

MESSENGER

News and Information from **BERENTT**

Vale Dr William (Bill) Burch *The man who invented Technegas*

Sir Isaac Newton is attributed with having said -
 “If I have seen a little further it is by standing on the shoulders of Giants.”

It is said that he paraphrased a translation of John of Salisbury’s 1159 statement: “We are like dwarfs sitting on the shoulders of giants. We see more and things that are more distant than they did, not because our sight is superior or because we are taller than they, but because they raise us up and by their great stature add to ours.” His statement is commonly understood to be a metaphor for how knowledge grows.

Dr William (Bill) Burch, like Newton, was a physicist. He was born in Wellington, New Zealand on the 13th of November, 1938 and he lived a truly exemplary “giant’s” life. Intuitively, he understood things others never could and he built his knowledge by experimentation based on the solid foundations of his observations.

From an early age, experimentation was always part of Bill’s *raison d’être*. Bill was a Scorpio. And, typically of all Scorpios, he was hard working, ambitious, intuitive, a born winner and most important of all “possessed of strong intuitive powers”.

Aged just 12, he ignited a tin of flash-powder which removed the skin of his hand and one of his eyebrows much to the chagrin of his mother!

While Bill did many things in his productive life, such as his time as



Observatory Geophysicist to Wilkes Base in Antarctica in 1990, his passion for helping people drew Bill into nuclear medicine in various hospitals in Australia and the United Kingdom.

From 1968 to 1973 Bill worked as Deputy Principal Physicist at St Thomas’ Hospital in London. During this time Bill was undertaking research for his PhD. It was an important time in his life and led to furthering his interest in nuclear medicine.

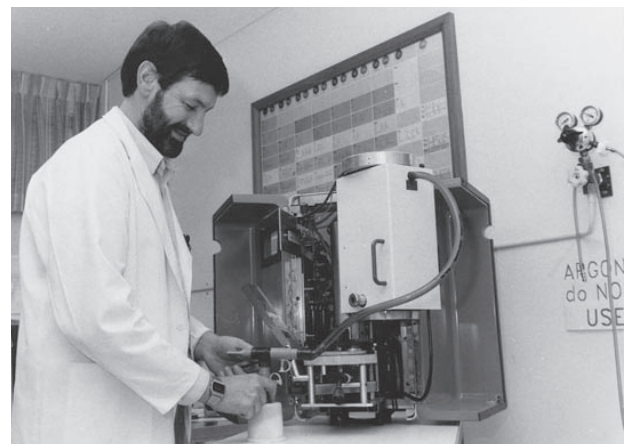
This eventually saw Bill appointed as a physicist at The Canberra Hospital in May 1973. There, George Taplin’s “Lung Imaging in Pulmonary Disease” inspired Bill on the quest to find a ventilation agent capable of producing images truly congruent with their perfusion counterpart.

Bill had noticed the efficiency with which smoke particles penetrated into the alveoli of the lung and he felt that this property could be exploited to diagnose pulmonary embolism (PE).

In a truly inspirational original thought, Bill began searching for a method to produce radioactive smoke! The genius in Bill’s approach was to use so little material that it is chemically insignificant and delivered significantly less radiation dose to the patient from alternative radiological procedures.

Thus, almost eight years later in 1985, one night Bill “stumbled” across Technegas. For almost 40 years Technegas has remained the pre-eminent ventilation agent in a V/Q lung scan. There are not many products that can lay claim to such longevity. Over 4 million patients globally have had the benefit of Technegas. Countless patients’ lives have been saved through the early and accurate diagnosis of PE leading to initiating effective treatments, all thanks to Bill.

The development of Technegas

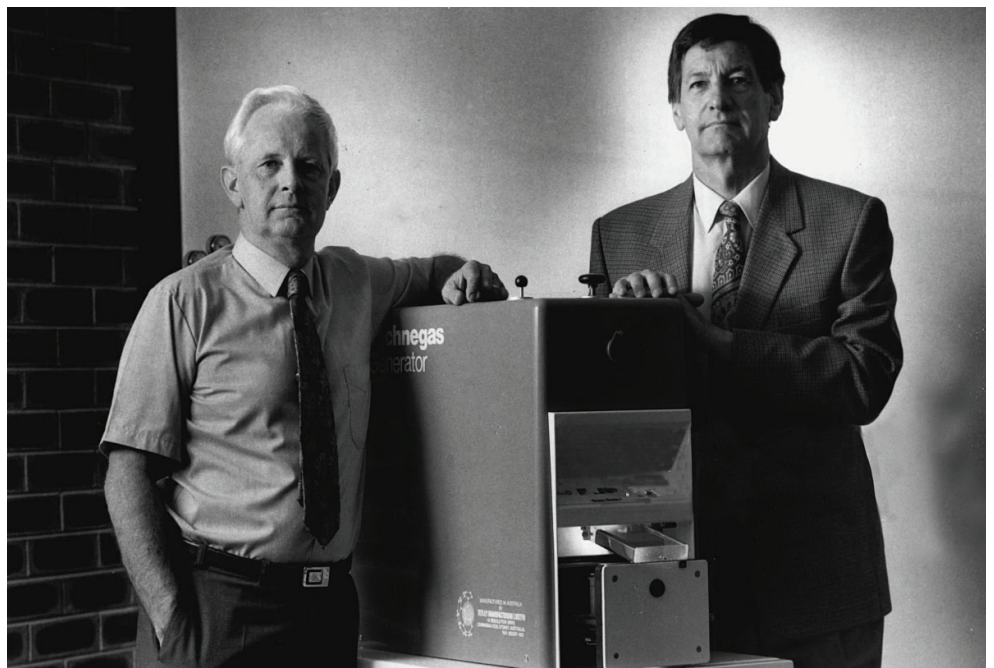


must rate as one of Australia's biggest contributions to global nuclear medicine practice up there with [99mTc]-phosphonates for bone scanning (Boyd, AAEC (ANSTO), 1970), filtered back-projection image reconstruction (Bracewell, ANU, 1956) and OSEM iterative reconstruction (Hudson & Larkin, Macquarie University, 1994). Just to show how advanced the Canberra group's thinking was at the time, Chris McLaren, a technologist in the group where Bill was testing Technegas, presented a paper on V/Q lung scanning at the 1986 ANZSNM ASM using (a) Technegas, (b) SPECT for both V & Q, and (c) ventilation subtraction from the perfusion reconstructions to give a V:Q quotient image. That is now almost 40 years ago, while the first clinical site in the US to implement Technegas is just starting in this 2nd week of 2024!

In Bill's own words, he wanted to make science fun and relevant especially to his younger audience. He put his words into action at Questacon in Canberra, where he was Manager of the exhibit for several years.

I met Bill for the first time at ANSTO in the 1990's when Bill was head of the Radiopharmaceuticals Research team. Over the years, Bill had become disillusioned with the lack of foresight of the owners of the Technegas technology and he left the company. It is only in recent times that suddenly the penny has dropped and alternate applications for Technegas in pre-surgical evaluation of regional lung function, asthma, pneumonia, COPD, emphysema, right heart failure and more been explored. This point was disappointing to the hard-working individual Bill, who was always striving for excellence and an improved method to help people.

Bill and his team at ANSTO worked on research projects in diagnostic biomarkers for cancer and neurological disorders such as Alzheimer's and Parkinson's disease.



William (Bill) Burch (right) looking every bit the renowned physicist he was, with engineer Ian Tetley. Together they were able to begin production of the early model Technegas generators.

Those of us lucky to hear Bill's Lowenthal Lecture at the ANZSM Annual Scientific Meeting in Darwin in 2011 learned about some of the shenanigans which accompanied the development of the Technegas generator, many of which would not be acceptable today. Despite already being diagnosed with Parkinson's disease, Bill delivered an unforgettable lecture which had the audience in stitches but also provided them with great insight into his thought processes.

Bill went on to meet his Maker on the 5th of December, 2023, aged 85. His life was full of achievement and devotion to the improvement of life for humanity. Few of us will look upon Him on judgement day and be able to say, "Hey Lord, I did that. I saved hundreds of thousands of lives because of what I invented." Bill, however, can claim this.

Ironically, Bill was afflicted with Parkinson's Disease himself, a project he and his team at ANSTO had been researching. His usual thoroughness in understanding and research into any project he was working on would have meant that he was more aware than most

of the prognosis. For the past few years of his life Bill fought the good fight. He was constantly emailing me with "thought experiments" during the COVID pandemic.

He designed experiments to diagnose black lung disease and measure lung damage and recovery in long-COVID patients. This was at a time when he could not communicate verbally, but all using Technegas as the investigative agent.

It is hard to know how far the implications of Bill's original invention will go.

I will miss his wise council, original thinking and sound advice.

Vale, my friend.



Charles Buttigieg

MSc BSc(Hons)

Reliable Trustworthy and Fair

Berentt Medical Technology (BMT) has maintained its Patient Administration Kit (PAK) prices since 2019.

We have tried to charge a fair price per box of 50 consumables and avoid 'price gouging' simply because we could!!

Since taking over the running of the business from Landauer Radiopharmaceuticals P/L (LDRP), I have discovered that customers are paying different prices for no good reason.

So, please let me state Berentt's prices, effective 1st January, 2024, for all customers so that there is no confusion.

A box of 50 PAKs which includes 50 X 0.3ml crucibles, a set of solid carbon contacts and delivery tubing (BMT001) - \$2350.00

Pack of 0.3ml large volume crucible X 10 (BMT002) - \$200.00

Set of solid carbon contacts (BMT003) - \$100.00

Annual Service Agreement (BMT004) - \$2,000.00

Delivery charge: up to 3 boxes (anywhere in Australia) --- (BMT005) - \$100.00

Please Note: Prices quoted are Ex-G.S.T

Furthermore:

Being told that your Technegas generator cannot be fixed and you need to buy a new one?

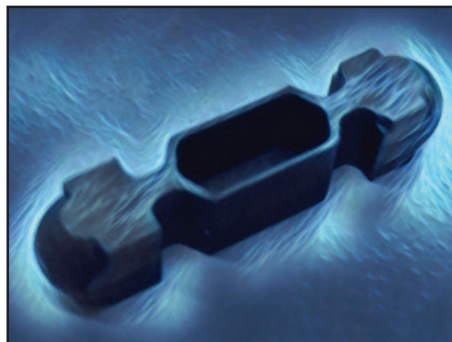
Save yourself tens of thousands of dollars and call

*Berentt Medical Technology **BEFORE** you make the decision to upgrade.*

In the majority of instances, our experienced engineers who have been involved since the inception of Technegas in 1986 and have decades of experience in designing, developing and maintaining Technegas engines, will resolve the problem and save you a heap of dough!

Vent-Medis disposable kit for Ventilation Scintigraphy

**Large 0.3ml
highest purity
graphite crucible**



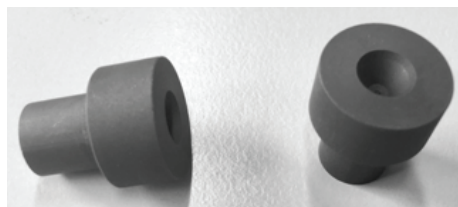
Vent-Medis Kits include the improved high-purity, high-volume carbon crucible with a 0.3ml bowl capacity. This crucible saves time and minimises multiple simmers allowing the use of dilute Tc-99m generator elutions thus reducing operator radiation exposure.

**Rugged design
smooth-bore
patient
delivery set**



The inhalation breathing unit contains a high efficiency HEPA, exhalation filter, T-piece with robust non-return valve, a robust one meter smooth-bore tubing with 15mm inner diameter and the special generator connection. A rigid mouthpiece and a nose clip complete the set.

**High purity
and long life
graphite
contacts**



With every Vent-Medis Box you get one pair of high-purity carbon contacts for 50 scintigraphic examinations. The carbon contacts are very robust and fit the Generator specifications with great contact reliability.

Vent-Medis Kits

**Larger volume crucible
equals more efficient use of
dilute Tc-99m eluate**

High-Efficiency HEPA filter

Time and cost saving

**Less radiation through
reduced simmers**

**Improved and more
reliable crucible contact**

More rugged design

Improved packaging

TGA Certified

Reliability of supply

CE marked

Major price advantage

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