Pearcey FOUNDATION

2018 Pearcey Day at DIF

Tuesday, 28 August 2018

Welcome

Celebrating the Past; Informing the Present; Inspiring the Future

Dr Peter Thorne

Chairman, National Committee

Panel Speakers

Dr Matthew Connell

Powerhouse Museum

Panel Speakers

David Piltz

Telstra/Heritage Communication Ltd

TELECOMMUNICATIONS HERITAGE

David Piltz
Telstra Corp Ltd

IT'S HOW WE CONNECT

COMMUNICATIONS HISTORY

IT'S HOW WE CONNECT

- Communication dates back Millennia
  - Indigenous message sticks
  - Smoke Signals
  - Optical Telegraph by Semaphore Flags

- Wired Communication
  - Telegraph
  - Telephone
  - Switchboards
  - Electromechanical exchanges
  - Optical fibre

- Wireless Communication
  - Radio Telegraphy
  - Radio Broadcasting
  - Radio Duplex Voice

- Advancements
  - Semiconductors
  - Computers
  - Miniaturisation and Handheld devices

HERITAGE ASSETS IN PMG / TELECOM / TELSTRA

IT'S HOW WE CONNECT

- Passionate individuals within Telstra and its predecessor entities have been working to protect the company's historical legacy for many years.
- The Collection has gone through various phases of organisational sponsorship and management over many years – this has included paid historical officers and individual state based approaches.
- A 'Telstra Historical Collection Project' was conducted during 2005/2006. This project conducted a range of discussions with interested parties including the national and state based museums to identify and recommend management models principally involving a divestment of the collection, under conditions acceptable to Telstra.
- These museums preferred to cherry pick the Collection, but not assume wider collection management responsibilities, and the initiative was subsequently dropped.

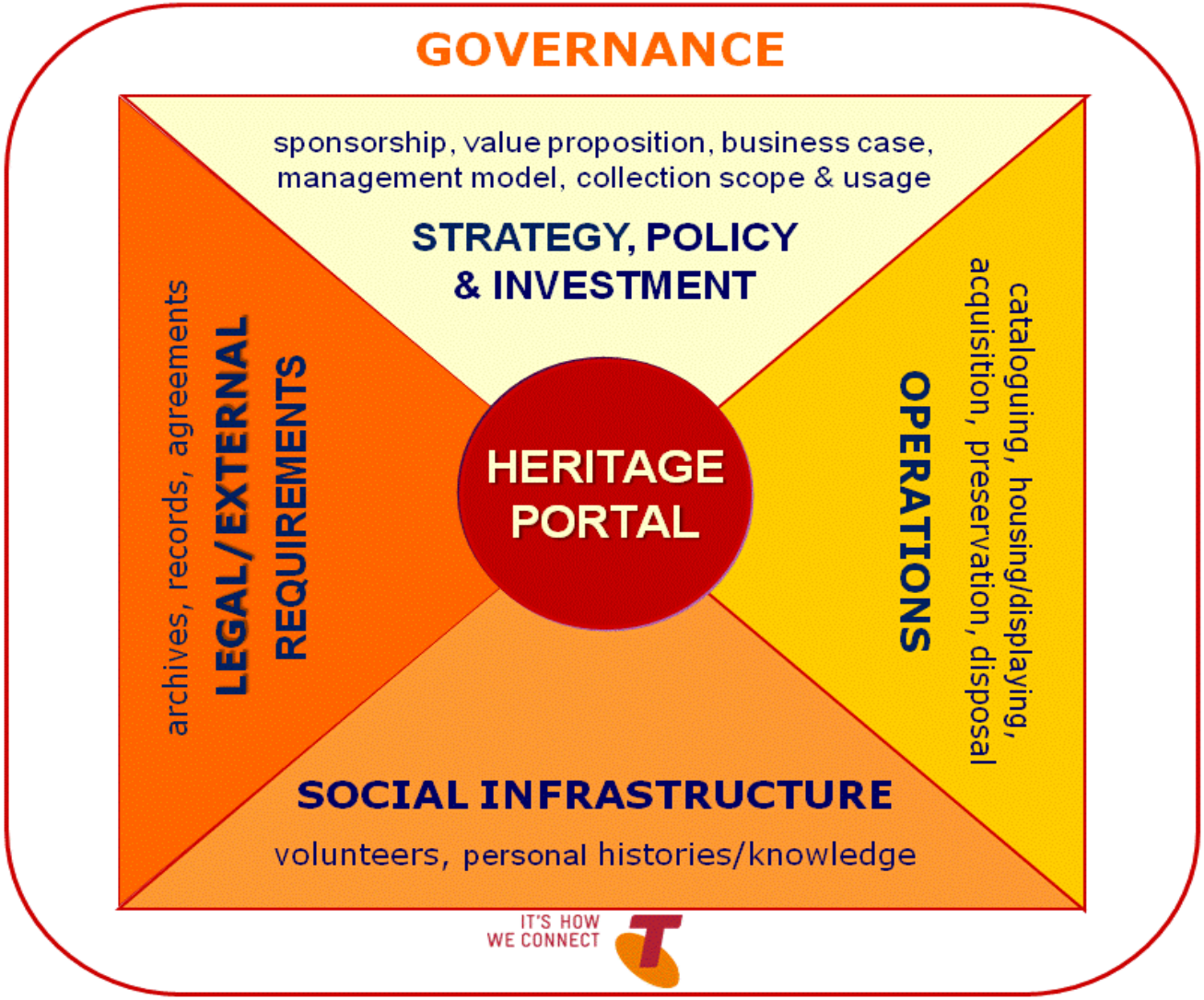
HERITAGE ASSETS – THE ISSUE

IT'S HOW WE CONNECT

- Telstra has a collection of heritage assets of considerable value.
- Without proper management, these assets degrade and can be lost.
- Telstra Heritage asset management relied on the interest and discretionary effort of a relatively small group of individuals and volunteers.
- Telstra's approach to its heritage has been inconsistent over the last 20 years.
- Telstra is proud of its achievements and those of its people, however:
  - heritage can be inconsistent with the desired brand-identity of a leading-edge technology company, and
  - management of heritage is a cost, which is at risk of being seen as a lower-order priority during business efficiency drives.

HERITAGE FRAMEWORK

IT'S HOW WE CONNECT



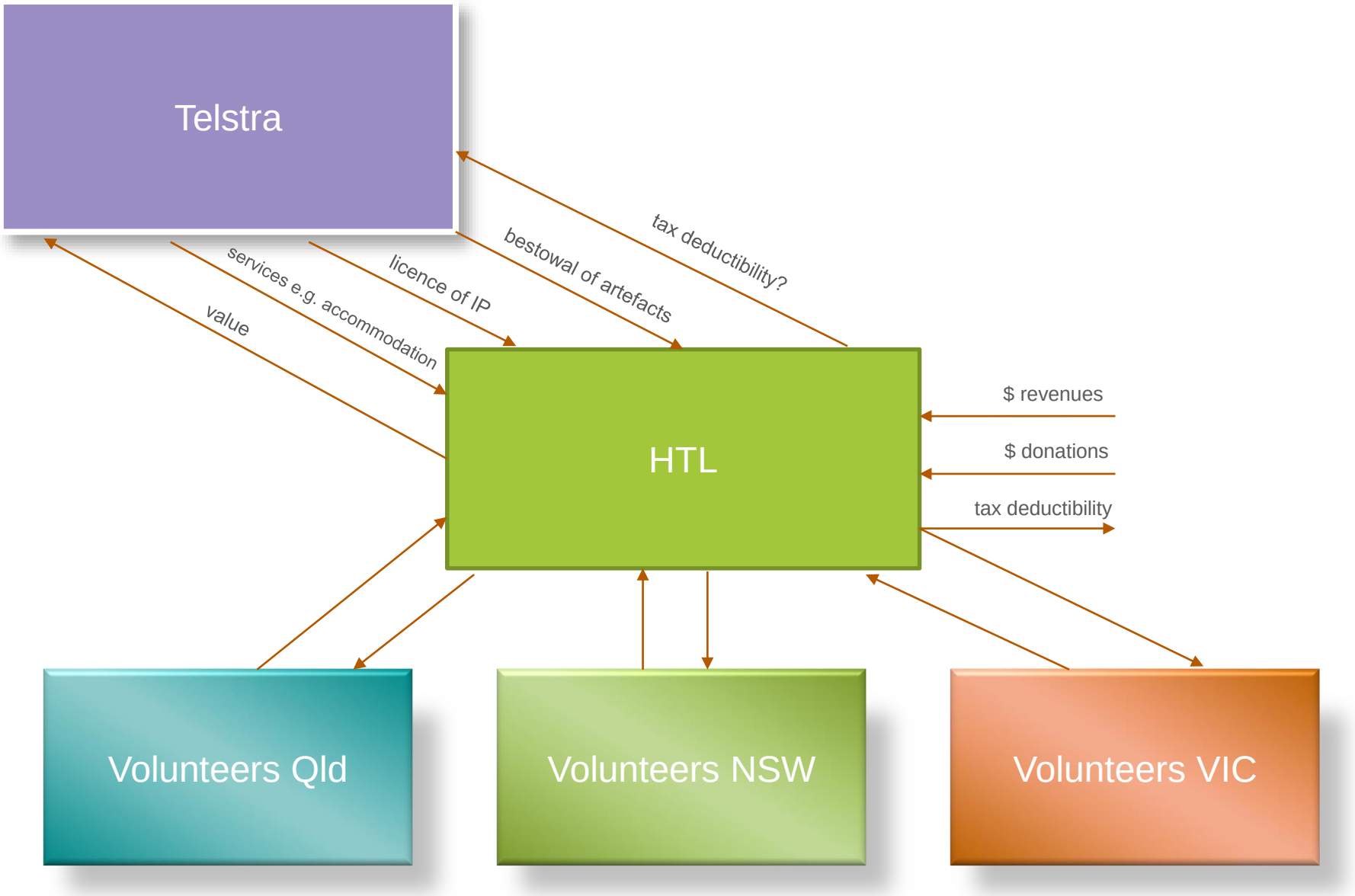
OPTION FOR A SUSTAINABLE OUTCOME – WHOLLY OWNED SUBSIDIARY REGISTERED “NOT FOR PROFIT” – DGR STATUS

IT'S HOW WE CONNECT

- CEO Approval to create a sustainable approach.
- Heritage Telecommunications Ltd.
- Charity and DGR status granted.
- The Telstra Heritage collection gifted to HTL.
- Museums at Hawthorn, Bankstown & Albion.
- Volunteer affiliates part of the operation.
- Warehouse to consolidate the collection.
- Business plan to catalogue and make accessible.

WORKING ARRANGEMENTS

IT'S HOW WE CONNECT



ASSESSMENT BY SIGNIFICANCE INTERNATIONAL

- The Telstra Heritage Collection begins with the conquering of our harsh remote terrains in order to connect with each other and also with ‘home’ half a world away.

- These drivers were instrumental in turning us into a nation of technological ‘early adopters’, as illustrated in the Collection.

- The evolution of the corporate collection reflects this development.

- This distributed Telstra Heritage Collection contains highly significant elements integral to our national story and is *therefore of national significance to Australia*.

EXAMPLES

Catalogue Number 5497

1972 VW Kombi Van
Cable Jointers Van'
No other known PMG examples

Catalogue Number 1244

1878 Williams Telephone
Victoria's first telephone
4 examples produced

EXAMPLES

1953 Speaking Clock
Made for the PMG with the proto-type residing in the Science Museum, London.
4 examples produced

<u>Catalogue Number 8649 & 8651</u>
circa 1872 & 1863
Prismatic compass and field glasses
Items once belonging to Sir Charles Todd and used during the construction of the Overland Telegraph Line (1872)

ACTION PLAN

IT'S HOW WE CONNECT

- Over 500,000 items in the collection
- Located in 17 storage facilities.
- Consolidate in single warehouse.
- Continue to acquire and catalogue.
- Bring to collection back to life.
- Refurbish the museums to improve public entry and displays and visitor experience.
- Managed via HTL Board and the HTL Advisory Group and the volunteer affiliates.

PROUD PAST, BRILLIANT FUTURE

Our history, leaders & values

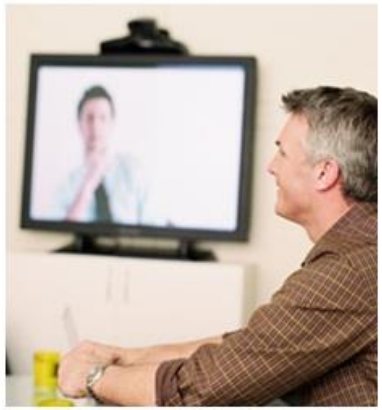
Quick links > Purpose & values > Leadership team > The Board > Suppliers

Past

From the first telegraph post in 1854 to our 4G network, explore our interactive timeline of key events.

Present

We're in good shape, with a happy workforce, more customers than ever and great values to build on.



Future

Our vision of the future is built upon three strategic pillars that we believe will help us thrive.

IT'S HOW WE CONNECT

Panel Speakers

Dr Nurin Veis

Museums Victoria

Museums Victoria and Future Technology

Dr Nurin Veis
Director, Research & Collections
Museum Victoria

28 August 2018

MUSEUMS VICTORIA

- Melbourne Museum
- Immigration Museum
- Scienceworks
- Royal Exhibition Building

MUSEUMS VICTORIA

Technology collection

- Close to 10,000 artefacts
- 1800s – 2017

MUSEUMS VICTORIA

- Agriculture
- Transport
- Engineering
- Communications
- Computing
- Manufacturing
- Medicine
- Photography
- Sustainability

MUSEUMS VICTORIA

- **Innovations:**

- Biopharmaceuticals
- Black box recorder
- Cochlear implant
- Computing

MUSEUMS VICTORIA

- **Computing:** close to 3,000

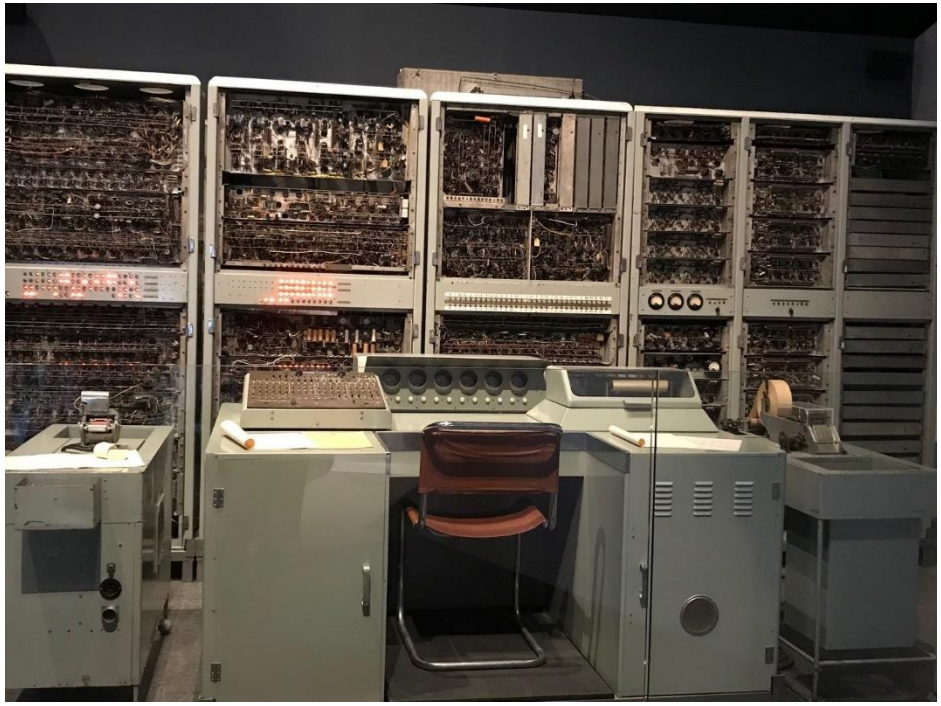
- **CSIRAC**
- Designed 1947, Trevor Pearcey and Maston Beard, Division of Radiophysics, Council for Scientific & Industrial Research (CSIR - today known as CSIRO)

- first program run 1949, full operation 1951

- operate more than 1000 times faster than the best mechanical calculators

MUSEUMS VICTORIA

- **CSIRAC**
- first stored-memory electronic computer in Australia
- world's only complete surviving first-generation digital electronic stored-memory computer
- 1955 - transferred to Uni of Melbourne Computation Laboratory, continued operation until November 1964
- listed Victorian Heritage Register (H2217), awarded National Engineering Heritage Landmark plaque by Engineers Australia



MUSEUMS VICTORIA

Research and Collection Strategy:

- **technology**

Museum for the Future

THREE LEVELS OF IMPACT

Museum as Portal

BUILDING

A Museum that goes beyond the traditional science and technology museum typology

Museum as Campus

CAMPUS

A Museum within a campus of complimentary science and technology organisations

Museum as Catalyst

PRECINCT

A Museum at the heart of a sustainable Innovation District in Spotswood

Museum for the Future

Panel Speakers

Barbara Ainsworth

Monash University

MONASH University

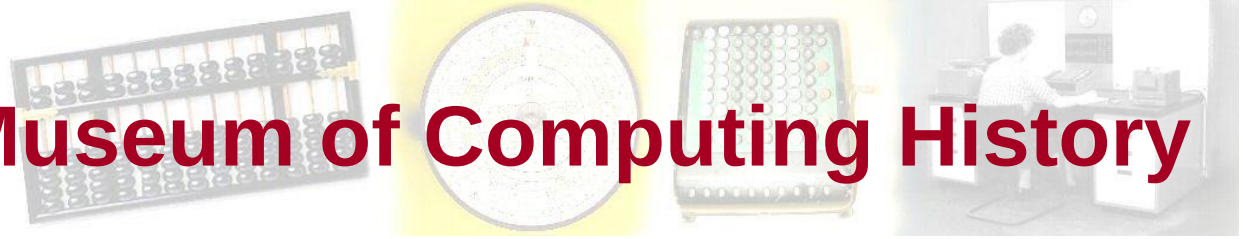
ICT Heritage Collections

Monash Museum of Computing History

Faculty of Information Technology
Monash University

http://www.infotech.monash.edu.au

The Monash Museum of Computing History



The MMoCH started in 2000.

Motivations for the establishment of the Museum:

- Preservation of the history of computing at Monash University;
- Conservation of significant historical artifacts held at Monash; and
- Educational resource about the history of computing.

A brief overview of the Museum and related activities

2000 – Museum commenced

2001 – small exhibition designed by Max Burnet, with help from Monash staff and students

2003 – display at Monash Science Centre

2005 – new larger exhibition in a more accessible location. Exhibition designed by a team including architects and exhibition designers, Max Burnet and Faculty of IT staff.

2007 – collection management strategy formalised

2008 – history of the Faculty of IT published

2008 – Melbourne Computing History Tours began

2008-2018 – research program, conference papers

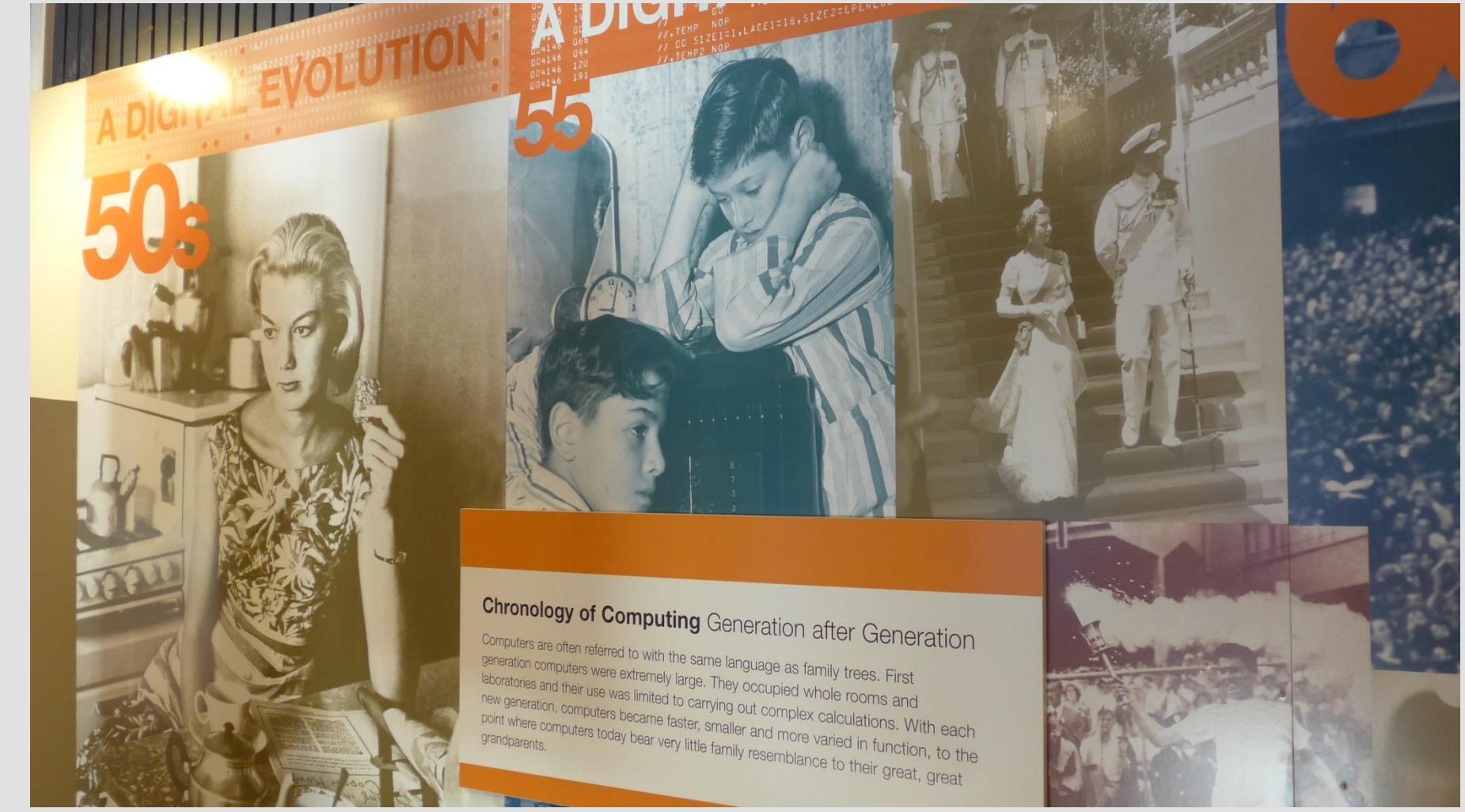
Highlights of the collection

- Ferranti Sirius – Monash's first computer 1962
- MONECS (Monash Educational Computer System)
- MONADS project computer
- MONET Monash University LAN 1980s
- PDP-9 – La Trobe's first computer 1967
- Millionaire calculating machine – circa 1900
- Fuller cylindrical slide rule

The collection has over 900 items including computers, peripherals, calculators, documentation and books.

Current exhibition: calculating devices

Current exhibition: A Digital Evolution



Current exhibition: Punchcards and papertape

Current exhibition: Apple Lisa computer 1983

One of the first personal computers to offer a graphical user interface, donated by Prof John Rosenberg.

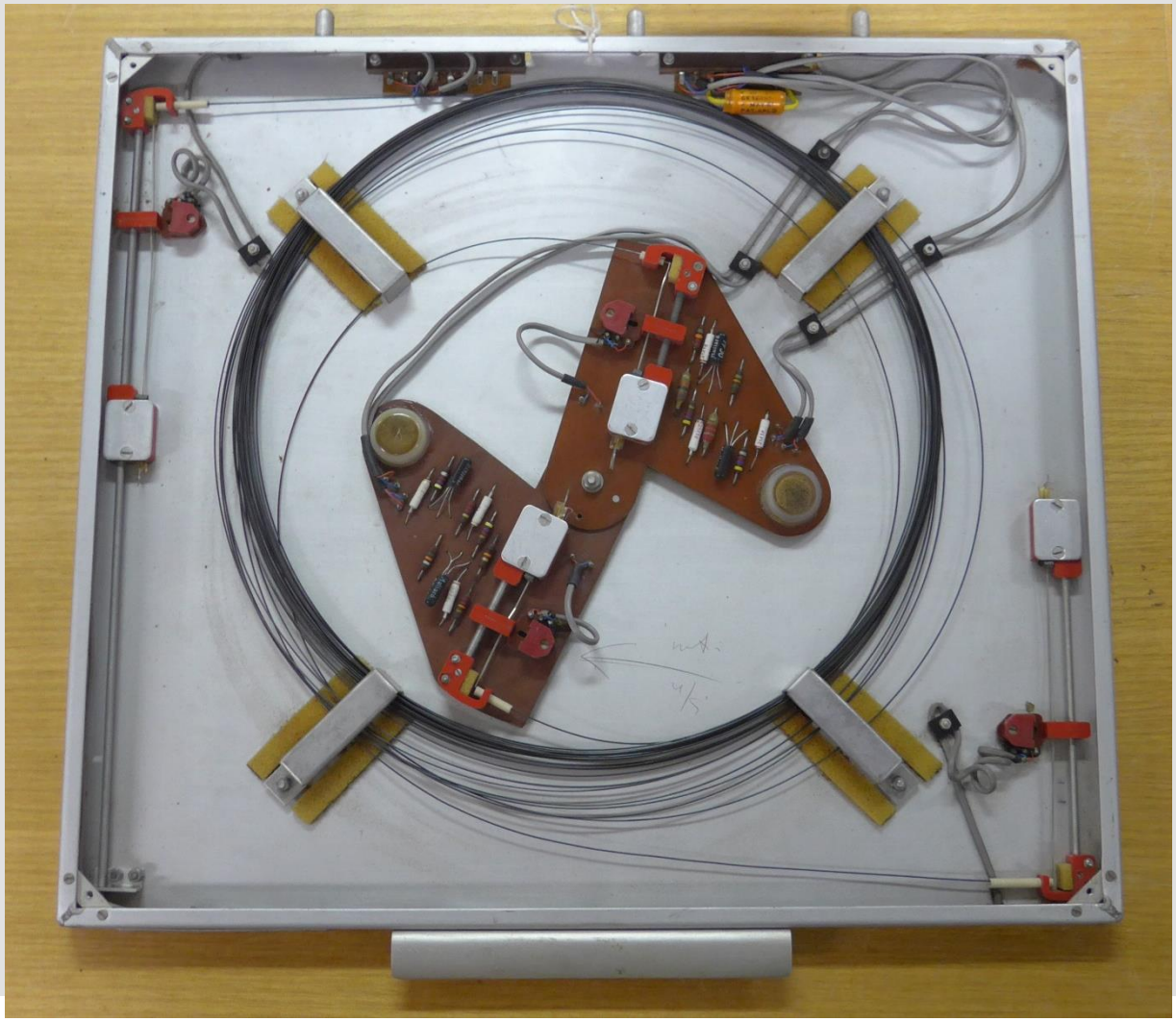
Current exhibition: A Digital Evolution

Current exhibition: Ferranti Sirius

Ferranti Sirius 1962

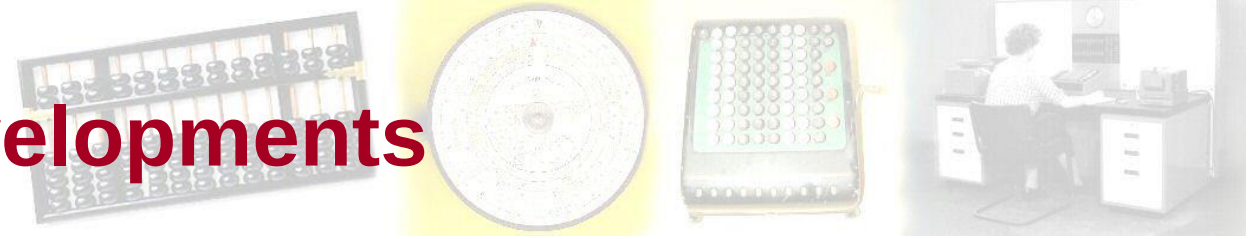
Ferranti Sirius
Interior of memory cabinet

Ferranti Sirius
Nickel acoustic delay line memory



Current exhibition: Biographical section

Collection developments



Recent acquisitions

- Paperwork for Programmer In Training course for government in 1964 completed by Judy Hammond, she then worked at Monash University before UTS, Sydney
- Digital Doorway computer installation c.2010 for placement in remote, disadvantaged locations; joint Monash University, Australia and South African campus and CSIR
- Teaching material from Monash University staff in early 2000s, display panels for conference presentations

Monash University Computer History Tour includes a selection from several sites

Currently 20 sites including:

- **Monash Museum of Computing History**
- **Stanhill** – Ferranti office
- **Silicon Mile (St Kilda Road)** various early office sites and Honeywell incident
- **Monterey Flats** – codebreaking during WW2
- **Melbourne Observatory** – early computer room
- **Victoria Barracks** – first Cray supercomputer in Australia
- **St Paul's Cathedral –discuss Babbage's work and his descendants in Australia**
- **plaque marking telegraph site (1854)**
- **Bureau of Meteorology**
- **State Library of Victoria**
- **MONIAC: hydraulic analogue computer**
- **Old Physics, University of Melbourne**: former CSIRAC location; the internet
- **Melbourne Museum: CSIRAC**

Future direction of the museum

Current museum objectives include

- Expanding biographical display; currently working on Dr Trevor Pearcey
- Continue research on material associated with the history of computing at Monash University and co-research with Monash University history students
- Promote the role of computing history in an educational context; provide more access to physical resources
- Develop display themes in new Faculty building at Clayton campus

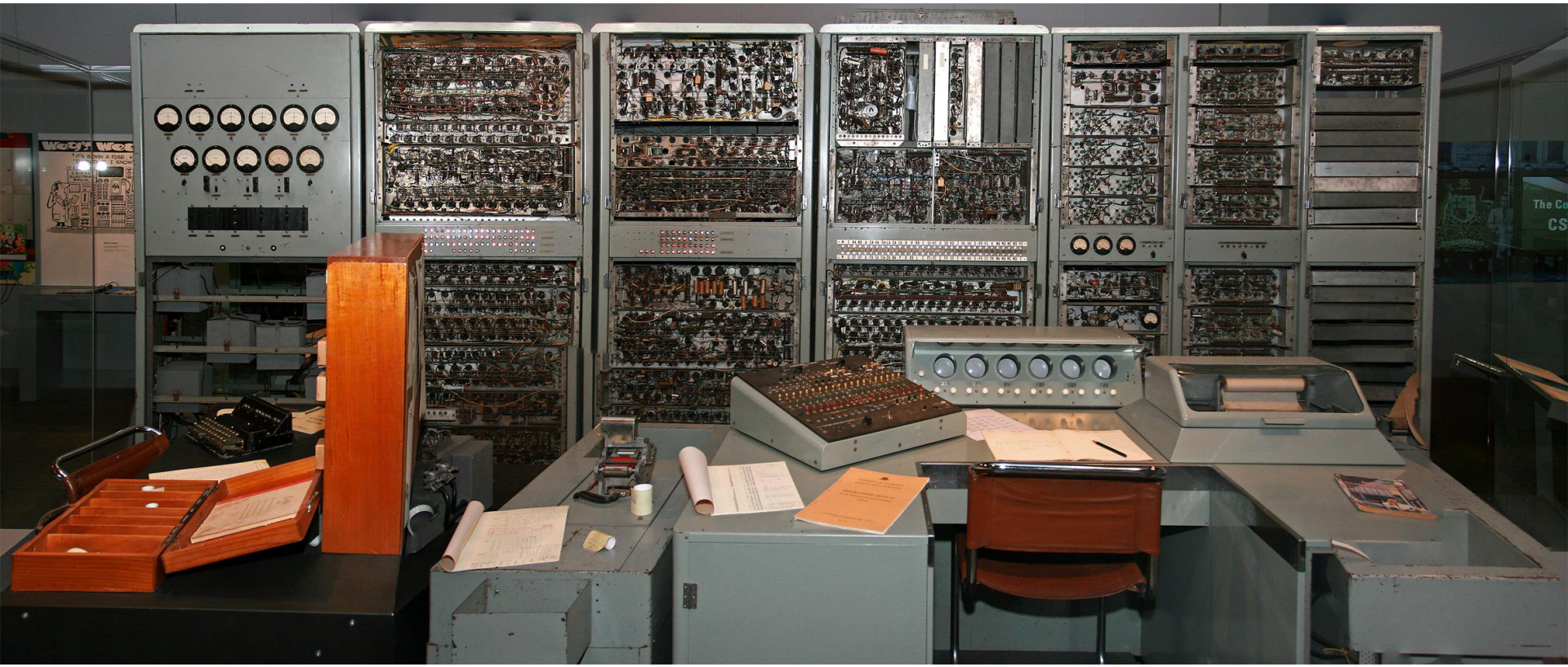
Panel Speakers

Dr Richard Gillespie

University of Melbourne

Preserving & Communicating Digital Innovation

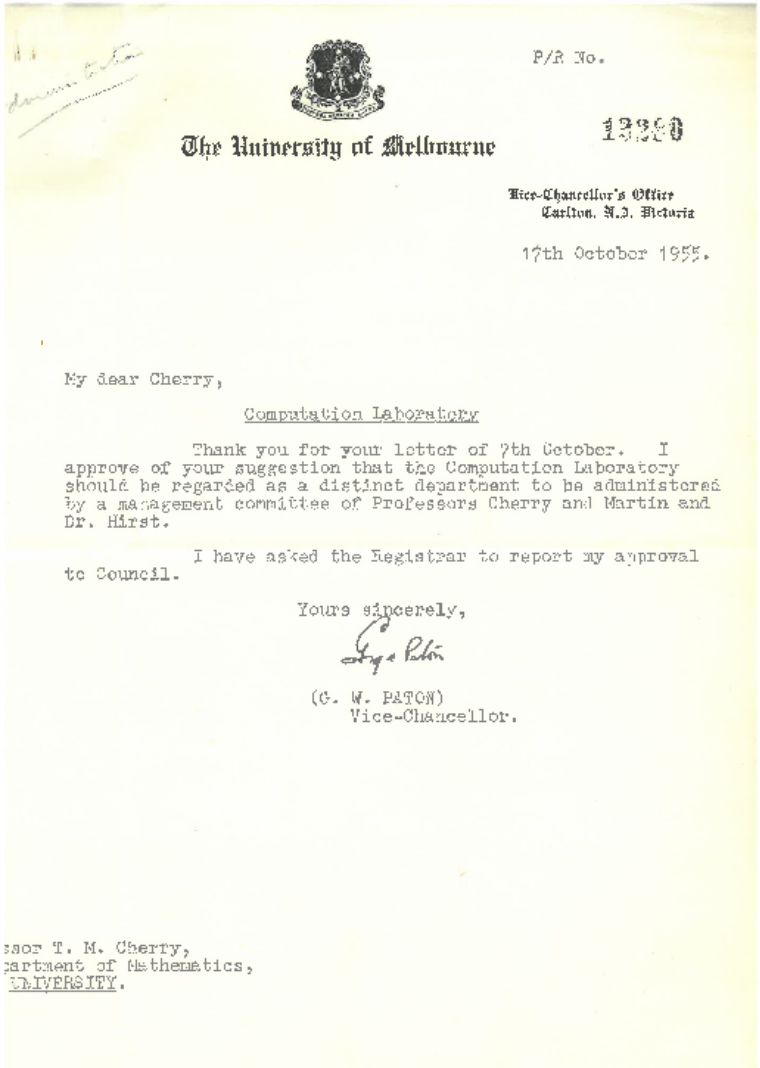
Dr Richard Gillespie, University of Melbourne




COMPUTATION
LABORATORY

University Computing Labs

- 1945 Columbia
- 1946 Cambridge; Pennsylvania; MIT; Harvard
- 1948 Manchester
- 1949 Illinois
- 1953 Cornell
- 1955 Melbourne; Minnesota; Georgia Tech
- 1956 Sydney; New South Wales; Carnegie Mellon
- 1957 Oxford; Glasgow; Birkbeck College; Princeton; Michigan



P/R No. 13990

The University of Melbourne

Vice-Chancellor's Office
Carlton, N.3, Victoria

17th October 1955.

My dear Cherry,

Computation Laboratory

Thank you for your letter of 7th October. I approve of your suggestion that the Computation Laboratory should be regarded as a distinct department to be administered by a management committee of Professors Cherry and Martin and Dr. Hirst.

I have asked the Registrar to report my approval to Council.

Yours sincerely,

(C. W. PATON)
Vice-Chancellor.

sor T. M. Cherry,
partment of Mathematics,
UNIVERSITY.

George Paton to Thomas Cherry, 17 Oct 1955

Endorsed by Staff and Establishments Committee of Council 7 Nov 1955

4 Oct 1963: Proposal to establish as separate department; approved by Professorial Board, 1 Nov 1963

- 1964 Manchester; Illinois; Michigan; Illinois; Georgia Tech, etc
- 1965 Carnegie Mellon; Cornell; Columbia;
- 1966 New South Wales
- 1969 Cambridge

AUTOMATION IN COMPUTATION

at the University of Melbourne

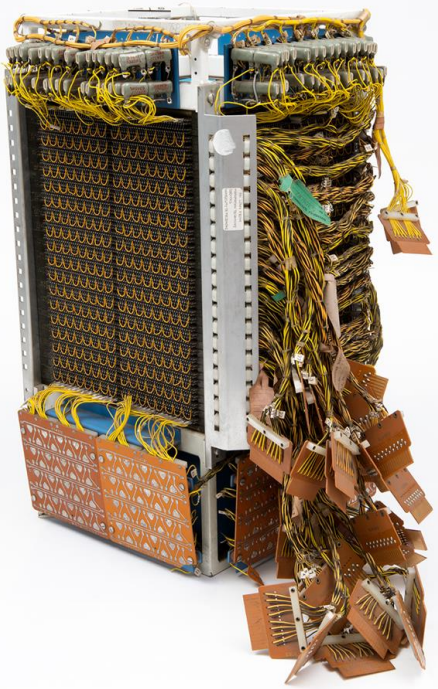
by C.S.I.R.A.C.

Ron Bowles at the CSIRAC console, late 1950s

Theory of Computation II class, 1966

IBM 7044 arriving at Port Melbourne, 1964

Above: Ron Bowles at the IBM 7044 console, circa 1966



IBM 7044 Control console (left) and memory core (right)

Users of CSIRAC and IBM 7044

1956/57: Chemistry, Physics, Engineering, Administration

1960/61: Mathematics, Meteorology, Statistics, Commerce, Pharmacology, Psychology, Agriculture, Biochemistry

1964/65: Geography, Physical Education, Geology, Education, Geophysics, Physiology, Forestry

Frank Hirst, Computation Lab to University Accountant, 15 Sep 1961

- ‘It is essential that a new Flexowriter (Tape reader / copying tape machine / typewriter) be purchased for the Computation Laboratory. The present situation is that much time is being waster since several people are queuing up to use the one existing machine, rather analogous to having several typistes being employed with only one typewriter available.’

Len Stevens, Reader in Civil Engineering to Faculty office, 25 Oct 1965

- Pleads for an additional key punch machine for students in engineering; which has one key punch of only 5 in whole university.
- ‘we are obtaining 28% of computer use with only 20% of the punch facilities’.
- Stevens told to provide evening access to existing key punch.

MONECS Mark Sense card reader

Digital PDP-8 minicomputer and program tapes, 1968

Multigate network equipment, 1988

Macintosh, 1984, Computer Science Labs

High school students visiting CSIRAC, 1963

Univ of Melbourne Archives

Computing & Information Systems Heritage Collection

- 230 Objects
- 200 Photos
- 1000 Documents
- Software
- CSIRAC collection at Museums Victoria
- Archives at University of Melbourne Archives
- Oral histories
- Other departments

Kaypro portable computer, 1984

NAO Robot, 'Bang-Bang', 2014

- Student Projects
- Online collection
- Melbourne School of Engineering Offices
- Arts West
- Carlton Connect Initiative (left)
- Fishermen's Bend

Panel Speakers

Rose Hiscock

Science Gallery

Panel Speakers

Karl von Moller

Capturing the History: Documentary maker

Panel Speakers

Panel Discussion

Pearcey Foundation Heritage Event

Date: 7th September 2018
Time: 3.00pm – 5.30pm
Location: Level 1, Building K, Federation University, Albert Street, Ballarat

Speakers will include the following:

- Introduction Mr Wayne Fitzsimmons, Chairman Pearcey Foundation
- Dr Peter Thorne – Expert on CSIRAC, Australia's first computer (1949)
- Telecommunications Heritage Ltd: Mr Stuart Lee, former Telstra Executive
- Museum Victoria: to be confirmed
- University of Melbourne: Dr Richard Gillespie
- TelSoc – Tim Herring – History of Telecomms in Australia

Each speaker will present for 10 mins followed by a panel discussion chaired by Mr George Fong, Executive Committee and Infrastructure Committee Member, Federation University.

Closing

Dr Peter Thorne

Chairman, National Committee