D-Day and the pivotal role of an Aboriginal medicine

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D-Day and the pivotal role of an Aboriginal medicine

D-Day, the Allied invasion of Normandy on 6 June 1944, is widely recognised as one of the most decisive military operations of the 20th century. Before dawn, approximately 156,000 American, British and Canadian troops crossed the English Channel under cold sea-spray and grey cloud, advancing towards beaches heavily defended with fortifications and gunfire. Timing was everything—tides, moonlight, weather and an intricate choreography across air, sea and land. Yet in the lead-up to the operation, a seemingly mundane but potentially crippling problem threatened the entire plan: seasickness so severe that soldiers would be incapacitated before they could reach shore.

The remedy was sourced, remarkably, from an Australian Aboriginal medicine. In the 19th century, Victorian Government botanist Ferdinand von Mueller documented Aboriginal uses of plants in the *Duboisia* genus, particularly *Duboisia myoporoides*, commonly known as Corkwood. Aboriginal communities in eastern Australia had long understood and applied the plant's properties for specific purposes—this knowledge embedded in ceremony and medicine and requiring careful handling. Mueller's notes, along with specimens sent to Britain, drew scientific attention to an atropine-like substance once referred to as 'duboisine'. By the close of the century, chemists had identified the active compounds as scopolamine (hyoscine) and hyoscyamine, both tropane alkaloids related to those found in Henbane and Belladonna.

What Aboriginal people had long known through direct practice—that this tree had potent, targeted effects—was now described in Western pharmacological terms.

Solving a wartime problem

During rehearsal landings for the Normandy invasion, rough seas incapacitated large numbers of troops. Men were too nauseous to eat, too weak to carry their equipment and in no state to fight upon arrival. Allied medical officers urgently needed a reliable preventive for motion sickness, and existing supplies of scopolamine were insufficient.

Australia's wartime scientific networks mobilised to find a domestic source. Under what became the CSIR/MECC wartime program, Australian researchers trialled *Duboisia myoporoides* as a source plant, extracting scopolamine at scale. The resulting material entered Allied supply chains—chiefly those of Britain and, by agreement, America—well before June 1944.[1]

Cat. 66 **Eli Lilly and Company** (est. 1876), **US Army Motion Sickness Preventative**, 1944, print on cardboard, foil, pills, 1.0 × 6.0 × 2.0 cm, MHM2025.17, Medical History Museum.

The *Duboisia*-derived scopolamine was formulated into motion-sickness preventive tablets issued to troops crossing the Channel by sea or air. Secrecy surrounded these pills to the point that many veterans referred to them simply as a 'mystery pill'. Some soldiers found them invaluable, while others described pronounced side effects. Surviving US military wrappers from Operation Overlord are marked 'Motion Sickness Preventive'.[2] In collated veteran accounts, the physiological trade-offs are clear: some men recalled being 'sleepy and dizzy' or having a mouth 'so dry ... [one] couldn't talk', while others reported men 'asleep on their feet' in the Channel wind.[3] Pharmacologically, the picture is consistent. Scopolamine suppresses vestibular activity and nausea, but it can also cause sedation, dry mouth and cognitive clouding. For commanders, the choice was stark and practical: a drowsy soldier was preferable to one incapacitated by vomiting.

From south-eastern New South Wales to northern Queensland, *Duboisia myoporoide*s has had longstanding roles in Aboriginal cultural practices: as a sleeping draught, a fish poison, a ceremonial aid for spiritual connection, and other uses transmitted according to cultural protocols. Wartime secrecy meant there was no public acknowledgement that Indigenous knowledge had directly contributed to an operation of such scale and consequence. In the context of 1940s Australia, where Aboriginal people were denied many basic rights, that silence was compounded. Nevertheless, the knowledge—observed by colonial botanists, preserved in archives and repurposed as emergency pharmacology—proved instrumental.

This significant contribution of Aboriginal people and Australia to enabling the overthrow of Hitler is a part of history that should be embedded in the Australian school curriculum.

Postwar pharmaceutical legacy

The story did not end in 1944. The same alkaloids that steadied soldiers' stomachs became essential in ophthalmology—used to dilate pupils and relax smooth muscle—and Queensland developed plantations and processing facilities to meet global demand. Australia became the primary world source of *Duboisia*-derived scopolamine and hyoscyamine, supplying the building blocks for medications used in eye clinics, operating theatres and beyond. The economic value persisted for decades. The origin story, however, less so.

In the decades following the war, this Aboriginal medicine remained in high demand internationally, becoming the world's leading source of ophthalmic alkaloids for eye surgery. Its cultivation continued across Australia, driven by the same potent alkaloid content that had proven so vital in 1944. This enduring legacy underscores both the profound scientific value of Aboriginal knowledge and the global impact of its application.

Public recognition has grown in recent years. In 2018, the University of Melbourne's Medical History Museum staged the exhibition *The Art of Healing: Australian Indigenous Bush Medicine*. In 2019, it toured to King's College London, where the link between *Duboisia*-derived medicine and the D-Day seasickness problem was highlighted, drawing attention to this extraordinary intersection of Indigenous science and global history.

The *Duboisia* story illustrates a broader truth: Indigenous knowledge is not peripheral to world history; it is woven through it. The leaves of a small tree, prepared and used responsibly within Aboriginal communities, entered industrial wartime supply chains to make a pivotal military operation feasible. Yet recognition and reciprocity have lagged. Today, international agreements such as the Nagoya Protocol on Access and Benefit-Sharing have set out principles of prior informed consent and equitable benefit-sharing when traditional knowledge contributes to commercial products. While such policy cannot retroactively address historical omissions, institutions—especially museums and universities—can use their public trust to set the record straight.

There is also a modern legal coda. Between 2009 and 2017, Alkaloids of Australia Pty Ltd, a Queensland manufacturer of scopolamine N-butylbromide (SNBB) from *Duboisia*, engaged in criminal cartel conduct: fixing prices, rigging bids, restricting supply and allocating markets with overseas suppliers. In 2022, the Federal Court imposed penalties on the company and its former export manager, including a $1.987 million fine and the longest imprisonment term to date under Australia's criminal cartel laws (served by intensive corrections order).[4] That a medicine rooted in Aboriginal knowledge—vital on D-Day and foundational to postwar pharmaceuticals—remains valuable enough to attract corporate collusion underscores its enduring significance.

'Rematriation' and a just future for Indigenous knowledge-sharing

In the USA, the *Native American Graves Protection and Repatriation Act* imposes a statutory obligation for the return of certain tangible cultural property. In Australia, no comparable national law requires the rematriation[5] (repatriation) of intangible property, such as Indigenous medical knowledge. Victoria, however, has created a state-based register for Aboriginal intangible heritage. Australia has also not ratified the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003),[6] leaving no binding national framework for its protection or return. In the absence of such a legal framework, I have undertaken voluntary rematriation by travelling to and sharing this story with multiple Indigenous communities across Australia over the past decade.[7] For Aboriginal children and youth, hearing this story can foster pride in their cultural heritage and provide case studies illustrating why a statutory obligation for the return of intangible cultural heritage should be developed.

Duboisia myoporoides helped steady soldiers for an impossible crossing, but its deeper lesson is continuity: elders safeguarded knowledge, botanists recorded it, wartime scientists manufactured it, surgeons still rely on the same chemistry. That arc obliges us to ensure future uses of Indigenous knowledge proceed with respect, with free, prior and informed consent, and with fair benefit-sharing.

The story of *Duboisia* is one of resilience: knowledge that Aboriginal communities safeguarded for generations enabled a medical breakthrough when Western science needed it most. Today, the obligation is clear—to ensure such knowledge is protected, credited and shared on Indigenous terms. Moving forward, the test is simple: do our research, commercialisation and public storytelling return authority and benefits to the communities that first nurtured this medicine? If they do, this plant's legacy—and the Indigenous knowledge that revealed its power—will be honoured not just in history but in justice.

Dr Chris Kavelin

1 Paul Foley, '*Duboisia myoporoides*: The Medical Career of a Native Australian Plant', *Historical Records of Australian Science*, vol. 17, no. 1, 2006, pp. 31–69.
2 Motion Sickness Preventive, listed on *Vintage Productions*; described as 'sealed [and] ... issued to the Paratroopers on D-Day', www.vintageproductions.com/us-wwii-era-1941–1948/field-gear-and-equipment/motion-sickness-preventive-sealed-with-pills. See also, F Bertrand, 'Motion Sickness Preventive Pills', *La Petite Musette*, blog entry, 21 March 2017, www.lapetitemusette.com/project/motion-sickness-pills.
3 'Battle Relic #7', veteran accounts published on *Battle Detective*, battledetective.com/battlerelic7.html.
4 Australian Competition and Consumer Commission (ACCC), 'Alkaloids of Australia and its former export manager sentenced in criminal price fixing cartel', media release, 29 November 2022, www.accc.gov.au/media-release/alkaloids-of-australia-and-its-former-export-manager-sentenced-in-criminal-price-fixing-cartel.
5 In a personal communication with me in 2016, John Clarke (Gunditjmara) explained that women preserve and nurture most medical knowledge, so suggested 'rematriation' is a more appropriate term than 'repatriation'.
6 UNESCO, 'Convention for the Safeguarding of the Intangible Cultural Heritage', 2003, ich.unesco.org/en/convention.
7 For example, I travelled to share this with Wagan Guburu (Philip Obah Sr, the senior knowledge-holder of the Wadja people); elder Gudju Gudju (Seith Fourmile) (Yidinji); senior elder Uncle Bumi (Yidinji), who gave me a shield he made in recognition of supporting his people; and many other elders and Aboriginal community members. Some of those elders, such as Richard Franklin (Gunditjmara), shared knowledge of additional uses and history of the medicine. As a lecturer in a range of community development units and in Indigenous studies at various universities, I have shared this knowledge with scores of Aboriginal people in those classes over the years.

Author biography

Dr Chris Kavelin PhD

Dr Chris Kavelin PhD lived on the Wind River Reservation (Arapaho and Shoshone Tribes) before moving to Australia more than 30 years ago. His PhD in law is titled 'The Protection of Indigenous Medical Knowledge: Transforming Law to Engage Indigenous Spiritual Concerns'. He has taught intellectual property law for many years and convened the Globalisation of Indigenous Medical Knowledge unit at Macquarie University for more than a decade. He has been commissioned by heads of state and various Indigenous nations to assist in projects that revive national Indigenous medical systems and customary law systems.