

Professor Frank Fenner

AC, CMG, MBE, FAA, FRS



Australian scientist with a distinguished career in the field of virology

Medical virologist, scientist, researcher, author,
teacher, conservationist, philanthropist

Frank John (Johannes) Fenner

- Born - 21 December 1914, Ballarat
- Parents Emma & Charles Fenner
- 1916 moved to [Adelaide](#)
- Rose Park Primary school
- Thebarton Technical School
- Preferred geology, on father's advice, studied medicine
- Died - 22 November 2010



Fenner home in Rose Park



Fenner family, 1938



University studies

- University of Adelaide
 - ❖ spare time – skulls (N. Tindale); Medical school – own bust
- Sporting interests
 - ❖ Hockey – Blue
 - ❖ Tennis
- **1938** MBBS University of Adelaide
- **1940** Diploma of Tropical Medicine –
University of Sydney
- **1942** Doctor of Medicine, University of Adelaide



War service



**Officers' Mess, 2/6 Field Ambulance,
Woodside, September 1940**



**Dec 1942: post cyclone 2/2 Australian
General Hospital, Hughenden QLD**

War service

- **1940** Australian Army Medical Corps
- Middle East, New Guinea, Borneo
- Malarial parasite, tropical medicine
- Queensland – returning servicemen
 - ❖ Met - Ellen Margaret Bobbie Roberts
- **1943** married Bobbie Roberts (52 years)
- **1944** MBE – malaria control



Walter & Eliza Hall Institute



Frank Fenner injecting eggs in the lab.

Photo courtesy of Walter and Eliza Hall Institute

Walter & Eliza Hall Institute

- **1946** Walter & Eliza Hall Institute
 - ❖ ectromelia virus - mousepox
- **1948-9** Fellowship - Rockefeller Institute NY
 - ❖ mycobacteria - tubercle bacilli
- **1949** Foundation Professor of Microbiology
John Curtin School of Medical Research,
Australian National University
 - ❖ viruses

John Curtin School of Medical Research

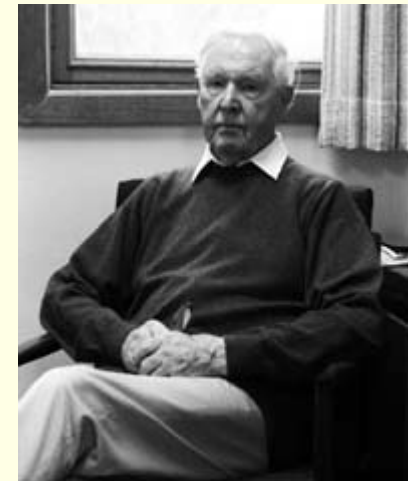
- Major research - myxoma virus
- virus virulence & host resistance
- myxomatosis - biological control; rabbits
- **1950** release of myxoma virus coincided with 1951 encephalitis outbreak
 - ❖ Murray-Darling Basin
- Fenner & colleagues – injected themselves
- **1967–73** Director JCSMR

Environmental scientist

- ❖ 1971-73 Vice-President Australian Conservation Foundation
- 1973 founding Director - Centre for Resource and Environmental Studies, ANU
 - ❖ Pioneered environmental science studies
 - ❖ 1977 Chairman - Global Commission for the Certification of Smallpox Eradication
- 1979 “retired”, aged 65
- 1978 -1982 Senior Scientific Advisory Board UN Environment Program Project “The State of the Environment: Ten Years after Stockholm”

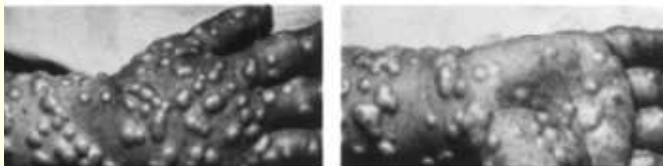
Medical virologist & historian

- **1980-2007** Returned to JCSMR
Emeritus Professor and Visiting Fellow
 - ❖ Frank Fenner School of Environment and Society (2007)
 - ❖ Frank Fenner building
 - ❖ Fenner Hall
- **1995** Bobbie Fenner died





Smallpox eradication



Smallpox eradication

- Fenner - bifurcated needle 'a major technical breakthrough in the ability to control smallpox'
 - ❖ Invented by Dr B.A. Rubin, Wyeth Laboratories
 - ❖ WHO preferred instrument & standard method for delivering the smallpox vaccine
- Needles - strong steel, small containers
- containers - boiling water to sterilise needles for multiple usage
- dispensed needles singly aseptically, small hole



Smallpox

- Vaccinia virus /cowpox virus
- variola virus - smallpox
- **1977** Chairman - Global Commission for the Certification of Smallpox Eradication
- Investigated last reported cases of smallpox in given countries, certifying no new cases
- **8th May 1980**: [World Health Assembly](#), he announced eradication of smallpox
- **1981-5** Chairman - Committee on Orthopoxvirus Infections, WHO

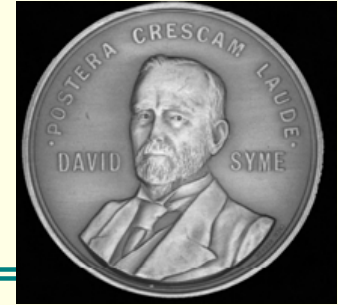
Prolific writer & historian

- Papers, **books**, biographies
 - ❖ *The biology of animal viruses*
 - ❖ *Medical Virology; Veterinary Virology*
 - ❖ *Smallpox and its eradication*
 - ❖ *Biological Control of Vertebrate Pests: the History of Myxomatosis, an Experiment in Evolution*
 - ❖ *Milestones in Immunology: A Historical Exploration*
 - ❖ *History of Microbiology in Australia*

Honours & Fellowships

- **AC 1989**: medical science, the environment and public health
- Fellowships
 - ❖ Foundation Fellow of the Australian Academy of Science (1954),
 - ❖ Fellow of the Royal Society (1958),
 - ❖ Foreign Associate of the United States National Academy of Sciences (1977)

Awards include ...



- ❖ Syme Prize of the University of Melbourne (1949)
- ❖ Mueller Medal: Australian and New Zealand Association for the Advancement of Science (1964)
- ❖ Britannica Australia Award for Medicine (1967)
- ❖ Australia and New Zealand Association for the Advancement of Science Medal (1980)
- ❖ World Health Organization Medal (1988)
- ❖ Japan Prize (1988) for preventative medicine
- ❖ Senior Australian Achiever of the Year (1999)
- ❖ Albert Einstein World Award for Science (2000)
- ❖ Prime Minister's Science Prize (2002)

A man of deep thought

- “great awareness of the growing imbalance between human activity and the needs of natural systems”
- decisive scientific action, strong opinions
- a Patron of Sustainable Population Australia (SPA) from 2000 until his death
- Last interview with The Australian 2010 - pessimistic - food

Legacy ...

- **1988** Australian Academy of Science:
Fenner Conferences on the Environment
 - ❖ complex environmental issues
- **1994** ANU - Frank Fenner Medal
 - ❖ most outstanding PhD thesis submitted each year
John Curtin School of Medical Research
- **2000** Fenner Medal for Plant and Animal Sciences
 - ❖ annual award for research in biology
- **2009** Charles and Frank Fenner postgraduate
research grants - bequest
 - ❖ Discipline of Geographical & Environmental Studies,
University of Adelaide



Autobiography

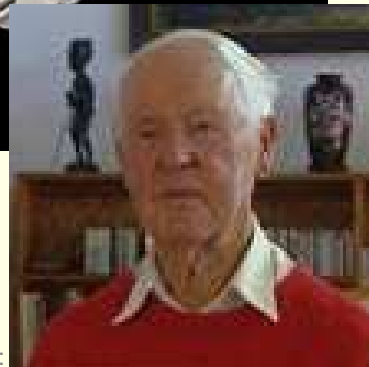


“Nature, Nurture and Chance: The Lives of Frank and Charles Fenner”

included a biography of his father



Well, I put my career down to three things
...**nature** (the genes you get),
...**nurture** (especially early childhood and upbringing), &
...**chance** (luck)



Acknowledgements

- ❖ Frank Fenner:
- ❖ **Nature, Nurture and Chance**
The Lives of Frank and Charles Fenner
- ❖ Millicent Hughes, Margaret Coles
- ❖ Winifred Fenner
- ❖ Martin Copland