



1, 13 Photographs along the walking residency by Barry O'Hasterson. 2, 5, 6, 9, 10, 11, 15 Photographs around Koeberg nuclear power plant by Neil Overby. 4 Physicist and father of the atomic bomb Robert Oppenheimer. 5 The Porterville Galleon, a Bushman painting of a 17th-century Dutch ship. 7 Instrument panels in the control room of a nuclear reactor in Chernobyl. 8 An atomic bomb explosion being documented in Nevada in 1957. 12 The aftermath of the atom bomb dropped on Hiroshima. 14 A fire at the Fukushima nuclear power plant caused by a tsunami in 2011. 16 Warnings of radiation 30 years after the Chernobyl nuclear power plant disaster.

# NUCLEAR SUMMER

RECENTLY I took part in a "walking residency", making my way from Cape Point to the centre of Cape Town. Writers, artists, archaeologists, architects, academics — 12 of us hiked along coastlines and firebreaks and through informal settlements.

We visited ancient shell middens and ruined stone cottages, the site of forced removals. Huge cloud-banks filled up False Bay and broke against the landmass; weather systems came and went. We got sunburnt, argumentative, sentimental, sunburnt again. We put away our electronic devices and began remembering our dreams.

Then we came down the mountain like Rip Van Winkles to find that the world had changed in a week. The good news was that a surprisingly strong climate deal had been signed in Paris. The bad news was that the rand seemed poised to collapse, following President Jacob Zuma's firing of Nhlanihla Nene.

For this rambling seminar, we had all been asked to bring a work in progress, and mine was about nuclear power. In secrecy and haste, the Zuma government is pushing a deal for a new fleet of reactors. It will be the biggest procurement in our history, with a projected starting price of more than R1 trillion — but nuclear builds are notorious for running over budget.

The reason for the firing of Nene, some analysts suggested, was that he was stalling on nuclear, trying to protect the fiscus from a "presidential legacy" project that threatens to contaminate our economy, and our whole national project, for the rest of our lives.

**Hedley Twidle hiked from Cape Point to Koeberg power station. En route, while passing the traces of our ancient predecessors, he wondered what Zuma's nuclear dreams might mean for our distant successors. Do we know what we are doing? And will they know what we did?**

We all have things that keep us up at night, and the prospect of SA being locked into a "nuclear renaissance" with Vladimir Putin's Russia (or Xi Jinping's China, or François Hollande's France) is mine.

One of the troubling things about the debate is the language in which it is conducted: the technocratic confidence and business-minded briskness that pretends it has everything figured out. Debates about energy policy happen in the language of developmental economics and financial modelling; in long and acronym-riddled policy documents; in boring technical reports. Decisions are taken amid the short-term cycles of party politics and cabinet reshuffles, not in mind of the long history of building and decommissioning nuclear plants, then disposing of their waste — a process that the world is only just beginning to grapple with. The massive expense and difficulty of it is only beginning to become apparent.

Journalistic expertise and coverage of these larger questions is thin; but beyond even this, do we have the imaginative capacity to understand what a nuclear future entails? I want to suggest that when it comes to nuclear power and its alternatives, we (in a deep sense) do not know what we are talking about.

On either side of the argument, there are articles with titles like "Nuclear: What You Need to Know" or "Nuclear Power: The Facts". But what about all those things that cannot be rationally calculated, risks that cannot be conceptually grasped or understood?

Like: what does it mean — culturally, philosophically — to pro-

duce isotopes that are invisible to our senses but lethal for thousands, hundreds of thousands, millions of years? What does it say about our civilisation, the geologic layer we will leave behind, the Anthropocene? What is the lifespan of a human "face" when read across the expanse of deep time?

My idea for the residency was to work through all this while walking from Cape Point to Koeberg. While the others stopped in town, I pressed on up the coast towards what is (for now) the only nuclear power plant on the African continent. Built by the apartheid government in a gesture of defiant, embattled nationalism after 1976, it lies 30km up the West Coast from the city centre — shockingly close, yet also somehow distant from current debates.

The beach houses end and then suddenly: the twin towers of two pressurised water reactors in the middle distance, surrounded by a nature reserve with zebras, ostriches, antelopes. Huge pylons march in from the highway over the coastal scrub. Signs on the long white beaches tell you to go no further.

WHEN Koeberg opened in 1984, the whole population of Cape Town was given iodine tablets, since any of the winter northwesterlies would carry the radioactive "plume" right towards the city. Iodine reduces the absorption of radionuclides by the thyroid gland: the first line of defence in a nuclear emergency. Looking at the evacuation plan, the city's chief health officer accused Eskom of "absolute naivety" and moved out

of the metro in protest. The activist group Koeberg Alert was founded (its newsletter was titled *Fission Chips*) and an unlikely alliance formed between Atlantic seaboard estate agents and activists from the nearby "coloured" planned city of Atlantis.

The ANC was resolutely anti-nuclear during the struggle, even backing an expensive sabotage of Koeberg while it was being built. Four limpet mines were smuggled in by an employee, Rodney Wilkinson, who went entirely unsuspected; he even endured a surprise farewell party after he had planted the mines (praying they wouldn't go off ahead of schedule).

Escaping over the border to Swaziland on a bicycle, he eventually reached Maputo, where Oliver Tambo embraced him tearfully and triumphantly. The sabotage of Koeberg, which delayed its commissioning by 18 months, was one of the costliest blows ever inflicted on apartheid's infrastructure, and a coded message that far worse could be done if there was a will to do it.

Greenpeace made a similar point in 2002 when they landed in rubber dinghies at dawn, scaled the towers and draped a banner saying "Nukes Out of Africa". The campaigners were shocked at how easy it was.

But for the most part, the reactors exist as a blur on the edge of consciousness, innocuous as grain silos on the outskirts of a metro that has now grown to four million people — and one that would have to be evacuated for centuries if anything went seriously wrong.

But the evacuation plans show little change from the 1980s: they only deal with a 16km radius from

Koeberg, and no further iodine tablets have been issued. What should you do in a general emergency? "Stay indoors," says the government website. "Listen to Good Hope FM and KFM 94.5." If evacuation is ordered: "Drive carefully and take neighbours if necessary."

When I reached Koeberg two days after the end of the official residency, the staff were driving home ahead of Reconciliation Day. I too was surprised at being left to wander around unmolested, and seemingly unmonitored. A hiking trail meandered around a perimeter fence that was substantially less aggressive than that of the average South African suburban house.

I pointed my phone controversially at the national key point, trying to get the tortoises and succulents in the foreground. The plant hummed in the middle distance, pumping in cold Atlantic water to cool itself.

THE question of nuclear lives a kind of half-life in the cultural imagination. Debates that obsessed a whole generation of environmental activists in the second half of the 20th century now seem distant and half-forgotten — even though the waste and the warheads remain.

"We have talked our extinction to death," wrote the poet Robert Lowell in the 1960s, thoroughly sick of having to think about the Cuban missile crisis.

Writing against India's nuclear ambitions in her stinging 1998 essay *The End of Imagination*, Arundhati Roy registers a similar sense of rhetorical exhaustion. There can be nothing more humiliating for a

writer, she says, than to restate a case that has, over the years, already been made by other people across the world, "and made passionately, eloquently and knowledgeably". But she is prepared for this humiliation, she says, because silence would be indefensible.

"So those of you who are willing: let's pick our parts, put on these discarded costumes and speak our second-hand lines in this sad second-hand play. But let's not forget that the stakes are huge. Our fatigue and our shame could mean the end of us."

On the one hand, I arrived at this question, and Koeberg, without being against nuclear per se. Looking at those innocuous silos, you can understand the mid-20th century fascination with the atom as "the peaceful worker", the promise of electricity "too cheap to meter". No smokestacks, a "clean" power plant that you could imagine jogging around after work each day.

There are strong arguments by some environmentalists that nuclear must be part of the energy mix in dismantling the fossil fuel economy and meeting emissions targets.

Coal kills more people when it goes right than nuclear does when it goes wrong — this is the mantra of nuclear convert George Monbiot. He even hints that an obsession with nuclear disaster may be a kind of psychological displacement activity: a way of ignoring the everyday apocalypse of the fossil-fuel era that is now upon us.

But on the other hand, I have come to realise that there is no per se. Nuclear energy does not ever exist in some neutral realm; it is always deeply enmeshed in political

contexts, and (as SA's own strange nuclear history shows) it is always linked intimately to state power. The uranium oxide lying around the Witwatersrand as a by-product of Joburg's gold mines set the country on a distinctive course through 20th-century geopolitics.

Jan Smuts was ardently pro-nuclear, and Churchill (whose war cabinet he sat on) coveted his country's uranium. So did the US and France: the apartheid state was engaged in covert deals supplying these powers throughout the Cold War, receiving scientific expertise in return. So emerged what the ANC in exile termed a "nuclear Frankenstein" at the tip of Africa.

Hendrik Verwoerd was even more ardently pro-nuclear, championing it as an icon of nationalist modernity and setting in motion the programme that would lead to the development of six nuclear warheads from the late 1970s. These were destroyed in the early 1990s, making SA the only country ever to have dismantled an entire nuclear arsenal. Which sounds idealistic at first, until you trace the murky politics underwriting it all: the outgoing apartheid government's wish to keep its nuclear history secret; the resentment felt by an incoming ANC that the role of being Africa's sole nuclear power was not being

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entrusted to a democratically elected government.

The international community, they noted, seemed far more worried about the "new" South Africa's nuclear stockpile than it had ever been about the old. From the Congolese uranium that exploded over Hiroshima to the infamous "yellowcake" that the Bush administration claimed was being imported by Saddam Hussein from Niger — tracing the path of this mineral reveals a complex story about the half-lives of Western imperialism in Africa. A toxic history, and one that is now being reactivated in the direction of a toxic future.

As I was trying to pick my way through the pro- and anti-nuclear debates within the British left about the proposed refitting of the Hinkley Point C reactor in Somerset, I came across a dialogue between Monbiot and Theo Simon called "The Heart of the Matter": an eight-month e-mail exchange in which Simon outlined what his opponent admitted was the most compelling anti-nuclear argument he had ever heard. At the crux of it, Simon asserts that nuclear power is by its very nature anti-democratic.

Monbiot claims that "there is no contradiction between favouring the machines and opposing the machinations". Simon replies that this is to fundamentally misunderstand the nuclear machine. Because its installations are a prime target for terror, a prime source for lethal military material, and so potentially hazardous that all activity around it must be tightly and carefully controlled, it is an industry that demands impenetrable security, armed policing and author-

ised-only access. The paradox, he writes, is that "as one of the most uniquely toxic industrial processes we have ever developed, the greater good requires that there is total public scrutiny of its affairs — but the world is not safe enough for that, so we must rely on unaccountable self-regulation instead."

In other words, it is an energy path that requires, that mandates, that fits perfectly with centralised state control and secrecy — hence its ongoing appeal to autocracies. It is the opposite of decentralised, small-scale technologies for renewable energy. Following the events at Fukushima Daiichi in 2011, most social democracies have turned away from nuclear. Russia, India, China and now SA are looking to major expansion in the sector, even as the rest of the world regards it as a dying, expensive industry — and one which has never solved the problem of the long-term toxicity it produces, or in its euphemism, its "legacy waste".

THE cleanliness and bracing sea air of Koeberg are an illusion. Somewhere within that perimeter fence, the high-level waste of spent fuel rods is stored in cooling ponds. Low and medium level waste is driven up the N7 highway to be buried in an open pit at Vaalputs, in the dry landscape of Namaqualand.

But the most lethal waste — hundreds of tonnes of it — remains on the premises, too dangerous to move, or even to think about.

Outside the closed visitors cen-

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