

NICHOLAS CROTTY

Silver Death



Figure 1: ST 25401, Alethoscope – Single Lens, Italy, 1860–1870. Museums Victoria; photographer: David Demant; copyright: Museums Victoria.

In February 2023 I was in the Scienceworks collection store looking at broadcast receivers in the longspan racking. After 20 years of working in this store, I still find surprises. I came across a wooden cabinet covered with a glossy, honey-brown varnish. There were two doors at the front, which could be locked with a tiny silver key. Intrigued, I opened the cabinet and found two rows of 12 wooden slots inside, containing 14 photographs adhered to cardboard.

The cabinet was used with a single lens alethoscope (also known as a graphoscope).¹ The alethoscope had been made in Venice, Italy, in the 1860s by Carlo Naya, a photographer and optical instrument dealer. To operate it, a photograph adhered to cardboard was placed inside the device, where a lens would magnify the image and simulate stereoscopy, giving the photograph a three-dimensional quality when seen through the viewer at the front. The alethoscope was placed on top of the cabinet for viewing.

The alethoscope had been purchased by the museum from a Mr Little of Noble Park in 1963, along with seven large photographs of Japan and Fiji taken in the 1880s and seven prints of Irish landscapes and streetscapes dating to about 1910.

¹ Museums Victoria. (n.d.). *Item ST 25401 alethoscope – single lens, Italy, 1860–1870*. Museums Victoria Collections Online. <https://collections.museumsvictoria.com.au/items/384562>, accessed 1 March 2026.

I was fascinated and looked closer. At the back of the bottom shelf, I saw something crumpled. I reached inside and pulled out bits of torn yellowed paper and a thin, dirty, off-white piece of cardboard. The cardboard was about the size of a playing card, blank on one side and with a distinct hemispherical curve. At the centre of the curve, in crisp black print, were the confronting words:

"SILVER-DEATH"

No collection manager ever wants to find the word 'death' written on an object in the store. I wondered if it was toxic and could be lethal. It appeared to have been designed for a specific use, and the card might have been impregnated with silver. Alternatively, it could be a label that had detached from another item, which has since disappeared, deteriorated or dissolved.

The Scienceworks collections focus on science and technology items from across the globe and contain just about every kind of toxic material that exists: corrosives, carcinogens, explosives, flammables, toxins and poisons. I looked closely at the card. It read:

POISONOUS

- Not to be taken -

"SILVER-DEATH"

BAIT CARD

For Destruction of Silverfish



Figure 2: HT 58347, Bait Card – 'Silver Death', Silverfish, Kosmos Manufacturing Co., Melbourne, 1930s. Museums Victoria; photographer: Nicholas Crotty; copyright: Museums Victoria.

The Long-tailed Silverfish (*Ctenolepisma longicaudatum*) is part of an ancient group of animals that evolved hundreds of millions of years ago. Introduced to Australia, the species was first described in 1905 and is considered a synanthrope — associated with and benefitting from humans. It is a pest species that is highly resistant to insecticides. It has a voracious appetite, eating paper products and cellulose-based textiles such as rayon.

From the very start, the museum has had displays that taught visitors how to manage pests at home or on their farms and consequently acquired many samples of poisonous substances. The collection store is filled with glass bottles of white oil, naphthalene, dichlorodiphenyltrichloroethane (DDT) and even highly toxic liquid nicotine. Many of the samples were products made by Victor Leggo & Farmers in Yarraville and donated to the museum in late 1936. Some of them could be deadly. I knew that this piece of card might be extremely dangerous.

Excited and terrified in equal parts, I turned to the internet to find out more. But first, even though I had been wearing nitrile gloves, I washed my hands.

The search begins

The internet search brought up several interesting results, including a series of late 1930s and early 1940s advertisements and articles in local newspapers promoting a 'New Scientific Remedy', found on Trove, as well as a link to an eHive database.

The first advertisement, from *The Argus*, dated 7 November 1940, read:

"SILVER DEATH" WILL KILL THOSE SILVERFISH

Rid your home of Silverfish by using Silver-Death Bait Cards — the tempting food which lures, then kills, the pest. From 10 to 15 cards distributed in each infected room will rid your house of silverfish.

The cards are coated and impregnated with a special chemically prepared paste which provides tempting, though fatal, food for Silverfish. Fifteen cards in one packet.²

So, the mysterious card was a bait card. It was used to kill silverfish in the home and came in a pack of 15 cards for a sixpence. It was not a label; the card itself was the object. However, the '*special chemically prepared paste*' sounded ominous.

Another article, from *The Mail*, dated 6 November 1937, said that they could be bought direct from the supplier, Kosmos Manufacturing Company, in Swanston Street, Melbourne. The article stated that Kosmos had used a formula developed by the division of economic entomology of the Council for Scientific and Industrial Research (CSIR, later known as CSIRO) for a paste that was highly '*attractive but lethal*' to silverfish.³ CSIR proved that colonies of silverfish had been well controlled by such bait, with the pests preferring to eat it more than other food sources. In addition, these cards killed the initial infestation as well as their offspring.⁴

² Silver Death will kill those silverfish. (1940, November 7). *The Argus*, p. 6. <http://nla.gov.au/nla.news-article11305910>

³ Silverfish pests can be controlled by proper baits. (1937, November 6). *The Mail*, p. 12. <http://nla.gov.au/nla.news-page4628813>

⁴ Silverfish pests can be controlled by proper baits. (1937), p. 12.

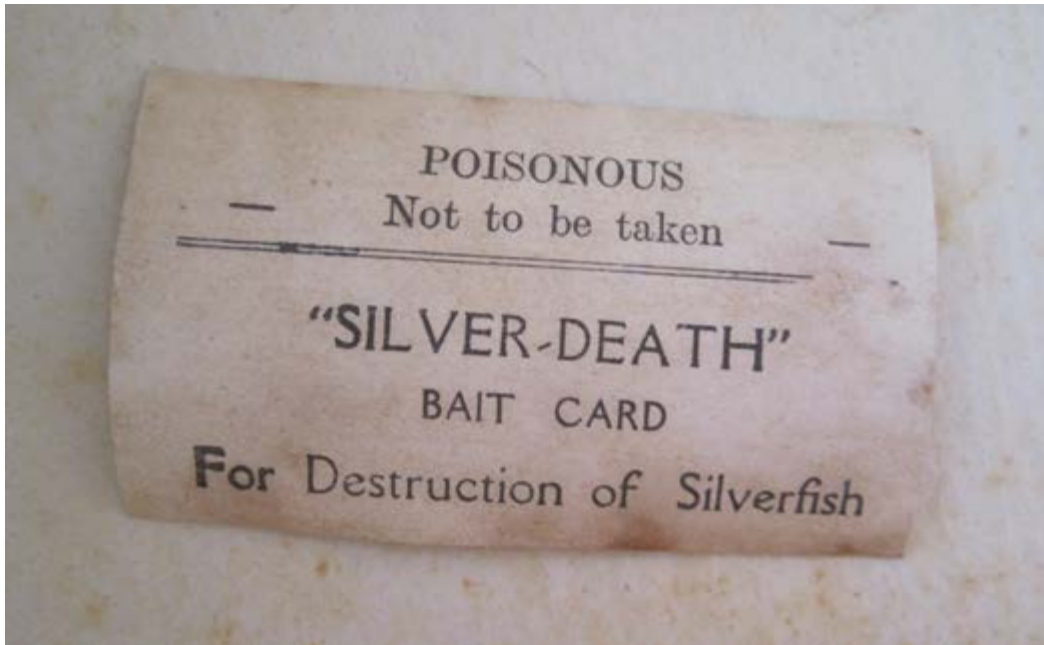


Figure 3: 42535.6, a bait card for silverfish. Miss Porter's House, Newcastle, NSW; photographer: Marion Bannister; copyright: Miss Porter's House, Newcastle, NSW.

A second card

The eHive database link took me to an Edwardian era National Trust property in Newcastle, New South Wales called Miss Porter's House. Described as '*a time capsule of life in the 20th century*', it features furnishings and household items purchased by the family from 1910 until 1997 as well as a historic fernery and period garden.⁵ It is listed on the UNESCO Australian Memory of the World Register, as the building tracks the lives of three women (the widowed mother, Florence, and her two daughters, Ella and Hazel) in a regional city over most of the 1900s. Custodianship of the Porter family's belongings was transferred to the National Trust in 1997 by the surviving daughter Hazel, and the property is now looked after by a group of dedicated and enthusiastic volunteers.

These volunteers had done an amazing job of cataloguing each item in every room. The record for '*a collection of items allocated the number 42535 and being the contents of the box numbered 42534*' described: '*A third item, numbered 42535.6, is a bait card for silverfish.*'⁶ Under '*Inscription and Marks*', they had written:

*Part 6: "POISONOUS / Not to be taken / "SILVER DEATH" / BAIT CARD / For Destruction of Silverfish".*⁷

It was a match. I had discovered another bait card!

⁵ Miss Porter's House – National Trust NSW. (n.d.). eHive. <https://ehive.com/collections/5831/miss-porters-house-national-trust-nsw>, accessed 1 March 2026.

⁶ Dish cloth; 42535. (n.d.). eHive. <https://ehive.com/collections/5831/objects/524498/dish-cloth>, accessed 1 March 2026.

⁷ Dish cloth; 42535. (n.d.). eHive.

I emailed Miss Porter's House at the end of a long day and asked if they could send me a photo of their card. I received two responses back that night — from the chair of the Miss Porter's House management committee, Annabel Senior, and from the collection data manager, Marion Bannister. Marion included a photograph with her email. The Miss Porter's House bait card looked identical to ours. Their card was off-white and slightly dirty, with black writing set out in the same way. It even had a curve!

The following day I replied with excitement and asked if their card was blank on the back or showed evidence of the mysterious chemical paste. I also recommended that they wore gloves when handling it. Within an hour I had a response. The back of their card was blank and did not show any evidence of a paste. They already knew to treat such an item with caution.⁸

Chemical investigations

At Museums Victoria we are fortunate to have a materials scientist on staff who can analyse our objects at an elemental level. Dr Rosemary Goodall used X-ray fluorescence (XRF) and Fourier transform infrared (FTIR) spectroscopy to analyse the card to see what kind of pesticide was used. Unfortunately, the results were not conclusive, and indicated that the paper was standard, with trace amounts of iron and barium and a weak trace amount of bromine. No toxic residues (arsenic, mercury or lead, for example) were found. However, the XRF does not detect organic compounds easily and the data from FTIR is drowned out by the cellulose in the paper card. It could be that other chemical compounds were used on the card but have since evaporated. The card may have given off a vapour (as naphthalene does) or it could have been designed to be eaten, with its attractive food paste component perhaps having been laced with a toxin such as para-dichlorobenzene, cyanide compounds or even strychnine. All of this sounded particularly nasty. Yet Dr Goodall confirmed that there was no silver mineral in the card. It would seem that 'Silver Death' only referred to killing silverfish.

The card enters the database

I spoke to Deborah Tout-Smith, senior curator of home and community at Museums Victoria, whose role includes curating the domestic life collections. Like me, she was immediately drawn to the mysterious card and especially the sinister product name 'Silver Death'. She agreed that the hazard could be reasonably managed, and that the bait card could become part of the state collection. I created a record and the card became HT 58347.⁹

Because the analysis could not confirm if the bait card was hazardous or not, I cautiously listed it as having suspected pesticide contamination in the collection database. I treated the card as if it were toxic, using nitrile gloves when handling it and storing it in a ziplock bag within a hazardous substances cabinet.

⁸ Marion Bannister later informed me on 9 June 2026 that Miss Porter's House in fact had four of these bait cards, all in the same condition.

⁹ Museums Victoria (n.d.). *Item HT 58347 bait card – 'Silver Death', Silverfish, Kosmos Manufacturing Co., Melbourne, 1930s*. Museums Victoria Collections Online. <https://collections.museumsvictoria.com.au/items/2576737>



Figure 4: 'Silver Death' advertising, *The Argus*, 7 November 1940, p. 6. Trove; copyright: Public Domain.

Investigations continue

The Kosmos Manufacturing Company produced a product based on the research of CSIR that sold well across Australia. By November 1945 they had increased capital from £2,000 to £5,000 by creating 3,000 ordinary shares.¹⁰ However, by May 1954 the business was voluntarily dissolved.¹¹

Dr Goodall's successor, Dr Callum Gassner, recently had another look at the data and thought that the presence of barium could mean that barium fluorosilicate was used as a toxic paste. Barium fluorosilicate was patented as a pesticide in 1827, mainly as an insecticide for silverfish.¹² It was often used as bait in a paste made of sugar, flour and gum arabic mixed in water. Applied as a paste to wooden furniture, it could conceivably have been used on a card and placed inside cabinets and other locations around the house.¹³

If ingested by humans, exposure to barium fluorosilicate can cause intense abdominal pain, vomiting or diarrhoea, muscular weakness or paralysis, cardiac arrhythmia and, in severe cases, death.

¹⁰ Kosmos Manufacturing Capital. (1945, December 11). *The Sun News-Pictorial*, p. 17. <http://nla.gov.au/nla.news-article279264938>

¹¹ Notice 9478. (1954, June 2). *Victoria Gazette*, p. 3715. https://www.austlii.edu.au/au/other/vic_gazette/1954/428.pdf

¹² The Society for the Preservation of Natural History Collections. (2025). Barium fluorosilicate BaSiF₆, sodium fluorosilicate, Na₂SiF₆. https://spnhc.org/biocides/#Barium_fluorosilicate_BaSiF6.2C_sodium_fluorosilicate.2C_Na2SiF6, accessed 1 March 2026.

¹³ The Society for the Preservation of Natural History Collections. (2025).

I contacted CSIRO about their formula. I received an email from their enquiries team with a link to the 1936 annual report.¹⁴ Under the heading 'Entomological Investigations', I found an entry about research into silverfish eradication. They had found that earlier pastes using starch and arsenic were not effective, but:

*a mixture of flour paste and sugar was shown to be more attractive than unsweetened paste; and a satisfactory poison bait was made by adding barium fluosilicate to this.*¹⁵

The paste was painted onto pieces of cardboard, and these were distributed to infected homes to remarkable success. The entomology team provided advisory work for all types of pests to:

*private individuals, business houses, and Government Departments in Canberra and elsewhere.*¹⁶

They gave advice and also applied treatments during their experiments. It is very possible that the owners of Kosmos Manufacturing used this knowledge from the 1936 annual report, or possibly from articles published in journals around that time, and in 1937 built a booming business around it.

An April 1970 letter to the editor in *The Canberra Times* provided further confirmation. Joan Faulkner of Ainslie in the Australian Capital Territory offered two recipes for homemade silverfish bait. Using flour, water and sugar in one recipe, she suggested that barium fluorosilicate or barium carbonate could be added and painted onto thin cardboard, allowed to dry and placed behind picture rails and in warm places. Joan remembered a commercially made product called 'Silver Death', but she added '*it is quite a while since I saw them*'.¹⁷

Conclusion

I am certain that Mr Little never imagined the investigations that would emerge from a small, whitish card left at the back of his alethoscope 60 years ago. His concern was likely that the silverfish in his house would destroy the photographs he sold with his cabinet.

Silver Death has long since disappeared from Australian shelves, yet these bait cards live on in museum collections where their potentially toxic legacy continues. Investigations into such chemical oddities provide a collection manager with information on how to work with such hazards safely and serve as a useful reminder that museum collections are ever surprising.

¹⁴ The Council for Scientific and Industrial Research. (1936). Tenth annual report of the council for scientific and industrial research for the year ended 30th June, 1936. p. 28. <https://csiropedia.csiro.au/wp-content/uploads/2020/05/10th-CSIR-Annual-Report-Year-Ended-30th-June-1936.pdf>, accessed 1 March 2026.

¹⁵ The Council for Scientific and Industrial Research. (1936), p. 36.

¹⁶ The Council for Scientific and Industrial Research. (1936), p. 36.

¹⁷ Faulkner, J. (1970, April 7). Silverfish bait. *The Canberra Times*, p. 2. <http://nla.gov.au/nla.news-article107918027>

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