the isolation process, and hence could claim no intellectual property rights. There was also a question of just who among the San could claim indigenous knowledge of *Hoodia*? The San are not a homogeneous group: some San tribes live where *Hoodia* lives, and so might be expected to have indigenous knowledge of the plant's uses, while other San tribes do not. Some San tribes use *Hoodia* as an

8 “Bantu” designates a broad category of black-skinned African tribes that trace their origins to West Africa. The Bantu are cattle herders, and estimates put their migration into southern Africa from 3,000 to 5,000 years before present. Most African Americans are descended from members of Bantu tribes brought to the New World through the transatlantic slave trade.

appetite suppressant, while other San tribes do not. Can only the former claim indigenous knowledge rights, to the exclusion of the latter? Complicating things further, some Bantu tribes use *Hoodia* the same way the San do. Could non-San people also claim intellectual property rights? Who, then, would decide such questions? As is usual in such cases, the almost infinite potential for hair-splitting has totally undermined any prospect of royalty payments ever going to the San.

There is an arguable moral case, if not a legal one, to be made that the San have come out of the *Hoodia* saga a damaged party. Who, then, should be held liable for the damage? There does happen to be a colonization issue at play here, just not one that supports (in fact, fatally undermines) the "Decolonizing Science" narrative.

The San are a colonized people. The original colonizers were not the Europeans, however, but the Bantu, who imposed a brutal regime on the San, driving them into the marginal habitats in deserts and along the desolate coasts. When the European colonists arrived, little changed for the San, nor has independence of the former colonial territories made much difference. The San remain the landless subjects of the now-dominant Bantu, kept like circus animals on their marginal reserves, to be milked for tourist dollars, but otherwise left to themselves. Their impoverishment comes from being alienated from property. The colonial regimes that subjugated them, European and Bantu, both had strong, if differing conceptions of property, which is the foundation for the generation and accumulation of wealth. The San traditionally have not, and their current colonial regimes see no reason to change that. There is the real decolonization narrative.

How, then, has science oppressed the San? I cannot discern the answer.