Awfully

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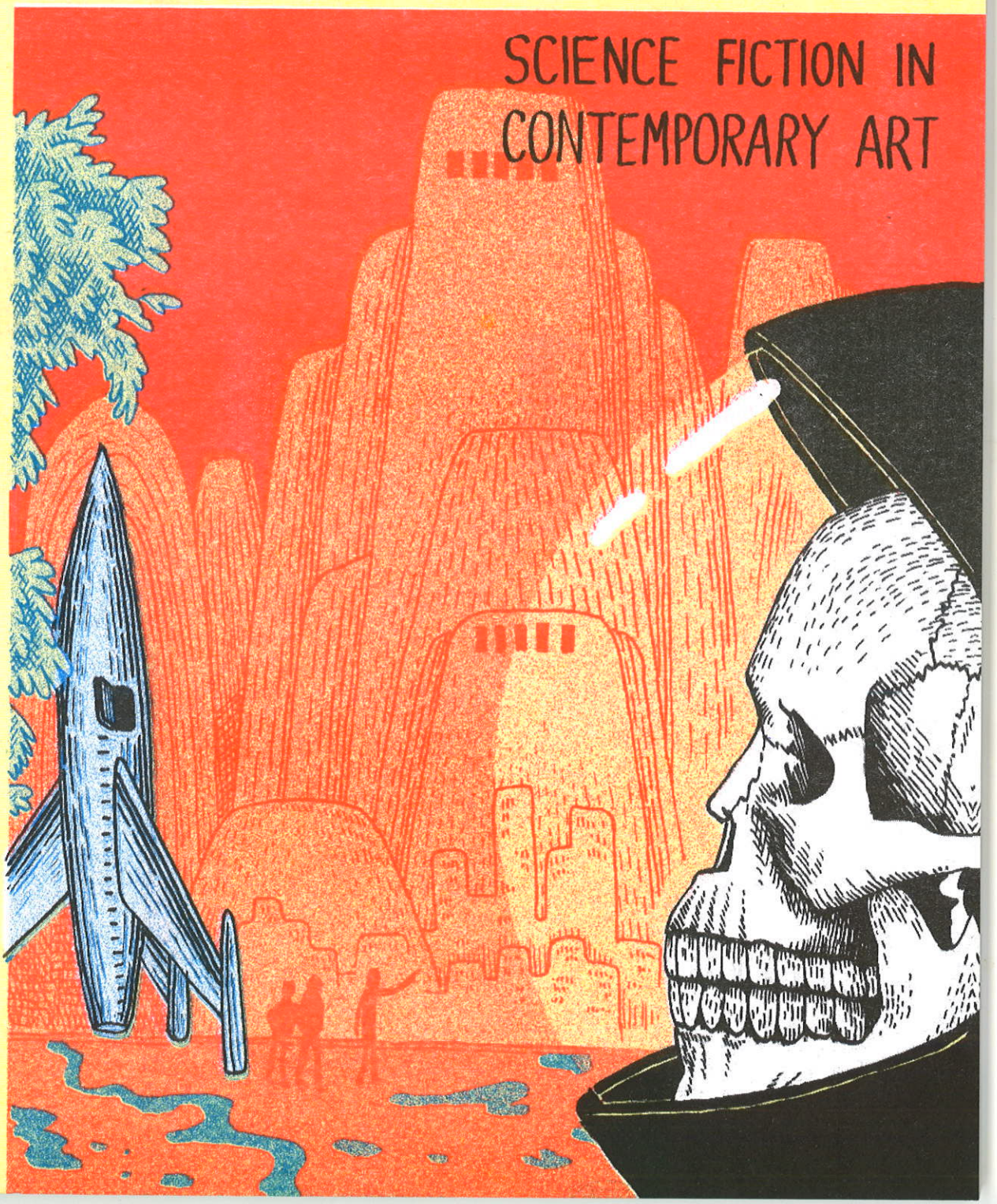
WONDERFUL

SCIENCE FICTION IN CONTEMPORARY ART



Performance Space

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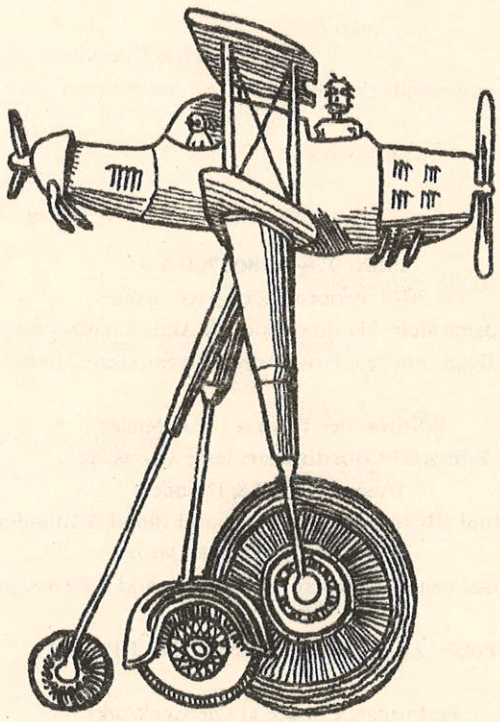

CURATED BY BEC DEAN + LIZZIE MULLER.

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CONVERSATIONS FROM THE WONDER CHAMBER

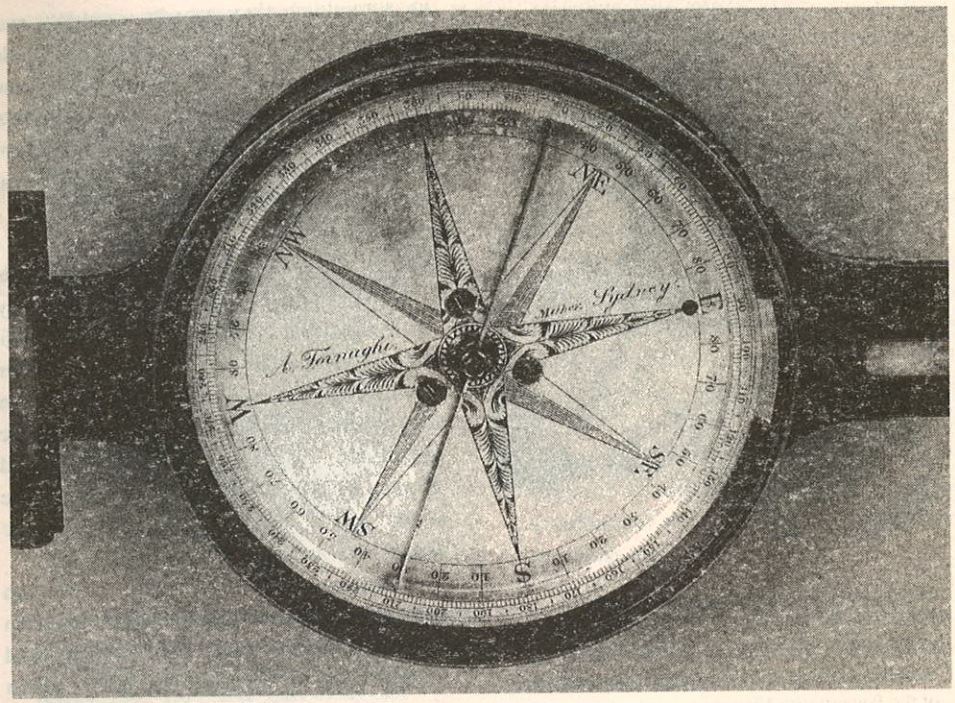
JESSE ADAMS STEIN IN CONVERSATION WITH MATTHEW CONNELL

The speculative objects in the Wonder Chamber of *Awfully Wonderful* are not only artworks, but also old technologies and scientific instruments borrowed from the collection of the Powerhouse Museum. If the artworks help us contemplate the possibility of the future, these techno-scientific objects help us to confront the realities and fictions of the past. The handsome spectroscope that uses glass prisms to analyse light embodies the highly wrought mechanisms by which humans have painstakingly, over centuries, unwoven the rainbow. The Carte de Ciel device and the Circumferentor speak of how we have navigated and explored both the Earth and the stars. Dr Bodkin Adams' Electromassage Machine demonstrates how our faith in scientific theories can engender human practices that will seem ridiculous or even barbaric to future generations.

These objects are the McGuffins of Western science's grand narratives. The McGuffin is a term coined by Alfred Hitchcock to describe the 'mechanical element' of any plot that drives forward the actions of the protagonists. Like the quest for the answer, and then for the question of *Life the Universe and Everything*, which propels the action through Douglas Adams' novels, these objects drive forward the histories of science – which are as full of fiction as any tale of the scientific future. The objects were selected by the curators in the spirit of curiosity, delight, and oblique association that characterises the logic of the Wonder Chamber. Some were chosen because they resonated with the themes of individual artworks, or of the exhibition as a whole, others because they were visually seductive or inspiring.

All of the objects have a tale to tell, and in the following conversation, Jesse Adams Stein explores some of these stories with Matthew Connell, Principal Curator, Physical Sciences & Information Technology, and Curator of Computing & Mathematics, at the Powerhouse Museum, Sydney

– Lizzie Muller



Circumferentor (detail), surveying instrument, brass, silver, glass, made by Angelo Tornaghi, Sydney, New South Wales, 1863-1864. Lent by the Powerhouse Museum, Sydney. Gift of Mr A. McDonald. Photograph courtesy of the Powerhouse Museum.

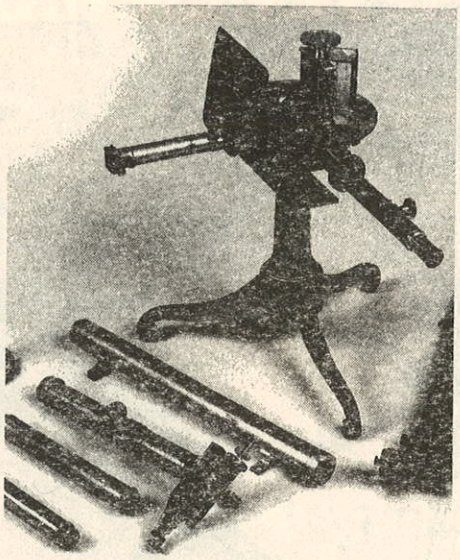
Jesse Adams Stein: This collection of objects is overwhelming in the number of science fiction themes it triggers: exploration, mechanisation, the human condition, and the power of objects. Perhaps I should have just said "life, the universe, and everything".

Matthew Connell: Yes. It's all here – let's just start with one, shall we? This delightful instrument is a Circumferentor, a brass, silver and glass surveyor's compass. The Italian instrument maker, Angelo Tornaghi, made it in Sydney between 1863 and 1864. It was a cheap and cheerful alternative to using a theodolite.

JAS: A circumferentor is very much about the exploration of unknown territories, about discovery and conquest, which of course has particular resonance in an Australian context. Technology was used as a way of becoming comfortable with unfamiliar land.

MC: It's also about ownership and control. Science was a major driver in the whole colonial project. When Europeans arrived here, they set about taking ownership of the land by covering it in triangles. That's how you make your way across the land, by triangulation, using these instruments.

The attractive thing about this circumferentor is that it has the element of portability. Theodolites tended to be heavier. But with a circumferentor, you're operating without any optical help, using unassisted eyesight. This introduces a level of human error. The Surveyor General eventually decided that the boundaries surveyed using these instruments were not acceptable for establishing legal ownership.



Multi-prism Spectroscope (detail), used at Sydney Observatory, made by Adam Hilger Limited, London, 1876, metal, glass, tin, wood. Lent by the Powerhouse Museum, Sydney. Photograph courtesy of the Powerhouse Museum.

JAS: So, despite its elegant scale and the skill of its maker, the circumferentor was a clumsy object that lacked precision, an unofficial instrument. Rough and ready.

It's easy to read some of these objects as 'players' in a theatrical sense – as actors or parts of a set. This object, Barlow's Wheel, is precisely that – a machine designed for the theatrical presentation of science, or 'science in action'.

MC: Barlow's Wheel is a showpiece electro gizmo. It was a device used for the demonstration of electromagnetism to the public. We don't know the date or the maker for this one, so it's a bit mysterious. The demonstration of electromagnetism could often be quite a spectacle, quite a drama.

JAS: I can imagine the showmanship might have been quite energetic; people were essentially being asked to believe in something they usually couldn't see: electrical charges. These machines made that science 'real', but at the same time the strangeness of these sorts of objects, and the spectacle of an electromagnetism demonstration, could also mystify the science, coat it in mystique and wonder.

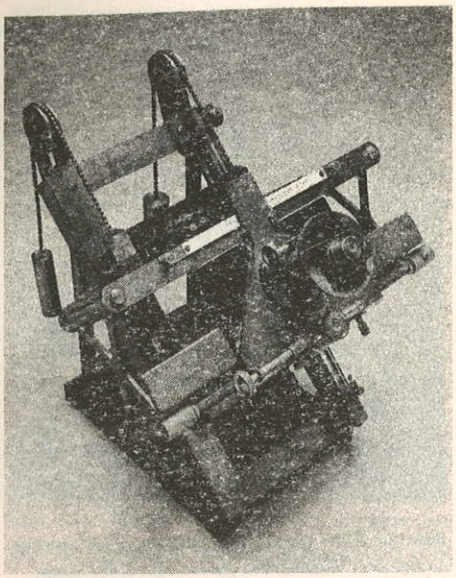
MC: Here's another instrument of wonder – the Multi-Prism Spectroscope made by Adam Hilger. It arrived in Sydney in 1876. Henry Chamberlain Russell, the Astronomer Royal, was a very active astronomer in Sydney. He loved his instruments, and he loved *this* instrument. He was delighted with it, he thought it was the best in the world, and he had the credentials to make that sort of a claim.

Spectroscopes essentially break up light into different frequencies, in order to identify elements. They were initially used to look into the atmosphere. Gases, when they are in an excited state, give off light at a particular frequency, and that provides a signature for elements. This instrument was certainly well used by Russell, and as early as 1878 it was used in conjunction with the Mertz 7¼ inch refractor telescope at the Sydney Observatory.

JAS: Here's an object that combines both starlight and mapping. This is the Carte de Ciel measuring device.

MC: Ah, yes, this little monster was partly made by Troughton and Sims, between 1892 and 1915. Carte de Ciel means 'map of the stars'. It is a precision machine that allows accurate positioning of points on a photographic plate. The Carte de Ciel was a global exercise in mapping all of the stars in the night sky.

There were stations set up around the world, and various observatories took very high quality photographs of the stars. The exposures were all on glass plates, and these instruments were used by – I think mainly women – to register the position of every star.



'Carte de Ciel' optical instrument for measurement of astronomical photographs, designed by H.H.Turner, made by Troughton and Simms, London, 1892–1915, metal, glass, wood, used at Sydney Observatory. Lent by the Powerhouse Museum, Sydney. Photograph courtesy of the Powerhouse Museum.

There were 20,000 odd plates mapping the Southern skies. It took 60 years, or longer, to do this work.

The Powerhouse is about to reclaim those 20,000 photographs from Macquarie University. The question is, what can we do with that data today? It's an enormous number of bits of glass with black and white spots on them. If we could scan them at micron-level resolution, there is a question: what would we see? There's a possibility we'll see more stars … or other things. So we're keeping them, even though they're a huge resource drain.

JAS: Zooming back to Earth now, back to bodies and matter – tell us about this alarming looking box, full of probes and pointy bits.

MC: This is the Ediswan Electromassage Machine of Dr Bodkin Adams. Many doctors in the nineteenth and early twentieth centuries used machines like this to treat a variety of ailments; it was often used to treat what was known as 'hysteria' in women.

As you can see, you've got a power supply, and these glass probes from which you get an electric charge. These probes have a number of different shapes and who knows what they might be used for.

This machine is particularly intriguing because it was owned by Dr Bodkin Adams. Bodkin formed close relationships with his patients. So close, in fact, that at least 132 of them wrote his name into their wills. But he ended up in court: 40 of his patients died in suspicious circumstances. There is a question about whether he might have been a euthanasia doctor, but he is remembered as a mass murderer.

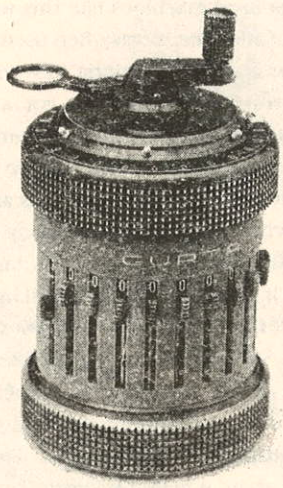
JAS: If only he could speak for himself. There are some 'dead voices' in this Wonder Chamber, are there not?

MC: Well, there's the Edison Phonograph with a 'Bijou' coin-in-the-slot cylinder. This one has a marvellous glass-fronted cabinet and a winding handle. It's from the United States, made in 1908.

JAS: And thus began the strange human endeavour of speaking into machines – and the equally alarming, disembodied voice that comes out of them.

MC: They used to refer to phonographs as 'talking machines'. When Edison invented the phonograph he wasn't planning to create an instrument that would play music, he was actually trying to create an answering machine for his telephone. That's what he saw was wrong with the telephone: often there's nobody there to pick it up. But the phonograph did record sound, and ultimately other people decided what it could be used for.

Anthropologists used to love to head off into the hills with one of these machines, and record people singing, or, in the United States, chain gangs and mountain folk.



Curta Type II mechanical calculator, c. 1960, metal and Bakelite, made in Liechtenstein. Lent by the Powerhouse Museum, Sydney, purchased 1985. Photograph courtesy of the Powerhouse Museum.

Sinclair ZX80 personal computer, 1980, Sinclair Computers Ltd, England, plastic, metal, fibreglass. Lent by the Powerhouse Museum, Sydney. Gift of Mr Angus Campbell, 1992. Photograph courtesy of the Powerhouse Museum.

I believe the first sound recording in Australia is someone doing a chicken impersonation.

JAS: Is it possible to hear any of these phonograph recordings any more?

MC: Well, the problem with some of these machines is: if you put the needle on, you risk destroying them in the process. Obviously at the Powerhouse our conservators don't want us to play them – we preserve the objects – but people who collect gramaphones routinely drop the needle onto their recordings.

JAS: A recording that self-destructs as it is played. Let's have a look at a true science fiction cult object – the Curta II Calculator.

MC: The Curta is a beautiful calculating machine. Type I was introduced in 1948, Type II was produced between 1955 and 1965. This one is circa 1960. The remarkable thing about this machine was how it was invented. It was designed by Curt Herzstark. His father owned a calculator factory in Austria before World War II. In 1943 Curt was taken to Buchenwald concentration camp. But because he was extremely skilful as an instrument fitter he was separated from the other inmates and made to work on technologies for the Nazis. The Buchenwald Commandante noticed Herzstark's design for the Curta calculator, and thought it was fantastic. He decided that it would be just the thing to present to the Führer when they won the war. Of course, that didn't go quite the way the Commandante planned, but Herzstark had this beautiful calculator already designed.

After the war, Herzstark was approached by the Lichtenstein Government, they were interested in modernising their economy, and were looking for new, modern industries. They offered Herzstark a factory to produce the Curtas.

JAS: This is certainly the kind of object that has deep emotional significance for many people. Do you, personally, feel that sort of attraction to the Curta?

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MC: I have always loved them. I loved them on sight. I loved them before I knew Curt Herzstark's story. They're lovely to hold. They're an exquisite design.

I suspect the fact that I haven't actively gone and purchased a Curta I is that I'm putting it off, so I can prolong my search. That's a disgraceful admission for a curator whose supposed to be acquiring on behalf of the people of New South Wales.

JAS: The Curta was also a McGuffin in William Gibson's *Pattern Recognition*.

MC: I've always been a fan of William Gibson! In *Pattern Recognition*, the Curta and the Sinclair ZX80 microcomputer are the big signifiers. The first acquisition I ever made for the Powerhouse was the Sinclair ZX80. I was anxious, I had never been a curator before and I didn't want to make a mistake. I really needed to tease out the ZX80's significance to justify its acquisition. It's basically just a circuitboard encased in white plastic. The Sinclair ZX80 came out in 1980, I acquired it for the museum in 1991, and *Pattern Recognition* was published in 2003. It was gratifying to feel like I had William Gibson's endorsement for my acquisition.

JAS: So at only 11 years old, justifying the Sinclair ZX80 as an historical object would have been a challenge. But the pace of change is very fast, particularly with computing technology.

MC: Yes, and ZX80s are fragile. Its very disposability means its preservation is unlikely. You can find pictures of people using this thing as a doorstop. It's not a very good computer. But it was the first home computer to cost less than £100. It sold for £99 in England. Clive Sinclair turned the computer into a whitegood, an appliance.

JAS: That wedge shape was recurring feature in technology design from the late 1970s and 1980s. Some of those forms were borrowed (intentionally or otherwise), by designers who were influenced by imaginary technology, by science fiction film sets. How else do you design a futuristic object, but by looking at visions of the future?

MC: The Sinclair ZX80 didn't have enough memory to write anything but trivial programs. It only had 1K. I love the idea in *Pattern Recognition*: that young, tech artists are wiring ZX80s up to create neural nets and do Artificial Intelligence programming with them.

JAS: Talking of AI, let's jump sideways to an old fashioned form of artificial life - this musical automaton of a bird in a cage.

MC: This is from France, made circa 1900–1902. The bird moves and sings. Now, curators aren't allowed to operate machines, conservators operate machines. But I've already been caught with this bird. A colleague and I were desperate to hear it. We turned the key, just the tiniest bit. And the bird just started bloody whistling and wouldn't shut up.

The most famous automata of all time was also a bird. It was a duck, made by Jacques de Vaucanson. In 1739 this famous duck travelled around Europe and entertained the various European courts. It quacked, flapped its wings, ate seed, and defecated.

JAS: How do you explain this desire for machines to imitate life?

MC: I think it's a yearning and a questioning about the nature of life. It continues today with Artificial Intelligence. Some AI scientists do it to understand more about how we work, and some of them do it to make better machines. I suspect there's a creation complex, going on there - something deep and culturally embedded. We try to understand life through technology.