



GEOFFREY KAYE
MUSEUM OF
ANAESTHETIC HISTORY

SIGNIFICANCE ASSESSMENT

Prepared for the Australian and
New Zealand College of Anaesthetists
by Dr. Megan Cardamone,
Circa Museum Services
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Cover image: Photograph from *Photo album, Anaesthetic Trays, 1950s-1970s*, Geoffrey Kaye Museum of Anaesthetic History Collection.

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Abbreviations & acronyms

ANZCA	Australian and New Zealand College of Anaesthetists
AHC	Anaesthesia Heritage Centre
AIF	Australian Imperial Forces
ASA(US)	American Society of Anesthesiologists
ASA(A)	Australian Society of Anaesthetists
GKM	Geoffrey Kaye Museum of Anaesthetic History
GKM Collection	Geoffrey Kaye Museum of Anaesthetic History Collection
GLAM	Galleries, Libraries, Archives & Museums
HALMA	History of Anaesthesia Library, Museum and Archives
HARU	History and Research Unit
RACS	Royal Australasian College of Surgeons
UM	University of Melbourne
UQ	University of Queensland
VC	Victorian Collections
WLM	Wood Library-Museum

Executive Summary

This Significance Assessment of the collection of the Geoffrey Kaye Museum of Anaesthetic History ('the Collection') was initiated in December 2022 by the Museum's Curator on behalf of the Museum's parent organisation, the Australian and New Zealand College of Anaesthetists (ANZCA). The aim was to understand the Collection's significance and its position within the context of international museum collections in order to apply resources strategically, guide collection management, enhance community engagement and steer future collection development.

The Assessment was undertaken in early 2023 by assessor Dr. Megan Cardamone of Circa Museum Services, based on a comprehensive examination of the Collection, data analysis and consultation with College personnel and other relevant stakeholders. This report outlines her findings. A Significance Assessment involves analysis of the values, meaning and context of a collection. It summarises how and why a collection is important, highlighting its strengths and the unique challenges for its management. It employs a framework of eight criteria and follows a standardised process widely recognised in the museums and archives sector.

This Collection of around 9,500 items includes medical instruments, apparatus and equipment, pharmaceuticals, oral histories, documents, photographs and ephemera. The Collection is owned by the College and managed by paid and honorary staff within the College's Fellowship Unit. The heritage building which houses the Collection is itself historically and aesthetically significant but does not have specific links to the Collection. However the presence of the Collection within ANZCA headquarters is extremely important.

The GKM Collection is the largest collection worldwide with a focus on anaesthesia and related fields of pain medicine, intensive care and resuscitation. It is also one of the most comprehensive with an international scope but a strong focus on the field's Australasian history. There are items of national and international significance in the Collection but the Collection is also extremely significant as a whole.

This diverse Collection is historically and scientifically significant with some aesthetic value. It documents the scientific and social history of the specialty and its key practitioners and innovators from the 1840s to the present. The highly complete sequences of instruments, equipment and pharmaceuticals, especially hand-engineered prototypes and trial drugs clearly demonstrate scientific advancement through medical research. Aesthetic appeal is present in designs of apparatus, vessels, labels and packaging. Documents, records, images, oral histories and digitised publications offer important research potential.

The Collection supports the College's objectives by educating people both within and outside the field. It conveys the institution's pride in the fascinating history of its specialty.

A series of recommendations at the end of this report focus on collection development, collection management, documentation, conservation and interpretation.

Context

This Significance Assessment was commissioned in December 2022 by Monica Cronin, Curator of the Geoffrey Kaye Museum of Anaesthetic History. The Museum and its Collection are legally owned by the Australian and New Zealand College of Anaesthetists (ANZCA).

Through the Museum, ANZCA has committed to care for the Collection and communicate its value into the future. Doing so supports a stated objective of the College—to promote education in anaesthesia, perioperative medicine and pain medicine.

Being educational, with an emphasis on continuous innovation, the Museum and its Collection also contribute to the College’s stated vision to be a recognised world leader in training, education, research, and in setting standards for anaesthesia and pain medicine.

The Museum and its Collection also contribute directly to two goals in the College’s current Strategic Plan, namely to:

- drive a culture of research and quality improvement;
- be the trusted source of expertise in and knowledge of anaesthesia and pain medicine.

Purpose

The purpose of this Significance Assessment is to present an analysis of the Geoffrey Kaye Museum's Collection and explore its role and significance. Having this understanding will help the College determine how best to manage and use the Collection.

Significance 2.0, the museum sector's standard framework and guide for assessing significance notes that in every museum, 'there is a backlog of items needing conservation and research, and collecting organisations face difficult decisions about which collections to digitise and make accessible online. Every day, collecting organisations are making judgements about which items and collections will be collected, conserved, researched and made accessible. These are profound decisions that shape what future generations will know and understand about the past and present'.¹

As this statement attests, caring for collections requires time, space and other substantial resources to be committed in perpetuity. So it is important to understand which aspects of a collection are most significant, which are less so, and therefore to be able to prioritise expenditure of limited resources in the most strategic way. Thinking about significance can help to answer questions such as 'What should we collect?', 'Where should we expend resources?' and 'What stories can our collection items tell?'

For any collection, a more accurate significance picture can:

- provide a better understanding of the Collection;
- capture information about the Collection including its history;
- ensure best practice in collection preservation;
- support enhanced public access and engagement;
- guide effective resource allocation;
- identify its role in and value to the community;
- assist with determining the Collection's future development;
- provide weight to requests for funding or support for the collection.

¹ Significance 2.0

About Significance

In the GLAM (Galleries, Libraries, Archives and Museums) sector, the term 'significance' refers to the values embodied within an object, other than its financial value. Identifying the historical, social and spiritual values of collection items, and their past and potential usage, helps to create meaning for the items and for the collection as a whole.

Significance is not fixed in time but may alter with changes in communities, culture, politics, science and the environment. Significance assessment and practice is a dynamic process that will continue to develop and adapt as the circumstances and demands on collecting organisations change. Both the individual significance of an object and its value to the collection must be considered in the assessment process.

A significance assessment involves five main steps:

1. analysing an item or collection;
2. researching its history, provenance and context;
3. comparison with similar collections;
4. understanding its values by reference to the criteria;
5. summarising its meanings and values in a statement of significance.

The standard criteria which were used to assess the Geoffrey Kaye Museum Collection are:

- historic significance
- artistic or aesthetic significance
- scientific or research potential
- social or spiritual significance

Four comparative criteria are also used to evaluate the degree of significance. These modifiers of the main criteria are:

- Provenance
- Rarity or representativeness
- Condition or completeness
- Interpretive capacity

Significance 2.0 notes that using a consistent set of criteria facilitates more accurate analysis and helps elucidate the unique characteristics and meanings of every item and collection.²

² Russell and Winkworth (2009)

Methodology

This Assessment employed the industry standard processes set out in *Significance 2.0: A Guide To Assessing The Significance Of Collections*. This Assessment report largely follows the format recommended by the National Library of Australia which administers a major Significance Assessment program. Wide-ranging background research about the Collection and the Museum was conducted using online and print sources. On February 16th 2023 the Assessor attended the Museum for a full day site visit to examine the Collection and Museum environment and to hold discussions with key personnel, in particular the Curator Monica Cronin.

Subsequently, other consultations were conducted by email and phone. During the assessment process, the Assessor consulted the following persons:

- **Jan Sharrock**, Executive Director, Fellowship Affairs, ANZCA
- **Monica Cronin**, Curator, Geoffrey Kaye Museum of Anaesthetic History
- **Dr. Christine Ball**, Specialist Anaesthesiologist, Honorary Curator at GKM, Adjunct Associate Professor at Monash University, author of *The Chloroformist*, a biography of anaesthetic pioneer Joseph Clover and co-author of articles on the history of anaesthesia for the clinical journal *Anaesthesia and Intensive Care*.
- **Dr. Peter Featherstone**, UK-based anaesthesiologist and co-author of articles on the history of anaesthesia for the clinical journal *Anaesthesia and Intensive Care*.
- **Dr. Reg Cammack**, Chair of the HARU Committee (overseeing Harry Daly Museum), Australian Society of Anaesthetists, Sydney
- **Amanda Helfers**, Museum Specialist, Wood Library-Museum of Anesthesiology, Illinois, USA
- **Helen Laffin**, Acting Curator/Museum Collection and Archives Officer, College of Surgeons Museum, Melbourne
- **Dr. Sukumar P. Desai**, Historian and Faculty member, Harvard Medical School
- **Liu Qian**, Japanese Society of Anesthesiologists
- **Grace Mooney**, Consultant collection assistant at GKM
- **Luis Calleja**, History student at Monash University who carried out a student placement at GKM
- **Ari Hunter**, GKM Intern 2015-2016
- **Rebecca Lush**, former student volunteer at GKM, then Curator of the Harry Daly Museum and now working in the Integrated Pathology Learning Centre (anatomy museum) at UQ
- **Joy Ritchie**, repeat visitor to GKM and member of the general public.

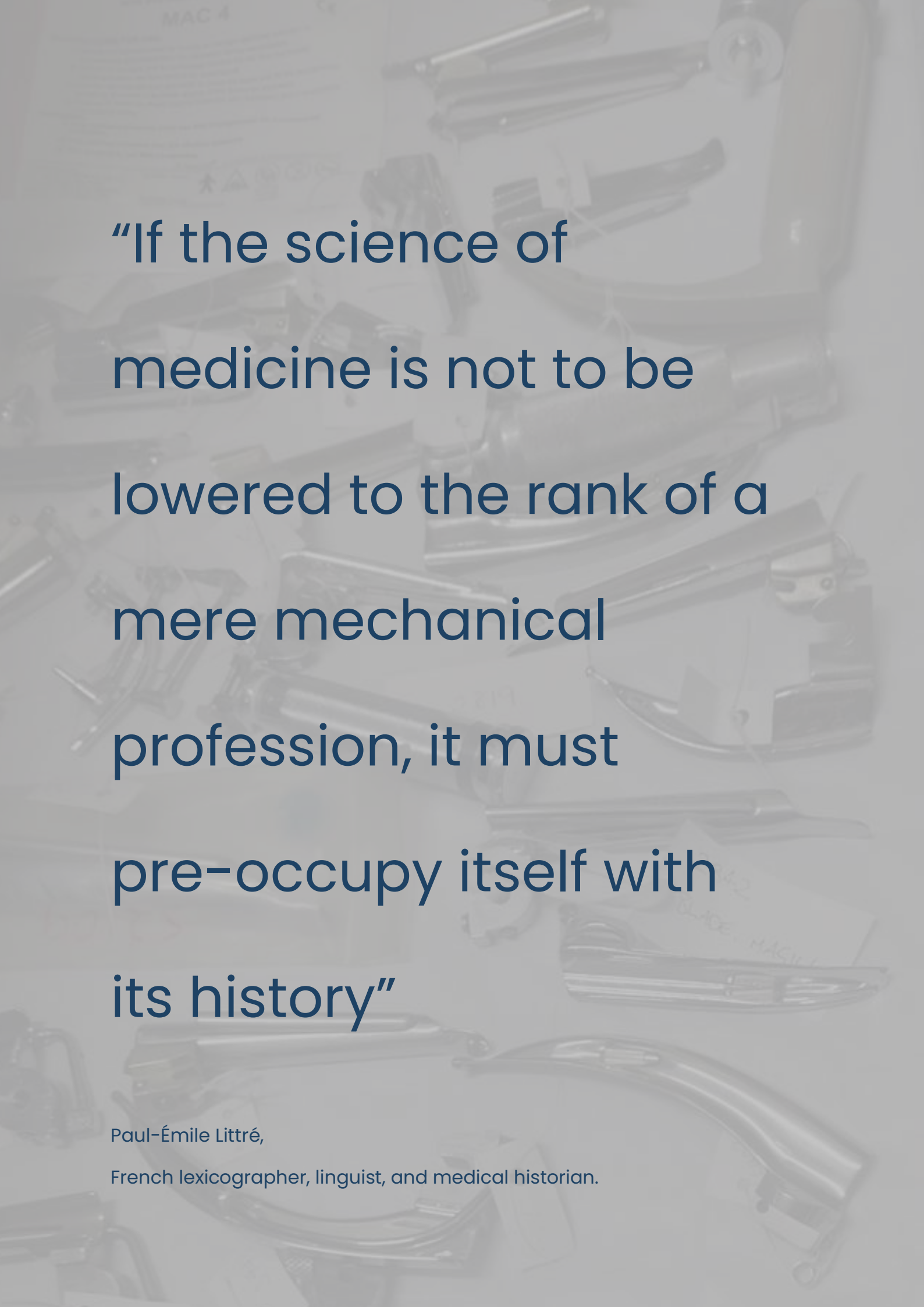
The Assessor also examined content posted on Facebook and the GKM's Twitter account and analysed web traffic data for the Museum's *Victorian Collections* account.³

Scope

The entire Geoffrey Kaye Museum Collection was within the scope of this Assessment. The Museum's Curator also manages a corporate collection including art, and a series of College archives which document organisational history. These were not included in the Assessment.



³ Kindly provided by the *Victorian Collections* management team.



“If the science of
medicine is not to be
lowered to the rank of a
mere mechanical
profession, it must
pre-occupy itself with
its history”

Paul-Émile Littré,

French lexicographer, linguist, and medical historian.

Summary description of the organisation and its collection

The Geoffrey Kaye Museum of Anaesthetic History is owned and managed by the Australian and New Zealand College of Anaesthetists (ANZCA). The Museum's Collection is housed in the historic house *Ulimaroa* within ANZCA's headquarters in Melbourne, Australia.

Founded in 1935 by Dr Geoffrey Kaye (1903–1986), the Museum and its Collection ('The Collection') chronicles the history of anaesthesia, intensive care and pain medicine. It is a materially diverse collection of over 9,500 items encompassing documents, photographs, artefacts, medical and scientific equipment and associated research material. It is the largest and one of the most comprehensive anaesthetic history collections worldwide. Largely assembled by Geoffrey Kaye in the 20th century, the Collection has continued to grow further in recent decades.

The Museum's Collection focuses on the development of anaesthesia practice from its beginning in 1846 through to contemporary practice. It is international in scope but with an emphasis on Australian practice. A number of related medical specialties are also represented in the Collection, such as pain medicine and resuscitation. The Collection focuses on the equipment, apparatus and instruments designed for advancement in practice, as well as the lives and contributions of the many individuals who have grown the specialty.

History and significance of the organisation and its collection

History of the organisation

The Australian and New Zealand College of Anaesthetists (ANZCA) is the professional organisation for around 5,000 specialist anaesthetists (Fellows) and 2,000 anaesthetists in training (trainees). One of Australasia's largest specialist medical colleges, ANZCA, along with its Faculty of Pain Medicine, is responsible for the training, examination and specialist accreditation of anaesthetists and pain medicine specialists and for the standards of clinical practice in Australia and New Zealand.

ANZCA was founded in February 1992 after operating for forty years as a Faculty of Anaesthetists (formed 1952) within the Royal Australasian College of Surgeons.



Museum exhibition area, c.2022

History of the Collection

The Collection of the Geoffrey Kaye Museum of Anaesthetic History began as the personal collection of Geoffrey Alfred Kaye (1903–1986). Kaye became a key figure in Australian anaesthesia and is internationally regarded as a pioneer in the fields of anaesthetics and anaesthetic apparatus design.

Kaye was born in Melbourne in 1903, the youngest of four children of a Jewish family whose father, Alfred, was involved in the furnishings business. He was born Geoffrey Kornblum, later changing his name to Kaye. He did not follow the Jewish religion and in later life professed to being an atheist.⁴ The family moved to London when Geoffrey was a young child and he enjoyed a privileged upbringing. Kaye recalled that around the age of five, he was 'put to sleep' with a Clover's inhaler.⁵ Perhaps this was the beginning of his lifelong fascination with anaesthetics.

After graduating from the University of Melbourne MBBS program in 1926, Kaye worked at the Alfred Hospital in Melbourne where his interest in anaesthetics began. Appointed an honorary anaesthetist at the Alfred Hospital in 1930, Kaye then travelled to the United Kingdom, Germany and North America, expanding his knowledge of new research, apparatus and techniques. Influenced by American anaesthetics advocate Francis McMechan, Kaye established the Australian Society of Anaesthetists (ASA(A)) in 1934 and became its first Secretary.

Kaye was an avid collector of both art and anaesthetic equipment. He also travelled internationally on a frequent basis, which was somewhat unusual for an Australian in the 1920s and 1930s because it was so costly. Kaye was independently wealthy and he had a wide range of contacts internationally.

⁴ Westhorpe 2007

⁵ Westhorpe 2007

Honorary Curator Chris Ball commented about Kaye:

Everybody gave him equipment so we have a really eclectic, varied collection. That's unusual because the Wood Library in America is mainly American. The Dräger Collection in Germany is all [German manufacturer] Dräger. The association in Britain has a collection which is largely British. But we have a really broad coverage of equipment because he knew so many people around the world.

Through travel, lectures and demonstrations Kaye assisted in the professional development of his speciality. During his career he published over 200 works on anaesthetics, including the first Australian textbook, *Practical Anaesthesia* (1932).

During World War Two (1938–1945), Kaye served in the Australian Army Medical Corps sharing his expertise to aid in medical training. He was appointed a captain in the Australian Army Medical Corps and subsequently adviser in anaesthetics to the Australian Imperial Force in which role he established workshops and trained Army personnel to maintain and repair the equipment.

During the war, organised metal salvage was one way that civilians in Australia, the UK and the US were called upon to support the war effort. Metal reclaimed in community scrap drives could be used to manufacture artillery, ships, airplanes and other military equipment. Most early anaesthetic equipment contained metal and as a result it was a prime candidate for scrapping. As a result, there was a huge loss of early anaesthetic equipment in the 1930s and 1940s. Thus the pre-war material collected and preserved by Geoffrey Kaye is a highly significant aspect of this Collection.

In 1946, Kaye established an undergraduate teaching program at the University of Melbourne and used his nascent collection to teach and demonstrate principles and processes to students. Kaye collected, traded and purchased objects he thought were important to the history of anaesthesia practice often directly from hospitals once the equipment

VGKM5429 - Dr. Geoffrey Kaye
working with a lathe at his South
Yarra home, c.1980s.
Photographer unknown.



was no longer in use. Kaye sectioned some equipment to help medical students fully understand the processes and operations of anaesthesia. Kaye 'envisaged the collection not merely as having historical value but as an integral dimension of the Society's teaching role'.⁶

During Kaye's curatorship, parts of the Collection were dispersed. He sent items to other collectors around the world, and therefore some pieces originally collected by him are now in collections in other parts of the world. However, the GKM Collection also became more international, because sometimes these donations involved a swap.

In 1951, Kaye established a headquarters for the ASA(A) in a section of his home with a library and a dedicated space for his anaesthetics collection. Kaye stated in 1955 that, 'the Museum was designed to collect and preserve the apparatus of the past, to display the apparatus of current use, and to provide lecture demonstrations'.⁷ Around this time, a falling-out occurred between Kaye and the ASA(A) and he severed ties with the Society and the specialty. Kaye dismantled the headquarters he'd set up and ejected the Society from the premises. The ASA(A) then donated the holdings of the library and museum to the (then) Faculty of Anaesthetists of the Royal Australasian College of Surgeons.

Peter Penn, who became Curator during the next period created the first catalogue of the Collection. The 'Penn Catalogue' is still an extremely valuable and well-used resource at the Museum today. Penn was interested in the 'evolution of hardware' aspect of the Collection and he made extensive notes which have enhanced provenance and understanding of the way items were used in practice. After Penn's death, others including Gerald Westmore and Kevin McCaul worked with the Collection on a limited basis.

⁶ Marginson 2007

⁷ Quoted in Triarico 2008

Kaye eventually mended his rift with the ASA(A) and returned to the anaesthesia community, opening the Society's jubilee meeting in 1984. In 1985, the Board of the Faculty of Anaesthetists of the Royal Australasian College of Surgeons asked Professor Kester Brown (1935-2018) to review the Collection which 'was then housed in the attic of the College of Surgeons'.⁸

As a result of Brown's review, in 1988 Rod Westhorpe and Christine Ball were appointed as Honorary Curator and Honorary Assistant Curator respectively. At the time Westhorpe was the Deputy Director of the Anaesthetic Department of the Royal Children's Hospital and Ball was an anaesthetic registrar in that department.⁹ Both had viewed the array of 'boxes in the attic' and expressed an interest.¹⁰ When they first took on their Honorary roles, they felt they had 'little knowledge, few resources, little organisational support but a phenomenal collection in need of much care and attention'.

As Honorary Curators, they proposed remedial actions to the College Council and reached out to the wider organisation for support. Over time and with perseverance they achieved a gradual increase in funding and support from the College Council and CEO. They also conducted a major inventory, advocated for the purchase of proper cabinets and the resources to establish an accessible catalogue. And they agitated for the appointment of a professional museum curator.

The GKM Collection was moved to new premises in 1992 with the formation of ANZCA. From 2003, museum professionals (initially Elizabeth Triarico followed by Maria Drossos) were employed and worked alongside the Honorary Curators to professionalise management of the Collection and Museum, through improvements to display, documentation and the storage environment.

⁸ Book – p.3

⁹ Ball 2016a

¹⁰ Ball pers. comm. 2023 and Kester Brown in Foreword of Ball & Westhorpe 2012

Over many years safety policy and procedures were established for the management of the many hazards in the Collection such as sharp objects, gases, drugs and medications. This was exemplary, ground-breaking work in the Victorian museum sector at the time.¹¹

The current Curator Monica Cronin has continued to build on these works, further advancing documentation, storage, programming and interpretation (presentation) of the Collection and achieving Full Accreditation of the Australian Museums and Galleries Association (Victorian branch) in 2015. A portion of the Collection has recently been published online with 373 items now publicly viewable under the Museum's profile on the *Victorian Collections* website. Christine Ball is currently the Honorary Curator. This role has transformed since it was initiated and today she notes her role has become less hands-on:

I provide moral support; I present and publish both nationally and internationally and keep the profile of the museum alive. I see that now as my honorary role – to be a representative of the museum and the wider organisation. The other important role of an honorary curator is that of content specialist. Over the thirty years I have been wandering through the collection, I have acquired some expertise and knowledge about the history of anaesthesia and I know many of the objects in the collection personally, although there is still much to learn. I also have a clinical knowledge of anaesthesia, and a broader knowledge of the history and practice of medicine. All of this gives context to the collection and our displays. Without this expert information, the professional museum staff would be working in a vacuum. In summary, an honorary curator is many things: an advocate, a representative, a content expert, a volunteer or, on occasions, simply a pair of hands.

¹¹ Westhorpe 2008

A History and Heritage Advisory Panel reports to the CEO and sits within the ANZCA committee framework and structure. It works on matters relating to the history and heritage of the college, and the specialties of anaesthesia and pain medicine.

At ANZCA's Annual Scientific Meeting in Sydney in May 2023, Geoffrey Kaye Museum personnel will operate an oral history booth where practitioners can drop in and talk about their Covid experiences which will be recorded for the Collection. At the Australian Society of Anaesthetists' National Scientific Conference to be held in Melbourne in October 2023, Museum personnel will provide the location for the History Special Interest Group session, and offer a tour of the Museum to around twenty attendees.

In March 2018, the GKM launched the online exhibition *The Rare Privilege Of Medicine: Women Anaesthetists In Australia And New Zealand*. The exhibition highlighted ten early women anaesthetists, many of whom were working in a time before anaesthesia was a recognised specialty. In 2021, it launched another online exhibition *Djeembana Whakaora: First Nations Medicine, Health & Healing*. It employed a unique collaborative process with First Nations knowledge-holders from Australia and New Zealand.



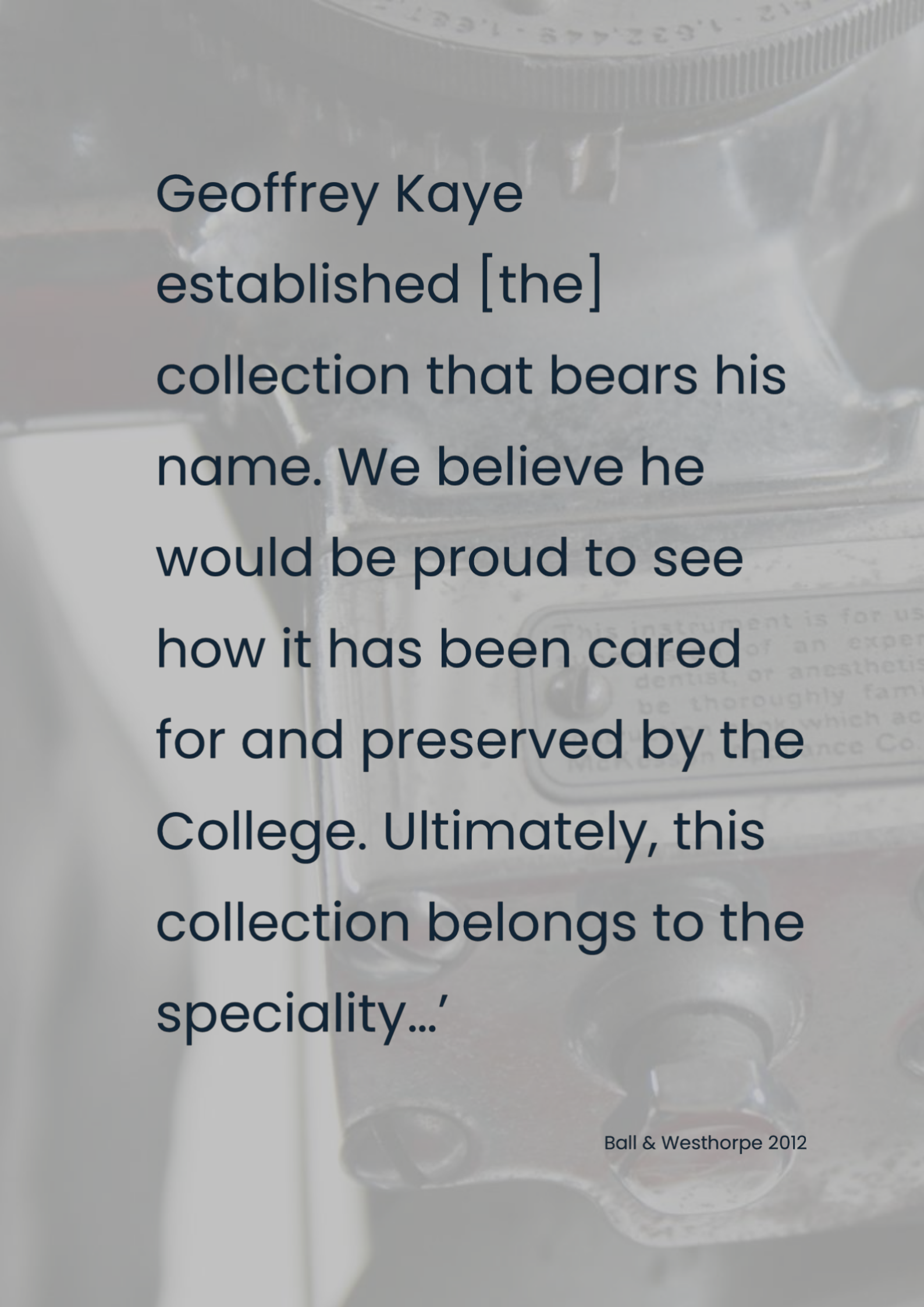
Dr Rod Westhorpe (then Honorary Curator) and Dr Christine Ball (then Assistant Honorary Curator)

History and significance of the organisation and its collection

Today, the Collection is comprised of around 6,500 registered (accessioned and catalogued) items and another 3,000 items which either need to be formally accessioned or need to be catalogued. A small percentage (2%) of the Collection is on display on the ground level of *Ulimaroa* and the remainder is housed across a store room and a workroom on the first floor.

The Museum continues to collect but is constrained by limited storage space. The Collection is catalogued on Vernon CMS which is a premium museum database program. As of March 2023, 2,180 Collection items have been photographed (around one-fifth of Collection items). For some items multiple images were made, resulting in a total of 3,871 images of the Collection.

The focus of the Collection has changed over time. It was originally very focused on equipment and medical innovation. As such, the most prevalent type of item in the Collection is anaesthetic machines. While that is still a focus area, the Museum now incorporates a historical archive and tries to use this in a public facing way (for example via a *Lives Of The Fellows* project). The Museum is now focused on the people and stories behind the objects, as well as the objects themselves. This has resulted in exhibitions on anaesthesia in war and peacekeeping settings, women in anaesthesia, contemporary pharmaceuticals and folk medicine.



Geoffrey Kaye
established [the]
collection that bears his
name. We believe he
would be proud to see
how it has been cared
for and preserved by the
College. Ultimately, this
collection belongs to the
speciality...'

Composition of the Collection

The main material types in the Collection are archives (documents, letters, photographs and ephemera), oral histories, books, equipment (masks, instruments and apparatus), machines and pharmaceuticals. The fields of medical specialisation represented are anaesthetics, pain medicine, intensive care and resuscitation.

Because of its origins, the Collection has an international scope, but focuses mainly on Australia and New Zealand. There are multiple copies/examples of many items because Kaye often followed a policy of collecting two of each item – one for posterity and one for education. This enabled him to section or otherwise modify one for teaching purposes and keep another intact.

The age of items range from an 1833 journal titled *The Doctor: A Medical Penny Magazine* to an Airway Intubator dated to 1986. Most items date from a period beginning with the emergence of anaesthesia in Western medicine from the 1840s up to the current day. In many object categories, the holdings are remarkably complete which means that a continuous chain of development is seen.

Ball said:

*'That is one of the great things about the Collection. If you want to look at where [the field] started and where it's got to, we've got [in the Collection] a continuous chain across just so many things—ventilators, needles, syringes, drugs, anaesthetic machines, resuscitation equipment. We don't have a lot of huge gaps in the timeline.'*¹²

¹² Ball 2023

History and significance of the organisation and its collection

The timeline, at least in terms of machines and equipment carries up to the 1980s. Material dating after 1990 is largely photographs, documents and some pharmaceuticals. While there is a desire to continue the timeline there are two challenges to doing so. The first is limited space, both for storage and display. The second is that contemporary machines used in anaesthesia are often large and electronic. Thus they have less interpretive or study potential – particularly if they are not powered on ‘there is not a lot to see’. So instead there has been a focus on collecting smaller contemporary items such as N95 masks and on recording oral histories.

Archives

A large series of archives include hundreds of photographs, documents, journal articles, records and ephemera.

Among around 460 accessioned photographs and slide images in the Collection is diverse imagery showing anaesthetists at work, delivering training or in their family or personal lives. Some images depict anaesthetic equipment in use, which is useful for better understanding the Collection.



VGKM6876 – Colour slide image of four medical staff attending to a patient under sedation.



VGKM6973 – Photograph of Mary Burnell being presented with her Honorary Fellowship for the Faculty of Anaesthetists, Royal College of Surgeons of England in 1973.

Museum professional and former intern Rebecca Lush commented:

I would say that photographs are amongst the most significant [Collection items]. There are a significant number in the collection that could tell extensive stories.

History and significance of the organisation and its collection

A notable photograph album from 1919 visually documents the work of pioneering Australian anaesthetist Dr Rupert Hornabrook (1871-1951). It presents a fascinating insight into the work of anaesthetists in the early 20th century, including their tendency to test anaesthetic techniques on themselves. Most of the images capture activities at Melbourne hospitals.



VGKM6580 – Image from Hornabrook Album

The archival holdings have been a vital source for *Lives of the Fellows*, an ongoing project uncovering the stories of Faculty and College Fellows which are presented in an online exhibition. The archives also contain material pertaining to early female anaesthetists in Australia. These are important materials in what has been historically a male dominated industry.



Photograph of Mary De Garis



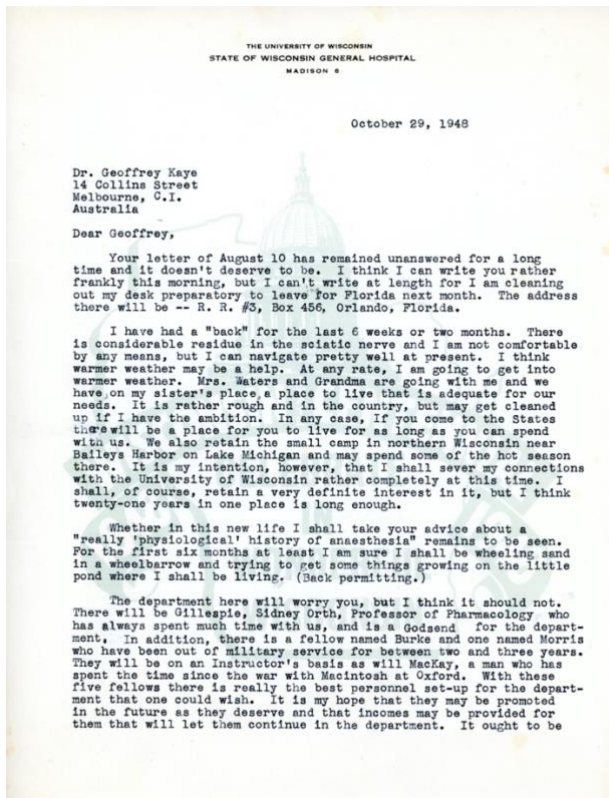
VGKM4726 – (Detail) Nameplate on case of anaesthetic machine owned & used by Mary De Garis

The Gwen Wilson Archive is vast and rich research resource, assembled over many decades by Gwenifer Wilson (1916–1998) a respected historian of the history of Australian anaesthesia. It is particularly useful for researching the under-recognised subject of women in Australian anaesthetics. Indeed, it was used for research on that topic during the development of the Museum's 2017 exhibition *The Rare Privilege of Medicine*. The photograph holdings also include images relevant to this subject area. The photograph above depicts female anaesthetist Mary De Garis who worked in the early 20th Century. The Museum also holds a Minnitt anaesthetic machine that was owned and used by Dr De Garis.

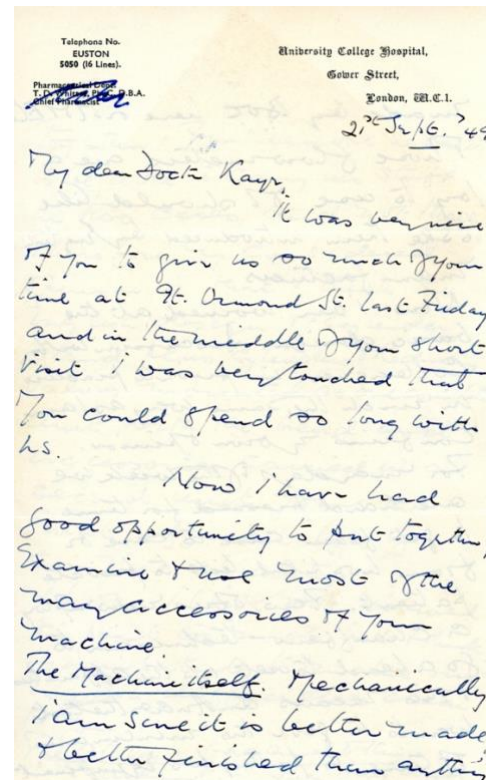
The second Victorian woman to achieve a Medical Doctorate, De Garis worked for decades in the Geelong region, travelling by horse and buggy and using this anaesthetic machine to assist women in childbirth. In doing so, it is said that she enabled more than one thousand safe deliveries. Her name is printed on the casing's nameplate. Items associated with De Garis demonstrate the potential for valuable interconnections between objects and archival material within the GKM Collection. These interconnections can enhance both provenance and interpretation. The stories drawn from the archival areas are vital for activating or 'bringing to life' the objects from the 'hardware' areas of the Collection, especially for lay audiences.

History and significance of the organisation and its collection

For some Collection items, provenance has been established through documents also in the Collection such as letters to Geoffrey Kaye from persons who donated items to him. These also provide insight into relationships Kaye had with other practitioners based overseas.

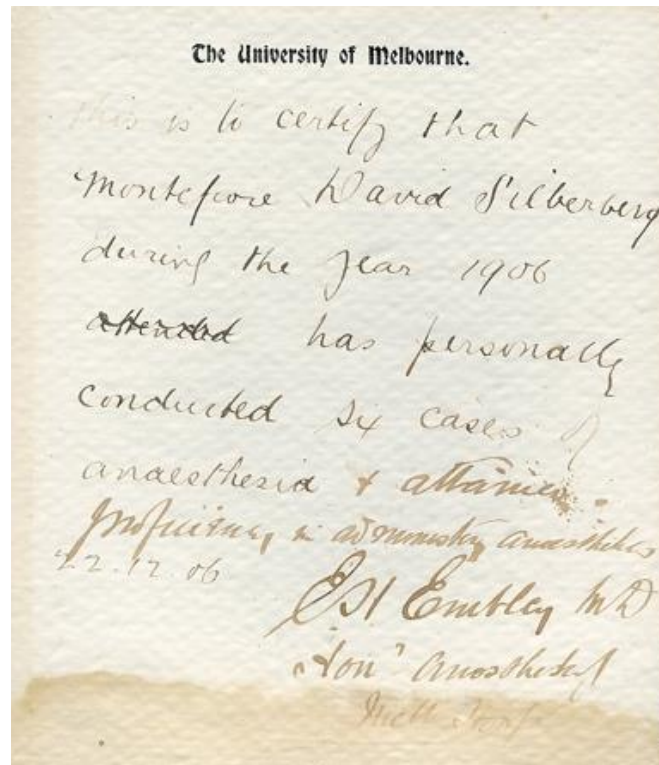


VGKM7313 – Letter (1948) from Ralph M Waters to Geoffrey Kaye, written on letterhead from The University of Wisconsin



VGKM7314 – Letter (1949) to Geoffrey Kaye from a correspondent at University College Hospital, London.

History and significance of the organisation and its collection



VGKM5046 - Handwritten certificate from the University of Melbourne acknowledging the proficiency of Montefiore David Silberberg in the administration of anaesthesia.

Another fascinating letter is one from 1906 that noted that a practitioner had achieved proficiency. It shows that at this time 'proficiency' was achieved after administering six anaesthetics, in contrast with the more than five years of specialist postgraduate training required today. This letter is currently on display and groups, whether Registrars or general public, frequently pause at this point to marvel at the historical change which the letter demonstrates. This is an example of the way that the Collection serves one aspect of the mission of the Museum: to inform the public about training in the speciality of anaesthesia.

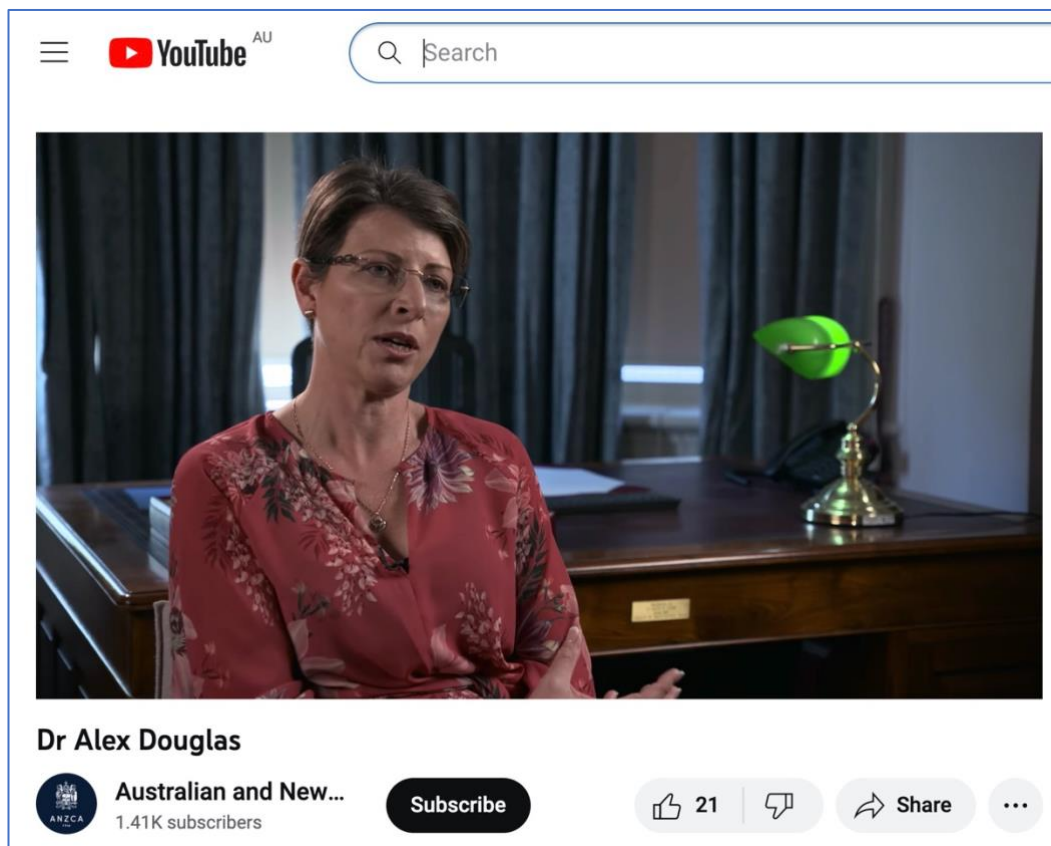
A small sub-collection of product brochures, manuals and trade literature such as catalogues relating to anaesthetic equipment are also significant, as they are increasingly difficult to obtain and can shed light on other Collection items such as equipment and machines.

Oral Histories

In recent years, the Museum has recorded a number of oral histories to capture the memories of people, places and events as told by important individuals within the specialties of anaesthesia and pain medicine. These interviews provide unique insights into people's involvement in key events in the history of the two professions in Australia and New Zealand.

Edited versions of sixteen of these oral histories are presented on the College's YouTube account which has 1400 subscribers. These videos have collectively been viewed 7,866 times. The video featuring Dr Alex Douglas is especially popular with 3,000 views.

The sub-collection of oral histories is an important avenue for ongoing collection development and an effective means to continue the chronology present in the Collection right up to the present day.

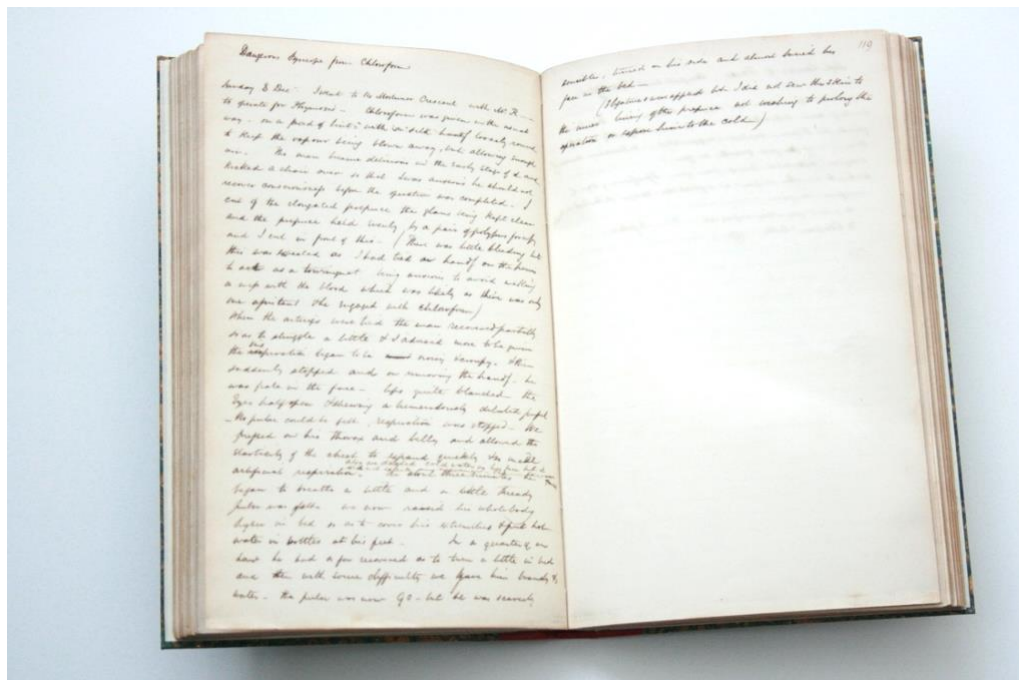


Screenshot: Oral History video, Dr Alex Douglas

Books

There are around 75 books in the Collection, most being 20th century textbooks. By far the most significant book, and one of the most significant items in the Collection is a casebook handwritten by English anaesthetics pioneer Joseph Clover between 1846 and 1853. The Clover casebook or 'Medical Observations Dr J.T. Clover. June 5th 1846' is one of the earliest items in the Collection. In it, Clover recorded the results of his experiments with anaesthesia, which were among the world's earliest. Clover is recognised as key pioneer of anaesthesia. Even though he was qualified as a surgeon, he soon began to concentrate his work solely on anaesthetics, and is considered the second medical practitioner (after John Snow) to have done so.

It is an original and only copy made by Clover. Thus it is rare although other Clover material is found worldwide and his papers are occasionally offered at auction. The casebook is in surprisingly good condition for its age. Other Clover-related objects in the Collection provide important context and interconnections with this book. These include a Clover Portable Ether Inhaler, a Clover's Ether Inhaler and a Clover's Portable Nitrous Oxide and Ether Machine, ten Clover inhalers and a letter to Geoffrey Kaye from Joseph Clover's daughter Mary.



VGKM4896 – Joseph Clover's case book (interior)

Provenance is very clear for this item since it, along with a valve handmade by Clover, were transferred from the Clover family to Robert Macintosh, a British professor of anaesthesia, who then donated them to Geoffrey Kaye. The casebook has immense research potential which has already been mined for a monograph on Clover, authored by Honorary Curator Chris Ball. In researching the book, Ball identified other primary Clover material in various collections worldwide and these provide comparative examples for this casebook. The Wellcome Collection in London holds numerous Clover papers. The Records Office in Norwich (UK) hold Clover family papers and diaries. The Wood Library-Museum holds four of his personal diaries. The College of Surgeons in London have some of his letters, and some Clover papers can be found in the Woodward Biomedical Library, University of British Columbia, Vancouver. Ball has digitised and copied all of this material and plans to lodge it at the GK Museum. This supplementary material will further enhance the significance of the casebook and of the Collection.

Clover wrote this casebook when he was a medical student, before he trained as a surgeon and around the time that anaesthesia was discovered. He eventually became the most important authority on anaesthesia in Britain and is featured on the crest of the Royal College of Anaesthetists.¹³ This artefact associated with one of the world's foremost pioneers of anaesthesia is historically and scientifically significant on an international level, and is significant for its rarity, condition and research potential. It is one of the most significant items in the Collection.



VGKM4896 – Joseph Clover's case book (exterior)

¹³ Ball 2021

Objects

The Collection includes a handful of objects relating to non-Western traditions. Objects relating to aspects of traditional Chinese medicine such as Cupping Acupuncture elicit strong engagement from visitors. Tours often tend to halt at the point where these items are displayed due to visitors prompting questions and discussion.

One interesting area of the Collection is a small group of ethnographic items related to curare. Curare was used as a paralysing agent by indigenous peoples in Central and South America mainly for hunting purposes. In the early 19th century, Western scientists became aware of curare mainly via expeditions in those regions. Curare was the first paralytic used in anaesthesia, introduced around 1940, but it has been replaced by newer agents. A blow-gun in the GKM Collection is similar to those from the Americas but this example originated in the Mah Meri community of Kuala Langat, Selangor, Malaysia. It is a bamboo tube decorated with intricate carvings with floral and geometric motifs. The motif is of a vine with small incisions to represent the poisonous properties of the plant. Other related objects are a quiver, filled with darts, a small poisons receptacle, and a single dart and hollow bamboo tube, stored outside the quiver. All of these objects were donated to the Museum in 1948 by Dr Thomas Edward Marshall. In the Collection this curare group represents the role of curare in anaesthetics history. A similar group of items, albeit from Ecuador, is held in the Arthur E. Guedel Memorial Anesthesia Collection at the University of California, San Francisco.

Equipment

Masks

Among more than 400 masks in the Collection there are a wide variety of designs and makers represented. Together the masks convey the persistent experimentation and creative engineering by numerous anaesthetists over nearly two centuries to refine and improve the delivery of drugs.



VGKM4560



VGKM0344



VGKM0691



VGKM0013

The sequence of mask innovation carries through the Collection up to the late 20th century. Notable masks from that era include prototype laryngeal masks designed to keep the airway clear, including the highly significant item pictured below. In 1981, Dr. Archie Brain (b.1942, British) conducted trials to create a mask that sat close to the larynx without the disadvantages of an invasive endotracheal tube. Despite the success of trials, Dr Brain struggled to attract commercial interest in his design. It is not known how many of the other prototypes have survived. In 1985, Dunlop Rubber showed interest, facilitated further development and produced the first factory made version by the end of 1987. By 1990, laryngeal masks were available in all UK surgical hospitals.¹⁴ The laryngeal mask airway (LMA) is now used routinely, in around half of all anaesthetics. It has been used over 300 million times worldwide in elective anaesthesia and emergency airway management.¹⁵ Brain made more than seventy prototypes and donated two to the Geoffrey Kaye Museum, including the one picture below.



VGKM 1499 – a prototype laryngeal mask, Dr Brain

¹⁴ Ball & Westhorpe, p92

¹⁵ Archie Brain Wikipedia entry

Instruments

Probangs are an unusual type of item found in the Collection. Today, suction is used to suck any secretions out of a patient's airway. A probang is a medical tool once used to clear mucus and pus from the lungs and airway. One of four examples in the Collection is pictured below. The probang was inserted and when the central stem was pulled within the outer sheath, the horse-hair section expanded in order to drag out substances as it is withdrawn. As well as being used in surgical procedures, probangs also became standard equipment in the dining halls of Victorian-period asylums in case of choking. When these are shown and explained to visitors at Geoffrey Kaye Museum the reaction is usually entertaining due to their 'gross factor'.¹⁶ These items are rare, but the Wellcome Collection (London, UK) holds at least one example of this tool.



VGKM 2003 – Horsehair probang, c.1889, mfr. Carl Zoeller, Germany.

¹⁶ Ball 2023

The Collection includes an extraordinarily complete sub-collection of needles, cannulas and syringes which together can communicate another important story of development.¹⁷



VGKM4894 – Portable doctor's hypodermic kit



VGKM5049 – Set of three metal and glass syringes

¹⁷ Ball 2023

The most significant of these is an 1853 Pravaz syringe, which is one of the oldest items in the Collection. French physician Charles Gabriel Pravaz is widely credited as the inventor of the syringe. It is a very rare example of this early syringe type and is in good condition. It has an elegant symmetrical design with a ring at the end of the plunger.



5052 – Pravaz syringe (1853)

Within the Collection are hundreds of other diverse instrument types including forceps, clamps, specula, and laryngoscopes.



VGKM 1973



One of many drawers containing laryngoscopes.

GKM holds an unusually complete array of around 120 laryngoscope blades which together can show the development of this key tool in anaesthesia.

Also present in the Collection are many tubed instruments such as catheters and over one hundred endotracheal tubes. There are also two examples of the Benjamin Jet Tube, an innovative anaesthetic tube for adult micro-laryngoscopy. This instrument was developed by Professor Bruce Benjamin, an Australian pioneer in ear, nose and throat surgery. Another interesting item among the tubed instruments is a kit of gold-plated O'Dwyer's tubes used in the early 20th century for intubating children.



VGKM 2398 - O'Dwyer's Tubes



VGKM0777 - Collin's Tongue Forceps



VGKM 2829 - Endotracheal tubes

Apparatus

Another series which can clearly illustrate continuous innovation in anaesthesia is the sub-collection of inhalers. Together these demonstrate a constant advancement in methods for delivering drugs to patients.

A replica Pugh's inhaler has aesthetic appeal and important interpretive capacity. It can be used to relate the story of how innovations were disseminated from Europe to Australia. In 1847, William Pugh fashioned an inhaler from an illustration in the Illustrated London News. Although it is only a replica (Pugh's original did not survive) it illustrates the creative skill and initiative of Pugh and other early Australian anaesthetists. Similarly, the replica Morton's inhaler is a beautiful object which can illustrate the innovation of American anaesthetic pioneer William T Morton (1819-1868).



VGKM - Replica Pugh's inhaler



VGKM - Replica Morton's inhaler

The Collection also includes a large number of authentic early portable inhalers which are rare items. They include Clover's, Wilson Smith's, Probyn-Williams', Hewitt's, Bruck, Ormsby and Carter Braine's inhalers. The Bruck inhaler is a modified Clover inhaler created by Ludwig Bruck, a controversial figure in Australian medicine who was active in Sydney in the late 19th and early 20th centuries. The Bruck inhaler is historically significant as it signalled a change in the way ether as anaesthetic was delivered.¹⁸

¹⁸ Hunter 2016



VGKM - Bruck inhaler



VGKM2069 - Inhaler, Hewitt's (Modified)

History and significance of the organisation and its collection



VGKM1019 – Probyn Williams Inhaler, presented to Sir Victor Hurley

A beautifully boxed Probyn Williams inhaler is engraved with an inscription indicating that it was a gift presented by the Medical Students Society Melbourne to T.E.V Hurley. Sir Victor Hurley was a Victorian surgeon, educator and medical administrator who gained prominence and renown through roles in the Australian Army Medical Corps, Royal Australian Air Force, University of Melbourne and Royal Melbourne Hospital. The Medical Students Society has existed from the 1880s to the present day.

Another notable drug delivery device is the RAMC Vaporiser, a significant prototype made by Geoffrey Kaye in 1939 in his role as adviser to the Director-General of Medical Services, AIF. It was created just before the outbreak of World War Two and the design was widely adopted and used by Australian Forces in that conflict. The example in the Collection, although a prototype, was used by Kaye in the Middle East. This item and others based on this design are estimated to have saved the lives of countless people in the War.¹⁹



VGKM6209 – RAMC Vaporiser (1939)

There is also continuous chronology of gas tanks, hoses and fittings in the Collection which convey an important technical evolution informed by safety. These range from 19th century gas cylinders marked only by coloured paint, through to the introduction of tailored connectors which prevent incorrect gases being accidentally delivered.

¹⁹ Ball & Westhorpe: p5

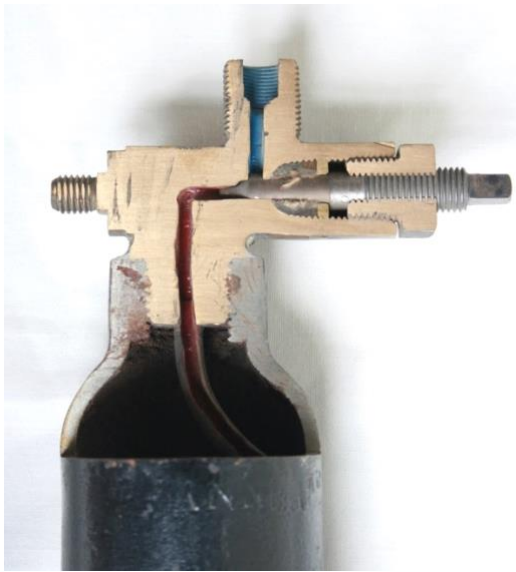


VGKM4976 – Cyclopropane Cylinder



VGKM0541 – Anaesthesia apparatus (combined flowmeter/rotameter, manifold, chloroform and ether vaporisers), mfr. A. Charles King Ltd. (England).

A notable aspect of the equipment held in the Collection is that many pieces are items Kaye sectioned. Some of these items have labels or areas painted in different colours to enhance their teaching function. These illustrate aspects of the item's operation, such as the direction of gases.²⁰



VGKM4463 – Oxygen cylinder (mfr. G. Barth & Co) sectioned for teaching purposes.



VGKM2106 – Sectioned EMO Ether Vaporiser

Items sectioned by Geoffrey Kaye are particularly significant, as he was closely involved in the development of anaesthetic equipment and in the training of anaesthetists. Even today, these mark-ups are useful for providing a clear understanding of how devices operated.

²⁰ Ball 2023

The Museum holds a substantial quantity of resuscitation equipment. These materials point to an historical link and relationship between the field of anaesthesia and Australian surf lifesaving services. Anaesthetists had a significant influence on important innovations in surf lifesaving resuscitation.²¹



2253 – Resuscitator kit, mfr. Commonwealth Industrial Gases, c.1960



VGKM4952 – Detail view of instructional illustration in interior of Dräger Pulmotor (Germany, c.1900)

Perhaps the most outstanding piece of resuscitation equipment in the Collection is a 'Pulmotor' by German manufacturer Dräger (pictured overleaf). As well as being an important historical artefact, it is beautifully crafted and housed in a timber case with an instructional lithographic image mounted inside (pictured above). There are several examples in the Dräger Archives in Germany, but in Australia this is rare item.

²¹ Ball 2016b



VGKM4952 – Drager Pulmotor (Germany, c.1900)

Machines

The transition from apparatus to machines is not clear cut but is represented in the Collection via dental anaesthesia devices like the Clark Gas Apparatus and the S.S. White machine. The latter is particularly significant. It is an early model with an elegant cast iron stand. It is remarkably complete, with gas tanks, two canvas gas bags, a detached metal mask and a fabric connecting tube.



VGKM4634 - SS White Dental machine, S. S. White Dental MFG Co., USA (19th C)



VGKM4603 - Clark Gas Anaesthesia Apparatus

They were designed and created with aesthetics in mind, being seen as part of the ornate furnishings used in many Victorian period dental surgeries.

An Insufflation machine in the Collection (reg 6583) is regarded as having been 'a game-changer' in anaesthetics. Designed by Dr Mark Lidwill around 1910–1913, after conducting experiments on himself. The Lidwill machine was a portable machine weighing 7kg that could easily be packed into two small bags. The machine involved compressed air being delivered to an ether vaporiser in a continuous regular flow. Lidwill's machine was used in operating theatres in hospitals throughout Australia for more than 30 years. The example held in the Collection is in reasonable condition for its age and is supplemented by photographs, letters and other objects associated with Lidwill as well as the certificate for a prestigious RACS Honorary Fellowship that was awarded to him. Lidwill also devised the first cardiac pacemaker and is considered a significant Australian.

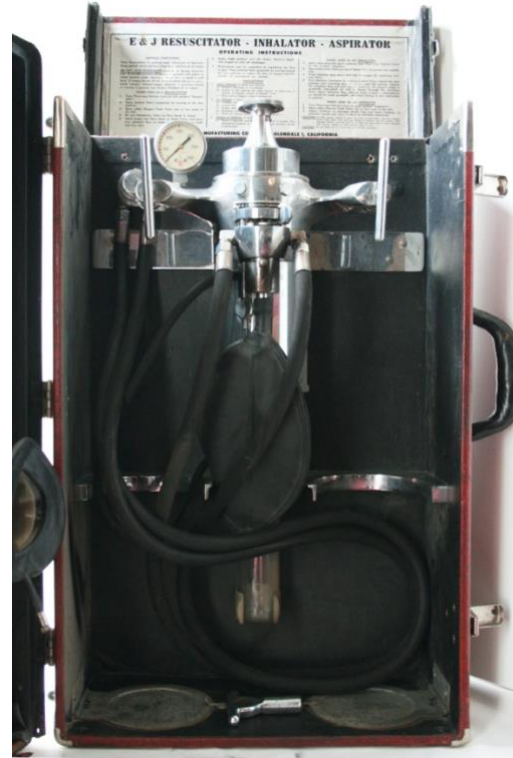
Another important sub-group comprises thirteen D.M. Austox Machines, accompanied by number of related Austox machine components and accessories. These machines were the first locally manufactured anaesthetic machines. In 1931, Geoffrey Kaye assisted the Australian firm John B. Arnold Ltd in their design and development. They were distributed under the brand Austox. The D.M. (Dental and Midwifery) machine was widely used in Australia from 1931 to the 1960s until it was superseded by improved machines which offered reducing valves and flowmeters.²²

²² Ball and Westhorpe, p6

Boyle's machines, of which the Museum holds six examples, are also iconic machines in anaesthetic history and represent a leap in innovation.

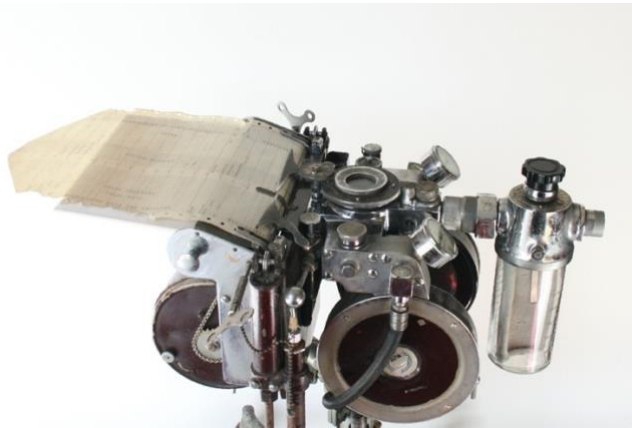


VGKM3998 – Boyles, 1950s, British Oxygen Company Ltd

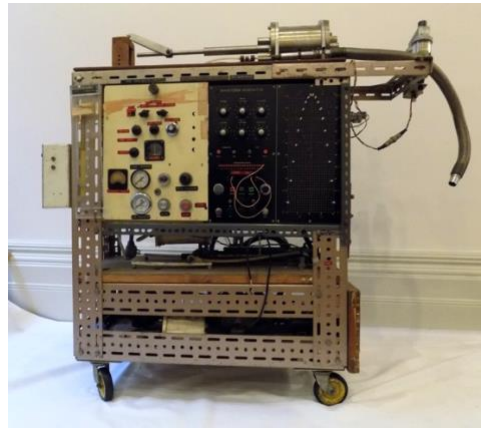


VGKM4735 – Oxygen Resuscitator Unit

Monitoring equipment is well-represented in the Collection. Today, monitoring devices are electronic with digital screens, but in the latter half of the 20th century, monitoring equipment was analogue with switches and needle dials.



VGKM4607 – McKesson Nargraf machine with original paper monitoring printout preserved in situ



VGKM7015 – Variable Waveform Ventilator

The McKesson Nargraf machine is a very early example of an anaesthetic record and the introduction of automation. It is in extraordinarily good condition for its age and materials. This is a rare item, particularly with the read-out paper still in situ.

The Museum holds a number of ventilators with examples by manufacturers Manley, Harrington, Nuffield and five Bird ventilators. The Variable Waveform Ventilator is an item of national significance, due to its association with Professor Arthur Barrington Baker. Baker was the first Australian anaesthetist to gain a PhD in anaesthesia, which he completed at Oxford University (UK). This machine was the product of his doctoral research focused on respiratory physiology and anaesthesia. Although ventilators are common equipment, this specific design and construct prototype is one of a kind. It entered the Collection with reliable provenance and remains in good condition. Baker had an extensive career in research and clinical practice including holding the position as the Nuffield Professor of Anaesthetics at Sydney university (1992 – 2005) and also as the Dean of the Australian and New Zealand College of Anaesthetists (ANZCA) (1987–1990).

The Collection includes some significant representative ventilators such as c.1965 American 'Ventimeter' ventilator (Marsh Instrument Co., USA), pictured overleaf.

VGKM4622 - 'Ventimeter' ventilator,
c.1965, Marsh Instrument Co., USA.



Pharmaceuticals

A major sub-collection is pharmaceuticals, comprising a wide range of chemicals in an array of different vessels and packaging. This sub-collection is considered to be among the best historical pharmaceuticals collections worldwide.

The Museum's holdings of pharmaceuticals is diverse and highly complete in chronological terms. As such it can demonstrate the gradual evolution of drugs and medicines worldwide. In addition, the vessels and packaging made to house them have aesthetic significance and interpretive potential. These are popular items with visitors. Many of the chloroform bottles are beautiful glass objects which are popular as collectibles. Hundreds of tiny glass ampoules and vials also have visual appeal.



VGKM4091 - Homeopathic set



VGKM4577 - Bottle, dropper, ether

VGKM2714 -
Bottle, Anaesthesin,
mfr. Bayer Meister
Lucius Bruning



» *Bayer-Meister-Lucius* «

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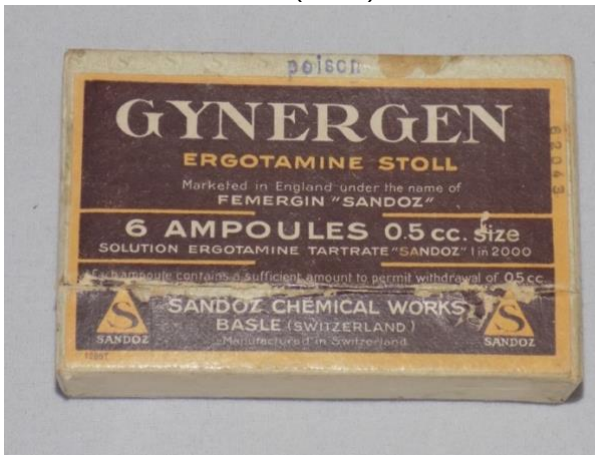
ERME



VGKM4251 – Blown glass ampoules containing local anaesthetic Stovaine (c.1905)



VGKM6679 – Camphor ampoules



VGKM6676 – Gynergen ampoules



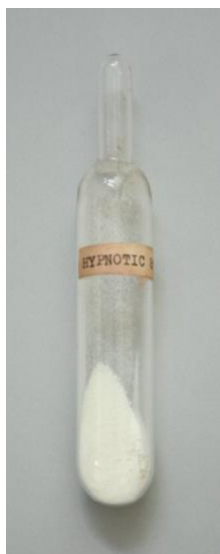
VGKM2243 – Xylocaine ampoules

Early to mid 20th century cardboard packages feature colourful vintage graphic design. Many of the pharmaceuticals are Australian products and rarely held in overseas Collections. The Museum follows a policy to not depict pharmaceuticals online which slightly restricts the interpretive possibilities.

The ampoule holdings constitute one of the largest collections of historical drug ampoules and associated packaging worldwide.²³ The holdings of barbiturates is particularly significant.

²³ Peter Featherstone, pers. Comm. 2023

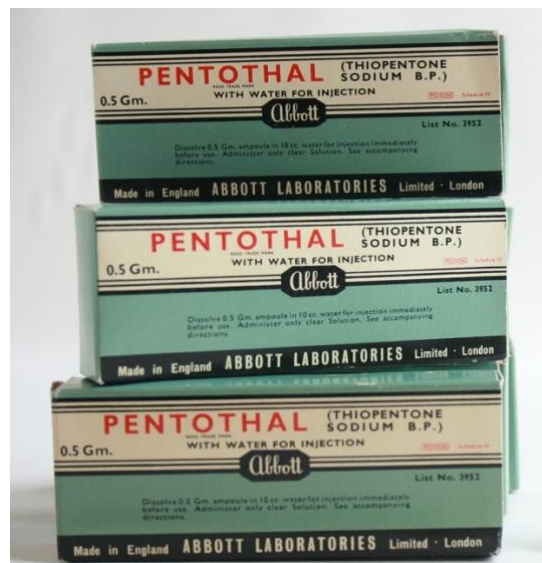
History and significance of the organisation and its collection



VGKM4499 – Ampoule labelled 'Hypnotic 8064', donated by John Lundy (1894–1973), a pioneer of barbiturate research



VGKM4285 – Experimental ampoule of Pentothal by Abbott Laboratories



VGKM4768 – Packets of commercial ampoules of Pentothal

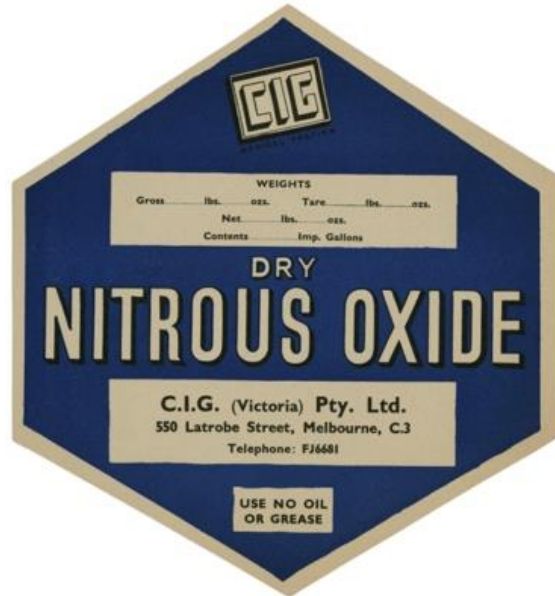
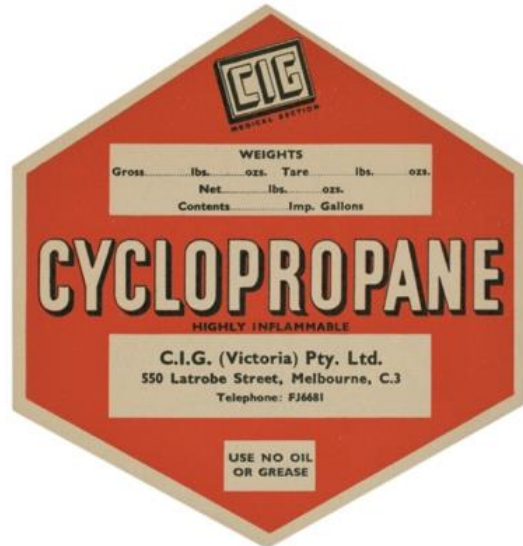
Some rare ampoules of early barbiturates in the Collection originate from an important experimental period which led to the discovery of Thiopental which revolutionised intravenous anaesthesia and has since become a universal anaesthetic agent.²⁴ The group of items pictured above collectively convey the process of experimentation which led to identification of an extremely important anaesthetic drug.

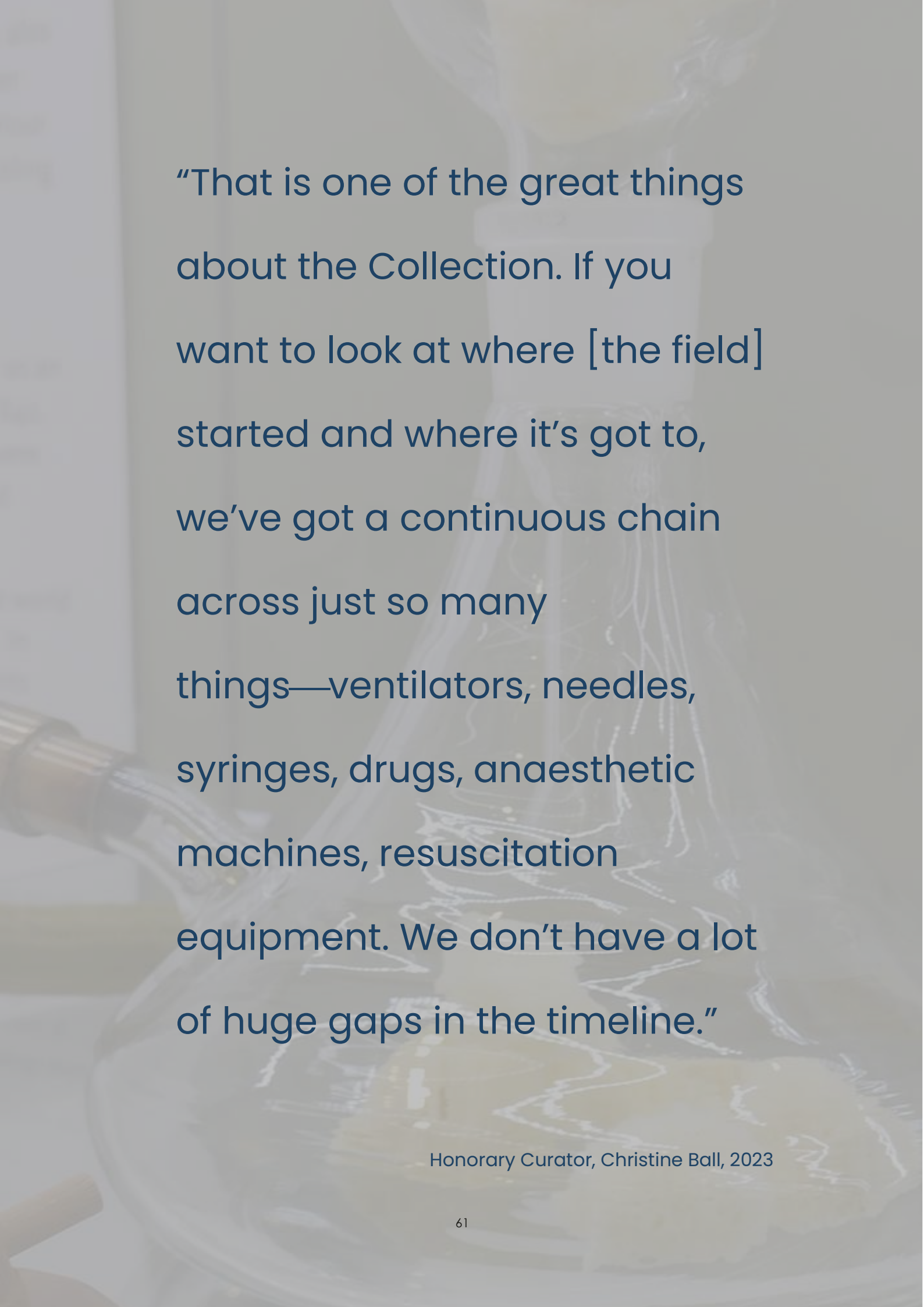
Pharmaceutical samples are also rare items in the Collection. These are samples that were distributed to medical practitioners before a drug was released onto the market. They are rare since they were only distributed in a limited manner.

Many of the pharmaceuticals are recognisable to the general public, allowing them to engage via their own experiences. They are useful materials for prompting discussion of contemporary incidents such as the Nurofen lawsuit, or the decision to change Codeine from an over-the-counter medicine to a prescription-only drug.

²⁴ Ball & Westhorpe, p.134

Gas cylinder labels are another area of the Collection with aesthetic appeal.





“That is one of the great things about the Collection. If you want to look at where [the field] started and where it’s got to, we’ve got a continuous chain across just so many things—ventilators, needles, syringes, drugs, anaesthetic machines, resuscitation equipment. We don’t have a lot of huge gaps in the timeline.”

Honorary Curator, Christine Ball, 2023

Relationship between Collection and building

The Geoffrey Kaye Museum and its Collection are currently housed and exhibited in *Ulimaroa*, a heritage listed 19th century Italianate mansion, which is part of the ANZCA complex on St Kilda Road in Melbourne. It was purchased in September 1993, when the College was established.

Initially, the GK Museum exhibition area was located in *Ulimaroa*, in what is now the storeroom. It was then moved into the Foyer of the then new *ANZCA House* in 2001, and later onto its fifth floor. It was moved back to *Ulimaroa* in 2014.



Ulimaroa was built in 1889–90. It was a private residence until 1960 and today is one of only five former stately homes remaining along St Kilda Road. *Ulimaroa* currently houses the Fellows room, the ANZCA Library, the Geoffrey Kaye Museum.

Ulimaroa is physically linked to the adjacent 21st century building known as *ANZCA House* (2001) via an extension connecting the two buildings. The construction of *ANZCA House* in 2001 underscored the rapid development and expansion of the speciality of anaesthesia since first becoming a faculty of the Royal Australasian College of Surgeons in 1952 to a college in its own right in 1992.

The links between the GKM collection and *Ulimaroa* are minimal and there is no particular imperative to house the collection in this building. However the Collection's links and adjacency to ANZCA, especially the ANZCA Library are extremely important, providing context and ease of accessibility to key audiences. It is important that these links and physical proximity to the organisation be preserved.

Role of the Collection in the community

The Collection performs important roles for the College and its trainees, for the specialty and the wider medical community, for volunteers and researchers and for the general public.

Although the College was founded relatively recently, it has a far longer lineage through its predecessor organisations and its long association with the ASA(A). Furthermore, the anaesthesia specialty has a significant history in Australia. This history and a sense of legacy and heritage is embodied in the Collection which originated as a teaching collection assembled by one of Australia's anaesthetic pioneers.

A 2014 study found that institutional heritage positively impacts the reputation of tertiary education institutions.²⁵ Public awareness of this important and comprehensive heritage asset positively contributes to the College's reputation and standing. Whilst science and medicine can often be naturally forward-looking, the Museum and its Collections provide an important historical foundation on which the present and future are built.

Museums scholar Zenobia Kozak wrote about the role of collections held by higher education institutions:

Universities have long played host to touring scholars and visitors, serving as an early form of institutional promotion or recruitment exercise. As part of these visits, universities made available their libraries, cabinets of curiosities, picture galleries, and college spaces in the interest of institutional promotion. At the University of St Andrews (the oldest university in Scotland)...as a part of the standardized university tour, certain artifacts were regularly shown to visitors and the presentation of these objects conveyed not only what precious items the University owned, but also, through them, showed the value it placed on its own history, its pride in its association with particular individuals and its intellectual outlook.²⁶

²⁵ Merchant et al 2014

²⁶ Kozak 2016

The Museum and Collection are a public facing layer of the College and therefore a tangible means for communicating organisational identity and the values of the College: pursuit of knowledge and skill, field advancement through research and innovation and a commitment to the highest standards of patient care. A visit to the Museum is part of onboarding or induction for new College staff, which indicates that the Museum and Collection are able to provide key insights into the core values and story of this organisation and the field.



GKM Honorary Curator Dr Christine Ball leading Hon David Davis (former Minister for Health), Prof David A Scott and others through the newly opened Geoffrey Kaye Museum in 2014. (Photo Credit: ANZCA)

One of the oldest items in the Collection, a large, ornate 'Gasometer' (1876) today stands in the foyer of *ANZCA House*. It represents the specialty, being a tool of anaesthesia and it is aesthetically appealing but importantly it is also a symbol of the field's history and heritage. It connects the College and its modern complex to the past, highlighting vast changes in the field. Its presence at the entry to the College headquarters is a symbolic reference point, situating the College and its current trainees within an ongoing lineage of medical education. Along with the beautifully presented Museum exhibits, it demonstrates a sense of pride in the profession and its remarkable history.



4573 - Gasometer (1876)



The Gasometer in the ANZCA foyer in February 2023



5047 - Photograph: Demonstration of a nitrous oxide gasometer

A key channel through which the Collection has been revealed to the medical and academic community is through the 'Cover Notes' of the journal *Anaesthesia and Intensive Care*, which is published by the ASA(A). Items from the GKM Collection have regularly appeared on the cover of the journal since the 1980s. This has afforded the medical community wide exposure to the Collection. When the journal was launched in 1972, its covers were initially unremarkable but in 1984 the Editorial Board decided they could be made more interesting. It approached Dr Gwen Wilson, asking her to write an explanatory note for an image of Dr Gilbert Brown, the first President of the ASA(A), which was to appear on the cover. A specialist anaesthetist, Wilson was also Honorary Historian for the Faculty of Anaesthetists, the predecessor of ANZCA. She researched, compiled and published major works on the history of Australian anaesthesia including the major three volume work *One grand chain : a history of anaesthesia in Australia 1846-1962*. The significant research archive created by Wilson is now held partly by the ASA and partly by ANZCA. Wilson contributed these historical 'Cover Notes' to the Journal between 1984 and 1988. In this period, the covers often depicted artworks or photographs of prominent figures in the history of the specialty.

In 1988, Rod Westhorpe and Christine Ball were appointed Honorary Curator and Honorary Assistant Curator respectively of the GKM Collection. They took over the task of contributing the Journal's 'Cover Notes' on the history of anaesthesia. The Editorial Board encouraged Westhorpe and Ball to feature items from the GKM Collection 'to provide interest and expose this wonderful collection to readers'. The Board's intention was that 'everyone would now know of this outstanding collection of historical equipment in Australia'.²⁷ The Honorary Curator's research was often assisted by ANZCA Library staff and other museums in Australia and overseas. In 2012, the ASA(A) published a collection of 128 of these short essays in major illustrated hardcover publication titled *Historical Notes on Anaesthesia and Intensive Care*. Dr Kester Brown, a highly respected Australian anaesthetist and educator was Director of Anaesthesia at the Royal Children's Hospital and during his career lectured and taught in over 70 countries. Brown stated that the 'Cover Notes' in the ASA(A)'s journal

²⁷ Brown in Foreword, Ball & Westhorpe 2012

which usually feature GKM Collection items 'provide a unique insight into the development of the specialty'.²⁸

The Collection is an important resource for the anaesthetics field. Honorary Curator Chris Ball states:

It is important it exists for the anaesthetic community because it is such a good record of our history, in Australia and internationally. It is also important for the wider medical world because it tells the story of the role of anaesthesia in the development of medicine and surgery.

In her role of Executive Director of Fellowship Affairs at the College, Jan Sharrock heads the unit under which the Library and the Museum are managed. The unit oversees the delivery of the College's major educational events including the ANZCA Annual Scientific Meeting. It is also responsible for membership services and doctors' health and wellbeing. Sharrock related her view on the role of the Museum within her scope of responsibility:


It links the past to the present. We learn from the past. If we know where we come from that informs the future. The Museum and Library are an investment in knowledge.

She observed that the equipment in the GKM Collection is only interesting to a point, and that what is more important is the human stories behind those pieces.

Another channel for presenting the Collection is Twitter. The Museum has its own account and sometimes features Collection items in its Twitter posts. The Museum posted on Oct 17, 2022 for National Anaesthesia Day about an O'Dwyer's set (VGKM2398). The post explains that in 1882, Joseph O'Dwyer was the first to successfully intubate children with diphtheria. Twitter user @GongGasGirl, otherwise known as Dr Tanya Selak (an anaesthetist and co-convenor of ANZCA's Annual Scientific Meeting) responded to the post with 'Incredible'.




²⁸ Brown in Foreword, Ball & Westhorpe 2012

← **Tweet**

 **Geoffrey Kaye Museum**
@GKMuseum

Portable equipment created greater [#accessibility](#) to medical care for women living in remote settings. Dr Mary de Garis took her portable anaesthesia/analgesia machine with her, assisting women in labour around the Geelong area.

[#Museum30](#)
[#Accessibility](#)
[#HistMed](#)



11:49 AM · Nov 6, 2021

6 Retweets 1 Quote Tweet 19 Likes

A 'tweet' (Twitter post) in November 2021 about a Collection item – Dr Mary de Garis' portable anaesthesia/analgesia machine – garnered 19 likes from people who are interested in history and/or who work in medicine.

Continuing GKM's original objective, the Collection plays a small but important role for Anaesthetic Registrars (Trainees). Groups of Registrars sometimes visit the Museum and view its exhibits as part of their training program. The Museum often provides a guided tour to exam candidates as part of their exam preparation course. This is often the first opportunity they have to hear about the origins of their specialty.

On Facebook, user Chik-Foo Yim commented about the Museum:

This is one of the most emotional places to visit in Australia for many a budding anaesthetist.²⁹

Items like mid-century Boyle's machines can be very instructive for registrars, as Christine Ball explains:

The registrars always find them fascinating, because the modern anaesthetic machine works the same way but it's totally electronic, so those machines which I used some equivalent of, a stainless steel version of in the 80s, you could turn the knobs and make the gas flow and you could see the gas flow with the bobbins. Whereas now [on digital monitoring machines] there's nothing, except numbers and so they really like to lift the lid up and look at where the pipelines are going and everything. It teaches them the principles. It makes them think a lot more about why there are things in the electronic system that they have to learn about. [On the old machines] it's so much more visible.

The range of gas tanks and fittings in the Collection can also be used to teach registrars about the development of important safety measures in the field. One registrar used the Collection extensively to research and write a paper on the history of gas connections in anaesthesia and related safety improvements. The 2017 paper, published in *Anaesthesia and Intensive Care*, featured images and discussion of items in the GKM Collection.³⁰

²⁹ [Facebook post](#), May 26, 2006

³⁰ Pauling & Ball 2017

Ball discussed the impact of exposing registrars to early analogue monitoring equipment in the Collection:

Something that registrars really struggle with is that [in the past] we did so much without monitoring everything electronically. What shocks them most is when I try to tell them in the 80s I was giving anaesthesia without all the electronic monitoring. It's hard for them to get their heads around it.

History student Luis Calleja noted that:

I think for medical students [the Collection] provides an opportunity to see first-hand examples of historical change in medical practice. It can be easy to assume the current methods for delivery and applications for anaesthetics have been stable over time. I think accessing the GK collection gives students an opportunity to directly observe the ways that much of our medical infrastructure is the product of decisions which can always be reconsidered and improved upon.

The benefit to Registrars may also be practical and not only about understanding history. In low-resourced countries or regions, where Registrars may end up working, some of the early equipment may still be in use despite it being considered obsolete in well-resourced countries.

The Collection has had an interesting role as a learning ground for budding and early career museum professionals. Collections consultant Grace Mooney described the impact of working with the Collection:

Professionally, this collection has enabled me to work with a materially diverse collection that is hugely interesting at an early stage of my museums career that I think will benefit me well into the future.

Ari Hunter, a museum professional and former long-term intern at the GKM reflected on the value of her experience interning with the Collection:

I was able to extend my knowledge around museum based practices, as well as publishing and research credits. The Collection is physically really interesting.

Rebecca Lush was a student intern at the Geoffrey Kaye Museum and went on to become a Curator at the Harry Daly Museum in Sydney. She has maintained a connection to the Collection by collaborating with the GKM Curator on conference presentations, seminars and workshops. Today, she works at the Integrated Pathology Learning Centre (an anatomy museum) at UQ. Lush characterised the GKM Collection's role as follows:

I think it is extremely important that this collection exists. It is a representative collection that is kept in great condition. The interpretive capacity is fantastic and this is made even more clear by the quality of exhibitions. It tells a critical narrative of medicine in Australia and the role anaesthetic has played in our past, present, and future.

For Christine Ball, working with the Collection has been career-defining. Nationally and internationally she is highly regarded as an anaesthetic historian and is currently the Wood Library Museum Laureate with a four-year appointment. The journal *Anaesthesia and Intensive Care* awarded Ball a medal for her work writing the Cover Notes from the 1980s to the present, and she was awarded an Order of Australia largely in relation to her work with the Collection and the history of the field. Ball explained what working with the GKM Collection has meant for her professionally and personally:

It has defined my career. it's been defining for me and its led to me travelling all over the world and speaking at lots of international meetings. I've made hundreds of friends as a result and now I am connected with quite a lot of young people, both locally and internationally. It's lovely, it's been absolutely brilliant for me.

The Collection has an important role for research. The Museum receives occasional enquiries from people, sometimes from overseas, relating to the collection. A recent example was from the Wood Library-Museum in the US. In 2017, 2nd year history student from Swinburne University Jack Rayner undertook a research project as part of preparation for the exhibition *The Rare Privilege of Medicine*. He wrote about "hands on history" and researching women's stories. Rayner described the value of his time using the Collection for research:

My time at the Geoffrey Kaye Museum has been an informative one. It has shown me that there is more to history than books, and more to being a historian than writing them.³¹

³¹ <https://www.geoffreykayemuseum.org.au/the-benefits-of-hands-on-history/>

Luis Calleja conducted a student placement at the GKM. He conducted research into the curare blow pipe. Calleja commented that for researchers in general:

[the Collection] provides a useful tool for accessing medical/anaesthetic history in an Australian context, that from my understanding few other collections in the country provide.

About his own placement at the GKM he stated:

[It] was incredibly useful for me. It gave me an opportunity to experience a large independent research project, which I think I will constantly draw on in my future studies. Finally, it was a great opportunity to apply a lot of the theoretical knowledge I had developed during my studies

The Collection has a role in supporting other similar Museums. In recent years, the Mutter Museum at The College of Physicians of Philadelphia (USA) and the Wellcome Collection (UK) have loaned or enquired about items in the GKM Collection.

The Collection is of interest to the general public, who access it through the Museum and online content. Before the COVID-19 pandemic, the Museum averaged about 450 visitors a year. These were mostly from group bookings, and the figure does not include visits by people who were onsite as course attendees nor spontaneous visits such as when a visitor is shown through the Museum after a meeting at the College.

Anyone may require medical treatment that involves anaesthesia or pain medicine and thus members of the general public can benefit from understanding the history of these specialities. Unfortunately, during the COVID-19 pandemic, the work of anaesthesiologists became particularly pertinent and vital since the illness frequently required intubation of patients, a task which is performed by anaesthetists.

The GKM Curator commented that:

The collection as a whole is very useful for highlighting anaesthesia as a distinct medical specialty (there is a large swathe of the community who don't understand that an anaesthetist is actually a doctor, let alone a specialist). We have used the collection and displays to educate the community about changes to regulations for over the counter medications, about anaesthetic awareness and a range of other topics.

Consultant Grace Mooney commented that while the Museum is important for those in the field,

[it is also important] for a wider audience who may not know much about the history of anaesthetics, and the broader development of medicine throughout history. Since [working] at the GK Museum, I've had a lot of interest from people I've spoken to who are interested in visiting the museum and they come from a broad spectrum of society - from artists to biochemistry lecturers.

Museum placement student Luis Calleja observed:

I think it provides those going under the knife an opportunity to see how far anaesthetics has modernized. In my mind at least, this would give me some reassurances about making the emotionally stressful decision to undertake an operation.

Christine Ball noted that:

We have an accredited museum which is valued by the organisation and is a place of learning, not just for anaesthetists but for museum professionals, archivists and librarians.³²

³² Ball 2016a

The Museum holds several visitor comment books which were used in the 1990s and early 2000s to collect audience feedback. In recent years, visitors have also had the opportunity to leave comments on feedback cards in the exhibition space. Comments made by general visitors include:

'This museum really sparked my interest in this field of history.'

'I feel confident re future surgery and anaesthesia!'

'As a lay person I found the display so interesting and informative.'

'Fantastic museum. Very interesting to see where modern anaesthesia has come from.'

'Very educational and comforting!'

'It's great to see these instruments being preserved.'

'Very interesting, so informative and a great insight into where things started and how they developed. I can't wait to tell others about it!'

'Fantastic collection of anaesthetic equipment and history of anaesthesia.'

Some of the visitor feedback appears to be from people linked to medicine:

'Wonderful resource. I'm so pleased to see the material evidence of our profession developing.'

'I have been in this specialty for 40 years and this is an eye-opener.'

'What a treasure! The profession is in deep debt to the curators.'

'Recognising and having used most of the equipment is a little telling!'

'Really interesting. As an ex-nurse I found it fascinating, especially the early remedies for cardiac arrest!'

'Wonderful museum! Showing our age we recognise/have used some of the equipment in our earlier careers. If really pushed we could probably still operate the Bird ventilator!'

'Pat Mackay died yesterday. She is now immortalised in the People & Events Shaping Our Modern Speciality audio-visual.'

'Thanks so much for the opportunity to view these rare photographs, handwritten text, equipment and medicinal bottles.'

Groups of retired, usually elderly people frequently visit the GK Museum via groups like Probus and U3A (University of the 3rd Age). As people age, they are more likely to require medical interventions, hospitalisation or surgical operations. So they are an important demographic to reach in terms of educating the public about anaesthesia and pain medicine. The GKM Curator has received feedback from Probus groups that they would like to hear 'more of the gory stuff' as well as social history perspectives.³³

A member of a U3A group who visited the Museum commented:

Insightful and interesting display. Very informative. Thoroughly enjoyed.

Joy Ritchie is a member of the public who has visited the Museum three times since 2003 as a member of Probus groups. In relation to those visits, she commented:

I was so impressed, they talked about the gains that had been made in the profession over the years. They showed us how now, through monitoring, they can tell if someone is under anaesthetic but can still feel everything. I thought that was interesting and it stuck in my mind. I like hearing about the advances in the profession.

She added:

I would like to see a larger area where people can walk around a bit more. It's a very small space if you want to get people in with wheelie walkers. It does restrict some people from going, even though in other ways it is accessible, like the lack of stairs. And I just think a lot more equipment should be shown. And the instruments. I'd just like a bit more room, or a second room with more equipment!

³³ Joy Ritchie, pers. comm., March 2023 and Monica Cronin, pers. comm. February 2023

On 22nd August 2016, a group from the Probus Club of Donvale visited the Museum and viewed the exhibits. They described the visit as 'very interesting and informative'.³⁴ What they recalled from viewing exhibits was:






There were many cupboards and drawers of instruments and all sorts of gadgets that were used in operating theatres over many years. Many instruments were developed in theatres on the battlefields and are still in use today.

Chris Ball commented that:

[The Collection] does seem to have a place in the wider community. We certainly use the collection a lot to teach people about anaesthesia and we have given a lot of tours to Probus and Rotary groups, even Army groups and it's just a great vehicle for telling them about anaesthesia, how much it has changed. It is a way of talking about modern anaesthesia that's quite engaging, I think. They always want to tell their own stories.

³⁴ Probus [website](#), 2016

During the Covid pandemic (2020–2022) the Museum was largely closed to visitors. During this time, some of the Collection could still be viewed online via the Museum’s account on the *Victorian Collections* (VC) website. Over 370 Collection items are published there with images and information. An analysis of web traffic data shows that between 1st March 2019 and 31st December 2022, the Museum’s VC account was visited around 8,600 times. These visitors viewed Collection objects 11,858 times. A list of the most-viewed Collection items in the Museum’s VC account in the same period is shown in the following table:

Reg #	Item	Image	Number of views
VGKM6211	EMO (Epstein, Macintosh, Oxford) Ether Inhaler & Vaporiser		982
VGKM4894	Portable hypodermic kit, Parke Davies & Co, After 1885		587
VGKM4701	Bird Respirator Mark 7A with C.I.G. 'Ventviva' ventilator		587
VGKM3411	Oscillotonometer, von Recklinghausen		440
VGKM3998	Boyle's Machine, British Oxygen Company, circa 1950		406

There is no data available which might explain why viewers were visiting particular VC object pages or where viewers were situated geographically. However the data that is available shows that the VC platform has been a strong channel for public engagement with the Collection.

Condition of the collection

The Museum's main storage space is excellent with professional museum-standard fitout and adequate space for the current Collection, however it appears to have reached capacity. The storeroom is a clean, orderly environment which is dry, free from dust, and pest-monitored. Both rooms (main store and workroom) used to hold Collection items are well-sealed and located within a historic but well-maintained and sound building. There is no ingress of natural light in either storeroom or workroom. Both are secure with monitored and restricted access. The exhibition space is closer to exterior doors but objects on display are buffered by display cabinets.

Exhibits in the display space are clean, orderly and well-spaced and utilise high quality graphic design and museum standard cabinetry. Items on display are well-supported with appropriate mounts and protected from visitor contact. The use of covered drawers which visitors can pull out to view small items with drawers, is innovative and supports exploration while protecting objects from contact and prolonged light exposure.



Storage and display environments are of a high standard

The graph below visually represents the spread of condition ratings across the Collection.³⁵ The graph indicates that two thirds of the Collection is in the 'Excellent' and 'Good' range. The remaining third of the Collection is almost entirely in Fair condition. This is a pleasing result, showing that the Collection is well cared for and is being preserved to a high standard.

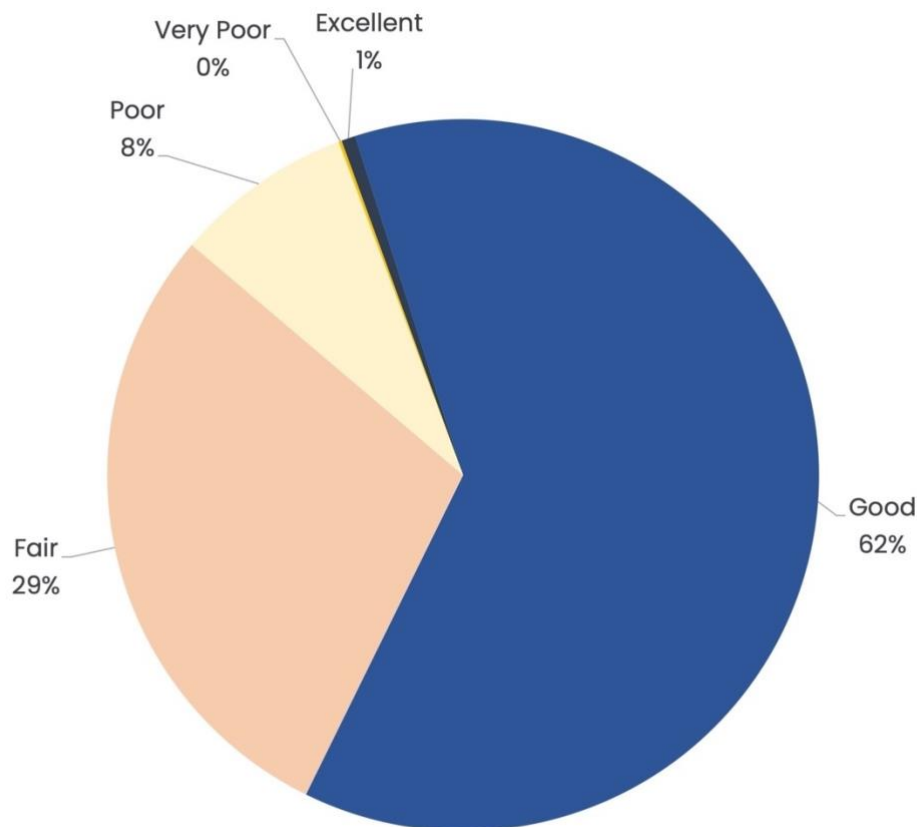


Chart: Condition ratings (Percentage of Collection)

The area of greatest concern for preservation in the GKM Collection relates to synthetic polymer materials, namely rubbers and plastics, commonly found as components in medical equipment. These materials are notoriously problematic to preserve and have become an urgent and

³⁵ In the database, a very small number of items (29) are rated 'Fair-Good'. These were converted down to 'Fair' to create a clearer table. In the database, a very small number of items (39) are rated 'Poor-Fair'. These were converted down to 'Poor'.

increasing challenge for museums worldwide due to their widespread usage in manufacturing since the mid-twentieth century.

Rubber and plastic objects or components can experience rapid and often spectacular disintegration with little warning, even when held in museum standard conditions. Managing these materials has not yet been fully researched to date and nor have reliable preservation strategies been identified. In recent years, the Getty Conservation Institute in California, USA, has been carrying out a *Preservation of Plastics* project, researching ways to advance the conservation of plastics and rubbers.³⁶ In 2020, Cambridge University in the UK tackled the problem with a virtual conference titled *Plastics in Peril: Focus on Conservation of Polymeric Materials in Cultural Heritage*. Conservators at Museums Victoria and the Grimwade Centre for Conservation at University of Melbourne have also been exploring the issue via the ARC Linkage project *A National Framework for Managing Malignant Plastics in Museum Collections (PolyMuse)*.³⁷ The reality of polymer components degrading more quickly than the metal and glass elements of an object may explain the number of items in the GKM Collection with dual condition ratings – such as Fair/Good or Poor/Fair.



VGKM0663 (part) – Group of rubber tubes

³⁶ https://www.getty.edu/conservation/our_projects/education/cons_plastics/

³⁷ <https://museums victoria.com.au/audio/museum-lectures-2018/the-problem-with-plastics/> and <https://findanexpert.unimelb.edu.au/project/101973-a-national-framework-for-managing-malignant-plastics-in-museum-collections>

Comparative collections

There are a surprising number of collections worldwide which can be compared with the GKM Collection. They are outlined in this section. Each of the international examples tends to focus primarily on the development of anaesthesia in the nation they are located in.

Collections consultant Grace Mooney who has worked intensively with the GKM Collection stated:

The GKM collection is perhaps one of the most comprehensive. The range and scope of the items is more than I've observed through looking at other collections online. For example, there are objects I've come across during the collection audit that I have not been able to locate in other online collections, such as the Wood Library or the Harry Daly collection.

Museum professional and former GKM intern Ari Hunter observed:

Locally, there are other collections that do compare, but none have the same 'two working examples' of all equipment that Kaye enabled.

Rebecca Lush, a former curator of the Harry Daly Museum stated:

I would say that the GKM collection is the best in Australia for our context. From what I've seen worldwide, it is definitely amongst the best when it comes to interpreting the collection and creating accessible exhibitions.

Wood Library–Museum of Anesthesiology, Illinois, USA

The Wood Library–Museum of Anesthesiology (WLM) is an integrated collection of books, multimedia materials, rare books, current literature and artefacts. In a similar manner to the GKM Collection, the WLM was based on a personal collection, that of Dr Paul Meyer Wood, who was then Secretary–Treasurer of the American Society of Anesthesiologists (ASA(US)). He founded the Library–Museum in 1933, based around his collection. Since 1971, the WLM has been a non–profit educational organization operating as part of the ASA(US). Initially based at a series of temporary locations, in 2014 WLM moved to its current home within the American Society of Anesthesiologists headquarters in Schaumburg, Illinois. Offering exhibitions and research access, the WLM is open to the general public during weekday business hours and by appointment.

The Mission of the WLM is ‘to advance anesthesiology by preserving and sharing its heritage and knowledge’. Another aspect of the WLM is a university press, which publishes scholarly works on the development of anaesthesiology. The WLM Library holds 13,000 books, over 50 international and domestic journal titles, newsletters, comprehensive biographical material, photo and digital image files. The Library–Museum structure mirrors the collaborative relationship between Museum and Library at ANZCA.

There are around 6,500–7,000 items in the WLM Museum collection.³⁸ The Collection includes photographs and electronic images related to the history of anaesthesia. It also includes artefacts and memorabilia which are used in displays or special exhibits. The geographic focus of the Museum collection is mainly on the United States, but it also includes a small portion of international items. The WLM collections focus on anesthesia and anesthesiology, but also incorporate the sub–specialities of Pain Medicine, Intensive Care and Resuscitation.

³⁸ Pers. Comm. Amanda Helfers, WLM Museum Specialist, March 2023.

The WLM Museum collection includes a range of object types namely artworks, awards and memorabilia, machines and apparatus, masks and inhalers and pharmaceuticals. This is a similar composition to ANZCA's collections. The large collection of anesthesiology apparatus ranges from 19th Century masks and inhalers for administering ether and chloroform to anaesthetic machines and modern electronic monitoring equipment. The key themes represented by the WLM Collection are airway management, local & regional anaesthesia, military, obstetrical & paediatric anaesthesia, patient-controlled analgesia, respiratory therapy and resuscitation, safety & monitoring and alternative medicine. The WLM has a YouTube channel with a large collection of anesthesiology-related videos including demonstrations of apparatus from the collection. WLM is committed to sharing its holdings. It has an annual fellowship in which researchers can spend time onsite with the collection and digitise any materials they wish to. These are then published online for others to use. A former Director of the WLM described its total collection as:

Both very narrow and very deep. It's very narrow in that it only focuses on anesthesia and anesthesiology not on anything else but within that realm of anesthesia and anesthesiology it has very deep collections going back centuries of the heritage of this specialty.³⁹



Multimedia exhibit at the Wood Library-Museum, in the American Society of Anesthesiologists headquarters in Illinois. (Photographer: Steve Donisch: © Wood Library Museum 2014).

³⁹ Patrick Lim quoted by William McNiece in video <https://www.youtube.com/watch?v=Ndu3YgaCq-U>

Anaesthesia Heritage Centre, London

The Anaesthesia Heritage Centre (AHC) is housed at the central London headquarters of the Association of Anaesthetists of Great Britain & Ireland. The Centre tells the story of anaesthesia from its first public demonstration in 1846 to modern day anaesthesia. It comprises a museum, rare book collection and an archive which are accessible to both general visitors and specialist researchers. It is open on weekdays from 10am to 4pm. The Centre also hosts temporary exhibitions and a blog which explores developments in anaesthesia in each decade of the past century. Since 2012, the Centre has used a Facebook page, to present and discuss various images and artefacts from its collections. The AHC collections have similarities to the GKM Collection. Its collection of over 4,500 objects plus archives and a library are focused on the history of anaesthesia, resuscitation and pain relief, from the first demonstration of ether in 1846 to machines and equipment in use today.⁴⁰ The Centre has also been collecting oral histories from notable anaesthetists for several years. Like GKM, it has recently been collecting material to capture the experience of the COVID-19 pandemic. However unlike GKM the AHC collections have a British focus.



Exhibit in the Anaesthesia Heritage Centre, 2002 (Image: © Anaesthesia Heritage Centre).

⁴⁰ London Museums of Health and Medicine, <http://medicalmuseums.org/museum/anaesthesia-heritage-centre/>

Wellcome Collection / London Science Museum

Wellcome is a global charitable foundation founded in 1936. Its key aim is to support science's potential to solve the urgent global health issues. The Wellcome Collection is based at the foundation's free museum in London which explores health and human experience. The collection of 325,000 items is largely image-based with over 250,000 prints, paintings, drawings, photographs and digital images from the 14th century to the present. Another 117,000 historic items relating to medical history and the history of science more generally, has been on long-term loan to the Science Museum since 1976. The remaining 10,000 collection items are books, manuscripts, archives, ephemera and audio and video material.⁴¹ Wellcome holds 1,399 items relating to anaesthesia but none are objects. They are 587 books, 339 documents or manuscripts, 189 videos, 124 films, 119 digital images, fourteen audio recordings, twelve pieces of ephemera, seven journals, seven pictures and a student dissertation.⁴² Among the 117,000 objects on long term loan at the London Science Museum, 588 relate to anaesthesia. Many of these are historically significant items from the vast personal collection assembled by Sir Henry Wellcome.



Schimmelbusch mask for open chloroform anaesthesia
Anaesthesiology
1890-1935



Early inhaler for ether anaesthesia
Anaesthesiology
1847-1848



Copy of Morton's inhaler for ether anaesthesia
Anaesthesiology
1870-1920



Snow's face mask for chloroform anaesthesia
Anaesthesiology
1865-1875



Face mask for chloroform anaesthesia
Anaesthesiology
1870-1910



German military anaesthesia kit, Germany, 1914-1918
Anaesthesiology
1914-1918

Anaesthesia objects in the Wellcome Collection at London Science Museum

⁴¹ Wellcome Collection, *Collections Development Policy* (2018)

⁴² Result from search of *Wellcome Collection Online*

Harry Daly Museum, Sydney

Formed in 1934, the Australian Society of Anaesthetists (ASA(A)) is a not-for-profit member-funded organisation dedicated to supporting and connecting Australian anaesthetists. The ASA(A) was founded in 1934, and was established as a means to exchange ideas, for the distribution of memoranda on topics of anaesthetic interests, and to conduct inquiries relating to problems in the practice of anaesthesia in Australia.

The Harry Daly Museum (HDM) houses a collection of 'more than 2,000 items'⁴³ which includes both historical and modern artefacts related to the development and practice of anaesthesia. Dr Harry Daly was a founder of the ASA(A), as well as its President from 1946 to 1947. An anaesthetist with a passion for preserving the history of the profession, Dr Daly assembled the Museum's collection between the 1920s and 1950s. Subsequently, donations from other doctors and hospitals helped to shape and expand the collection. The collection has been housed in several different locations in Sydney. In 2005 the ASA(A) acquired an adjacent office unit, enabling dedicated space for both the library and museum. Custom-made display cabinets and glass-topped drawers were installed and the Harry Daly Museum opened exhibits to the public in early 2008. In October 2013 the ASA(A) moved to new premises in North Sydney and the Museum opened a new exhibition in July 2015. In 2020, the Museum was relocated once more, to its current home in St Leonards. The Museum is open to the public every Monday through Wednesday from 10am to 4pm and by appointment.

The base collection of Dr Daly has been added to with donations from retired anaesthetists and from institutions. It reflects the development of Australian anaesthetic practice from the 1840s to the present. Objects range from the earliest ether inhalers of the 1840s, through improvisations in WWI, to modern developments. Comprising around 2,300 items,⁴⁴ the HDM collection is only a fraction the size of the Geoffrey Kaye Museum Collection.

⁴³ Dr Reginald Cammack in ASA(A) 2018

⁴⁴ Dr Reginald Cammack, pers. Comm. March 2023

The Harry Daly Museum, Richard Bailey Library and Gwen Wilson Archives are managed under the guidance of the History and Research Unit HARU (previously HALMA – the History of Anaesthesia Library, Museum and Archives). Formed in June 1996, HARU serves as a steering committee for these three historical facilities, dealing with broad management policies and organisational structure. The Committee meets four times a year to address relevant issues and to expand the services provided by the Museum, Library and Archives. A Curator is responsible for the day to day management of the Museum.

College of Surgeons Museum, Melbourne

The Royal Australasian College of Surgeons (RACS), formed in 1927, is a non-profit organisation training surgeons and maintaining surgical standards in Australia and New Zealand. The College of Surgeons' Museum was established in 2006 and officially opened by the then president, Dr Russell Stitz, on 21 February 2007. The museum is located on the lower ground floor of RACS in Spring Street, East Melbourne. It is staffed by a Curator, an Archivist and a Museum Collections and Archives Officer. The Museum is open to the public Mondays to Wednesdays from 10am to 4pm and at other times by appointment. Like ANZCA, the College of Surgeons also holds an associated art collection which comprises mostly portraits of Fellows or items gifted by Fellows. This sits alongside the Museum collection and is displayed in a Gallery space.

Exhibits in the museum present historical surgical instruments, objects from the history of Plastic and Reconstructive Surgery, rare and historic books, College memorabilia and items gifted by Fellows and affiliated colleges. Through its programs the museum explores themes such as the development of surgical technology, important milestones in the history of surgery, great surgeons of the past, the history of the College and experiences of the Fellows of the College.

The combined 18,270 items in the UM collections include art, photographs, equipment, objects, artefacts, archives, and biological specimens. This composition of material types is similar to GKM except for the biological specimens. While the UM collections contain hundreds of such specimens, these are not present in the GKM Collection (except for one encased in perspex). Another difference is that only 170 items in the University's medical collections relate to anaesthesia. Most date from the mid to late 20th century. Thirty of the items are in the Henry Forman Atkinson Dental Museum and most of these are pharmaceuticals. The other 140 are in the Medical History Museum Collection. They are largely masks and inhalers but also rebreathers, needles and syringes, tubing and components, and some machines including a Boyle's apparatus and a Beckman Oxygen Analyser. While the UM medical collections are far larger than the Geoffrey Kaye Museum Collection their thematic focus is also far wider, encompassing the histories and practices of general medicine, pharmacy, dentistry as well as education and training in all of these fields.

Japanese Museum of Anesthesiology

The Japanese Museum of Anesthesiology exhibits and shares unique materials and documents related to the development of the modern history of anesthesiology in Japan. In 2009, the Japanese Society of Anesthesiologists (JSA) founded the Archives of JSA, which evolved to become the Japanese Museum of Anesthesiology in 2011. The Museum holds three collections: (1) Archives (the collection of historical documents of the JSA), (2) Museum (the collection of anaesthetic equipment and its related material), and (3) Library (books, journals, leaflets, and other print materials). The Museum collection comprises 345 objects⁴⁶ and includes several early models of anesthesia machines, operating room apparatus, and monitors, instruments, drug bottles and equipment related to administration of regional anesthesia. The Museum itself features a recreation of an operating room from the 1960s adjacent to the recreation of a modern one.



Operating theatre exhibit
at the Japanese Museum
of Anesthesiology

⁴⁶ Pers.comm. Liu Qian, Japanese Society of Anesthesiologists, March 2023.

Arthur E. Guedel Memorial Anesthesia Collection (San Francisco, USA)

The Arthur E. Guedel Memorial Anesthesia Center was founded in 1963 by a small group of anaesthesiologists who were interested in preserving the history of their specialty. For many years it comprised a library and museum housed in the Health Sciences Library at California Pacific Medical Center in an historic building that was once the library of Stanford Medical School.⁴⁷ In 2015 the Guedel collections were transferred to the library of the University of California, San Francisco.⁴⁸ Arthur E Guedel, M.D., was an anaesthesiologist and clinical professor of anesthesia at the University of Southern California. The collections document Dr. Guedel's long career as an anaesthesiologist, scientist, and includes a variety of material related to his research and his professional service. The collection also includes material about the administration and exhibits of the Guedel Memorial Anesthesia Center. The collection comprises 40 linear feet of personal papers, rare books, photographs, journals, audio-visual materials and some objects.

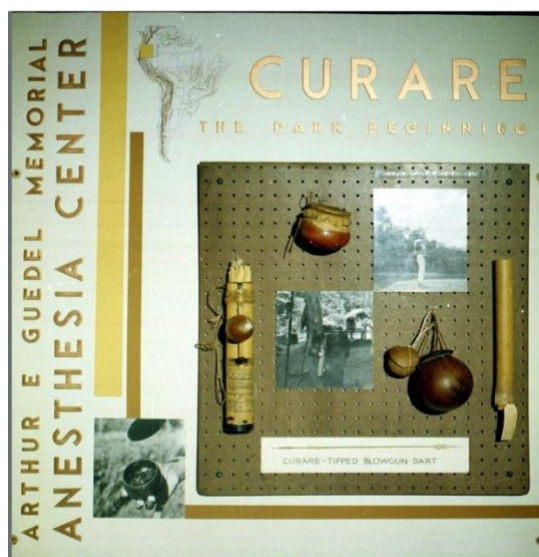


Image from the Guedel Collection showing an exhibit at the Guedel Center, c.1960s.

Around thirty objects are mid-century anaesthesia equipment such as machines, instruments and masks. Another 27 are artefacts from Richard Gill's expedition in Ecuador to investigate curare in 1938–1939.⁴⁹ These include clay pots, necklaces, spears, two 8-foot wooden blow pipes and a feathered dart. These curare holdings are interesting in relation to the blow pipe at GKM.

⁴⁷ Calmes 2007

⁴⁸ <https://broughttolight.ucsf.edu/2019/09/12/arthur-e-guedel-anesthesia-collection/>

⁴⁹ Collection inventory at https://oac.cdlib.org/findaid/ark:/13030/c8vx0pd7/entire_text/

Horst Stoeckel Museum of Anaesthesiology (Germany)

After his retirement from Chair of Anesthesiology at the University of Bonn in 1994, Stoeckel received a gift from Prof Richard Kitz of Harvard University that encouraged him to develop his collection of 150 artefacts and 350 books and periodicals into a scientific museum and library. The Horst Stoeckel Museum of Anaesthesiology (Horst-Stoeckel-Museum für die Geschichte der Anästhesiologie) was dedicated by the University of Bonn and opened to the public on October 9, 2000 and currently has more than 1,000 items displayed in 45 themed display cases.

Anesthesia Museum of the Association of Anesthesia, Analgesia and Resuscitation of Buenos Aires (Argentina)

This museum holds a very small collection of around 100 items relating to anaesthetic history that are exhibited to medical community and general public.

Dräger Archives

Dräger, a German manufacturer of medical and safety technology products including anaesthetic equipment has a historical collection called the Dräger Archives. It encompasses a large company archive of documents, correspondence, designs, images and equipment. However it naturally focuses almost entirely on Dräger machines, instruments and devices.

Crawford W. Long Museum (Georgia, USA)

The Crawford W. Long Museum celebrates both local history and an anaesthetics pioneer, Crawford Williamson Long, M.D. (1815–1878), who on March 30, 1842 was the first person to use ether for surgical anesthesia.⁵⁰ Reflecting the broad interests of physician–pharmacist Crawford Long, the museum complex includes an 1840s apothecary and physician’s office housed in the 1858 Pendergrass Store building. The materials held by this Museum are quite different from the GKM Collection. It is predominantly a house museum, focused on one person, with some personal belongings and small amount of equipment used by Dr. Long.



Costumed actor in the Interior of the Crawford W. Long Museum (Image credit: Crawford W. Long Museum)

⁵⁰ This claim is made by the Long Museum. It may seem to contradict the theory that the first anaesthetist was Seishū Hanaoka of Japan, however Hanaoka used *mafeisan* rather than ether.

The Mushin Museum (Wales, UK)

The Mushin Museum is part of the University of Cardiff's Department of Anaesthetics in its School of Medicine. The original nucleus of the museum arrived in Cardiff with Professor William Wolff Mushin when he was appointed the first Director of the Department of Anaesthetics, Welsh National School of Medicine in 1947. From a single cardboard box the collection rapidly expanded to fill a large glass-fronted cupboard in the Main Laboratory of the Department in the Cardiff Royal Infirmary. Mushin used the exhibits as a core part of teaching, including the museum during his weekly teaching rounds. As the physical principles of the equipment were then required to be understood by trainees, dismantled and 'exploded' examples were prepared for display by the technicians in the adjacent mechanical workshop. These items are similar to the sectioned equipment in the GKM Collection. When the Medical School moved to the new University Hospital of Wales, the museum was also transferred and was housed in its present location in a series of cabinets that flank the Department's Seminar Room. The University's current Director of Anaesthetics encourages the continued use of the museum for teaching the principles and history of anaesthesia and has plans to extend the display area to include cabinets in the public area of the Medical School's new Cochrane Building on the University Hospital Campus. The Mushin collection now comprises 'over 200 items'.⁵¹

⁵¹ <https://blogs.cardiff.ac.uk/hallie/mushin-museum-and-schools/>

Other

Other comparative collections include others within Australian medical education organisations. The *Guide to Health and Medicine Collections, Museums and Archives in Australia*, published by Museum Australia's Health and Medicine Museums division in 1999, listed 185 specialist collections in addition to more than 200 other collections containing health and medical material.

- The Sydney Hospital Museum, established in 1999 on the first floor of the Nightingale Wing, and opened in 2001. Its Florence Nightingale Collection and Lucy Osburn Collection are featured holdings. Other holdings include the Kanematsu Collection of Human Tissue Specimens, and the Sydney Hospital archives, artefacts and artworks.
- CALHN Health Museum is responsible for the medical history of five major health institutions in South Australia. This includes 11,000 items capturing the histories of Royal Adelaide Hospital, SA Dental, SA Pathology, Hampstead Rehabilitation Centre and The Queen Elisabeth Hospital.
- Museum Victoria holds the internationally significant Commonwealth Serum Laboratories collection, medical and surgical equipment used by Sir Edward 'Weary' Dunlop.
- The Tasmanian Medical History collection, a small but significant medical history collection which has until recently been housed at AMA House in Hobart. The collection is currently in storage awaiting a move by the AMA or finding another venue. Comprised of 19th century medical artefacts, a large collection of 20th century artefacts and a large collection of medical books.
- The Western Australian Medical Museum is a small volunteer-managed operation located in Harvey House, formerly Perth's first maternity hospital. The collection touches on varied facets of medical history including nursing, dentistry, early medicine, the Royal Flying Doctor Service and traditional Aboriginal medicine.

A 1996 national survey report on the university–museums sector, *Cinderella Collections* identified thirty health and medical entities in Australian universities. Examples include:

- The collections of the Marks–Hirschfeld Museum of Medical History and the Integrated Pathology Learning Centre at the University of Queensland.
- Two anatomical collections at Sydney University: the J.T. Wilson Museum, an anatomical collection accessible only to anatomy students, and the J.L. Shellshear Museum comprising human and animal skeletal materials.
- The Cunningham Dax Collection held in The Dax Centre at Melbourne University (and the Universities other medical collections already discussed in this report)
- The collection of the Vernon–Robert Museum at the University of Adelaide, comprising anatomy, pathology and dental–skeletal specimens.

The difference between the GKM Collection and most other Australian medical collections is that the latter usually have a broader focus or a different focus than does the GKM with its specialisation in anaesthesia and pain management.

Finally, Kaye acquired an extensive personal collection of furniture, decorative art and glassware, much of which he donated to the University of Melbourne in 1980 and 1986.⁵²

⁵² Marginson 2007

Statement of significance for the entire collection

Founded in 1935, the Collection of the Geoffrey Kaye Museum of Anaesthetic History showcases over 170 years of advances in anaesthesia and pain medicine. Comprised of over 9,500 items, the Collection is the largest worldwide and one of the most comprehensive collections focused on anaesthesia, pain management and resuscitation. It represents the history of these fields to an exhaustive degree, with a broad range of materials and remarkably complete and sequential holdings of key instruments and equipment relating to the fields. Many individual items in the Collection are significant on a national or international level. When the Collection is considered as a whole it has even greater significance. The Collection is international in scope with a strong focus on Australasia, holding Australian and New Zealand-made items not held elsewhere. It is a highly focused collection, concentrating closely on its specified collecting areas and is largely in very good condition due to being stored, displayed and maintained to a high preservation standard. Numerous interconnections can be found between various areas in the Collection which enhances meaning, provenance and interpretive potential.

Historical significance

Anaesthesia is one of the greatest discoveries of modern medicine and anaesthesiologists have been at the forefront of the development of intensive care, surgery and the management of pain. This Collection comprehensively records the gradual evolution and improvement of drugs, equipment and techniques used in anaesthesia and analgesia, and the development of these fields as separate medical specialties in Australia. It has strong associations with significant individuals responsible for the advances in anaesthesia such as Joseph Clover, Geoffrey Kaye and Archie Brain. A long chronological scope can be traced through the Collection from the 1840s to the current day. The most historically significant items in the Collection are early pharmaceuticals and anaesthetic equipment, particularly those dating from the 19th century. Also historically important

Statement of significance for the entire collection

are the many prototypes which mark moments of advancement in the field. The archival holdings are rich resources for understanding social-historical changes in the profession such as training requirements and attitudes to female practitioners.

Aesthetic/Artistic significance

Although the Collection is largely significant for its historical and scientific value, it also has a remarkable degree of aesthetic appeal. Many early anaesthetic machines were carefully crafted to fit with the elegant furnishings in dentists' surgeries. One of these is currently displayed in the ANZCA foyer for its ornate glamour. Antique kits, whether for intubation or resuscitation, are often contained within beautifully constructed and fitted-out timber cases. The Pharmaceuticals sub-collection also offers much aesthetic appeal in beautifully shaped blown glass ampoules, chloroform bottles or through the design and colour found on gas canister labels or in drug labels and packages.

Social/spiritual significance

The Collection has minor social significance to anaesthetists, trainees and other medical professionals.

Scientific/research significance

The Collection tells a major scientific story of change and development in anaesthesia, pain medicine and resuscitation and the roles of teaching and of scientific experimentation within that narrative. Scientific discovery in these fields has greatly advanced human experience and community wellbeing worldwide. Early development in these fields was driven by a spirit of scientific experimentation and a 'can-do' attitude through handmade prototypes and self-experimentation and this is clearly reflected in the Collection. Many Collection items represent pivotal scientific contributions and breakthroughs made by an array of individuals, institutions and manufacturers, particularly focusing on Australian contributions. There is a high level of research potential in the archival area of the Collection. With its origins as a teaching collection it is appropriate that today it is held by the College, the pre-eminent training institution for anaesthetists in Australasia.

Provenance significance

Much of the Collection is well documented in terms of provenance and the purpose and context of objects are generally well understood. There was a lack of provenance recorded by Geoffrey Kaye but many of these gaps have been resolved through research since the 1970s. Further research would help to resolve remaining provenance gaps. Today, procedures and processes are in place to ensure appropriate information is collected and recorded for all new acquisitions.

Rarity

The Collection holds a number of individual items that are considered rare such as probangs, a Pravaz syringe, the Clover casebook, Clarke and SS White machines and early ornate 19th C dental gas machines. Many of the prototypes are rare since they were 'one-off' items or the first hand-made versions of equipment which was later widely adopted, such as Brain's laryngeal mask prototypes. Because Geoffrey Kaye started collecting before the Second World War, the Collection holds pre-WWII anaesthetic equipment in Australia which otherwise rarely survived that period. Many of the pharmaceutical holdings are extremely rare such as early barbiturates and trial phase drug samples. With its Australasian focus, many items in the Collection are rarely found in overseas collections.

Representativeness

The majority of the instruments, equipment and machines are representative of the field of anaesthesia and related fields. Each represents a moment of innovation or an era of usage. As a whole the Collection is representative of medical collections worldwide which are held by educational institutions and which grew out of the private collections of renowned medical practitioners. Alongside the College's Library, this Collection is also representative of the 'Library-Museum' model which characterises many anaesthetic history collections internationally.

Condition

Thanks to a high standard of care in storage and display environments, the Collection is largely in very good condition especially for the age of much of the material. The main areas of concern include the need to monitor rubbers and plastic materials, and a lack of space for future collection growth.

Completeness

Due to his passion for the specialty and his substantial resources Geoffrey Kaye travelled and collected widely. As a result the Collection is remarkably complete in terms of geographic scope and examples of objects within every relevant category. Within the Collection are remarkably complete sub-collections of laryngoscope blades, portable inhalers, pharmaceuticals (especially drug ampoules), anaesthetic machines and needles & syringes. By their comprehensiveness these and other comprehensive sub-collections can demonstrate detailed sequences of change.

Interpretive potential

The Collection is very focused thematically and as such has very strong potential to interpret and explore the histories of anaesthesia, pain medicine, intensive care and resuscitation. Through anaesthetic equipment, the most prevailing story is of progressive scientific and technical development. The archives, especially the photographic holdings have particular capacity to explore social issues and the human stories behind the equipment. The archival holding are critical for understanding the changing experiences of female and LGBTQI practitioners in the field. Some themes present in the Collection relate to the unique character of the field's history—the spirit of experimentation, often on oneself, a culture of continuous improvement to enhance patient outcomes and experiences, and the importance of sharing knowledge through education.

The Collection has associations with a range of key figures and organisations that were important in the history of the speciality. The individuals include Mr Joseph Clover, Dr John Lundy, Dr Ludwig Bruck, Dr Geoffrey Kaye, Dr Gwen Wilson and other women, including the women involved in the origins of the College, Deans of the Faculty, past Fellows of the College, Professor Bruce Benjamin, Sir Robert Macintosh, Sir Victor Hurley, Dr Mark Lidwill, Dr Archie Brain and Professor Arthur Barrington Baker. Organisations represented in the Collection include the Australian and New Zealand College of Anaesthetists, the Australian Society of Anaesthetists,

Statement of significance for the entire collection

the American Society of Anesthesiologists, Surf Life Saving Australia, the Australian Army Medical Corps, the University of Melbourne, the Melbourne Dental Hospital, Royal Women's Hospital, Royal Melbourne Hospital, Royal Children's Hospital, Freemasons Hospital, Queen Victoria Hospital, Alfred Hospital and the Royal Victorian Eye and Ear Hospital.

Medicine often recognises innovation through the naming of apparatus, and this has been true in the specialty of anaesthesia. Through their nomenclature many Collection items record the innovations of anaesthesia pioneers like Clover, Pugh, Benjamin, Bellamy Gardner, O'Dwyer, Bruck, Boyle, and Minnitt. The manufacturing firms represented include Austox, B.O.C., Commonwealth Industrial Gases (C.I.G.) and these can support narratives around Australian industrial and manufacturing history.

Most significant items matrix

	Primary criteria (type of significance)				Comparative criteria (degree of significance)				
	Historic significance	Artistic or aesthetic significance	Scientific significance or research potential	Social or spiritual significance	Provenance	Rarity	Representativeness	Condition or completeness	Interpretive capacity
Clover's Case Book	X INT		X		X	X	X	X	X
Syringe, Pravaz	X INT	X	X		X	X	X	X	X
SS White machine	X	X	X		X	X	X	X	X
D.M. Austox Machines	X NAT				X		X	X	X
RAMC Vaporiser	X NAT		X		X	X	X	X	X
Baker's Variable Waveform Ventilator	X NAT		X		X	X		X	X
Laryngeal Mask Airway	X INT		X		X	X	X	X	X

Key recommendations

The Assessment has found that the Collection is cared for and interpreted to a high standard. The following are suggested measures for future management of the Collection.

Staffing

- The Museum has excellent personnel both paid and honorary, however to date all have been required to cover multiple facets of museum management. Review the staffing and conduct a skills audit to address the three different professional areas:
 - Curatorial
 - Collection management
 - Visitor services/front of house

- Each area demands different skill sets and regular dedicated staff time in order for the Museum to continue to maintain the high standard required for MAP Accreditation. This may require review of role descriptions, restructure of staffing or increased funding for dedicated collections staff to carry out much-needed collections work such as cataloguing, research, imaging and documentation.

Collection development

- Collect First Nations material using appropriate cultural consultation;
- Build on material relating to women and other minorities in the field;
- Continue to build on the hardware chronologies up to the present day;
- Seek to acquire trade catalogues or manuals for newer more electronic equipment, to better understand their operation;
- Carry out the planned capture of AIDS epidemic narratives.
- Consider deaccessioning extra duplicates beyond what is needed (perhaps establish a clause in the Collection Policy with a threshold for duplicates). If deaccessioning, negotiate with other anaesthesia museums worldwide to undertake swaps or transfers which might fill gaps in both collections.

Documentation

- Continue imaging the Collection, to increase opportunities for audience engagement with the Collection. Currently only one-fifth of the Collection is imaged, and not all images are of high quality suitable for publishing or public programs. A recommended approach is an Imaging Project, commencing with an image audit and then developing a plan which prioritises areas based on criteria relevant to the College and Museum. Create a dedicated imaging area. This may work as a stand-alone project carried out by a museum professional under a temporary contract. Designing the work as a major project might help to attract funding.
- Many entries on Vernon CMS have no date. Over 5,300 items have no date, estimated date or estimated date period. Given that chronology is important in this Collection, it is a priority to work towards dates for all Vernon entries, even if only an estimate or date period.

- Similarly, while the data on Vernon is detailed, many items have no context or explanatory notes even when there has been research conducted and published about them. Another ongoing priority should be to add this information to Vernon entries, with priority on the higher significance items.
- Consider developing a policy (or adding to an existing one) with measures around accessing sensitive or challenging material in the Collection. This relates mainly to the Image Collection which contains some potentially distressing or confronting images, and images of patients undergoing treatment which may be subject to privacy regulations.

Conservation

- The Collection is largely in very good condition, due to excellent storage facilities and procedures and careful handling and display techniques. Two core concerns, which Museum staff are aware of are:
 - Lack of space for future collection growth.
 - The challenge of preserving rubbers and plastics.
- The next appropriate step is to commission a Preservation Needs Assessment by a qualified conservator (these are funded by NLA Community Heritage Grants) and follow its recommendations.

Interpretation

- Interpretation of the Collection has been incredibly strong in recent years, with innovative and beautifully designed content which emphasises human and cultural dimensions of the Collection. The interpretive potential of the Collection is still vast but developing the high quality interpretive content seen recently is very time intensive. Curatorial work requires adequate dedicated staff time and

resources separate from collection management duties. There may be opportunities to further expanding narratives relating to non-Western cultures, for example the recent research on early origins of anaesthesia in Japan.

- Consider producing a premium 'art monograph' style book which would trace Australian anaesthetic history through a survey of the Collection, illustrated throughout with high-quality images. This could be another platform for raising the Collection's profile, a channel for public engagement and could be a product which the College could distribute to promote positive organisational identity. It would replicate or re-purpose to a degree some of the content of the Wilson publication and the Westhorpe-Ball Historical Notes book, but ideally would be more chronological, more complete to the present day, more accessible to lay persons, focused on people as much as equipment and titled/branded to the Museum and College. A possible guiding example is the publication *Art Gallery Of Ballarat: Stories From The Collection* published in 2016. A book project like this may attract project funding from programs like PROV Local History grants program or similar.
- Consider developing modules, kits or programs for younger audiences, such as secondary school students. In the Victorian Curriculum, Levels 9 and 10 History streams focus on the themes 'The making of the modern world' and 'The modern world and Australia'. The GKM Collection has strong capacity to effectively explore these themes. Another curriculum area with potential linkages to the aesthetic aspects of the Collection, such as packaging and labelling, is Visual Communication Design. There may also be ways to engage students of VCE Chemistry or Level 7/8 of Civics & Citizenship (Citizenship, Diversity and Identity).

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