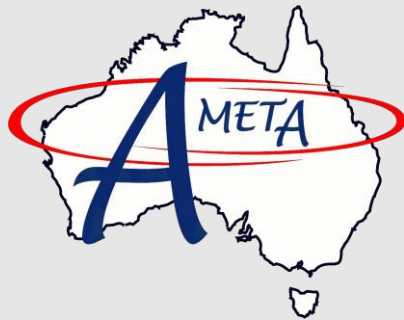




SA Superannuants

South Australian Government

Superannuated Employees Association Inc 29 Nov 2020



Australian Meteorological Association
working with the
Bureau of Meteorology



Australian Government
Bureau of Meteorology



SIR CHARLES TODD

Australian science and technology pioneer



SIR CHARLES TODD

Common Perception of Todd Monochrome



Colonial rivalry and we won!

European conquest of Terra Nullius metaphor
(3,600kms traversed 10 yrs previously by Stuart)

Punctured Blaineys tyranny of distance

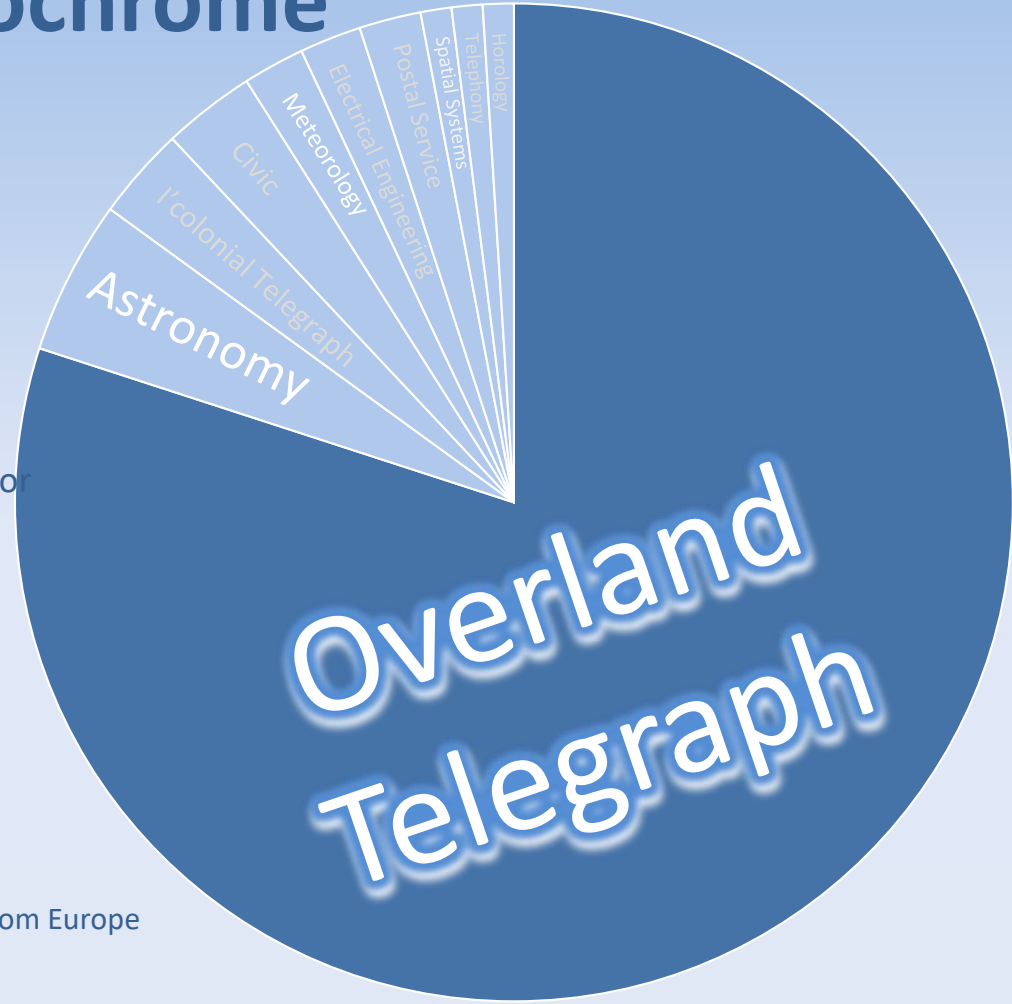
Foundation stone of Federation

Largest Infrastructure project of 19th C

Shorter time than modern EIS

insulators, batteries, wire and other equipment, ordered from Europe

Reality check: 500 people involved in its construction





SIR CHARLES TODD

The Polychrome Todd

Agreement made this *Twenty second* day
of *February* One Thousand Eight Hundred
and *fifty five* between *Charles*
Todd of *Greenwich* in the County of
Kent, *Gentleman*,
of the one part; and *Edward Barnard*
of *Cannon Row*, in the *City of Westminster*, Esquire,
Agent-General for Crown Colonies, for and on
behalf of *Her Majesty*, of the other part.

Whereas *Charles Todd* hath been
duly appointed an *Astronomical and Meteorological*
Observer, and *Head of the Electric Telegraph*
Department in South Australia, at a salary
of *£400 per annum*, and a free passage to the
Colonies.



SIR CHARLES TODD

The Polychrome Todd

Postmaster General

His main job for 35 years was Postmaster General

1870 - Postmaster-General & Superintendent of Telegraphs (aged 44)

1874 - Reformed the Post Office after series of robberies

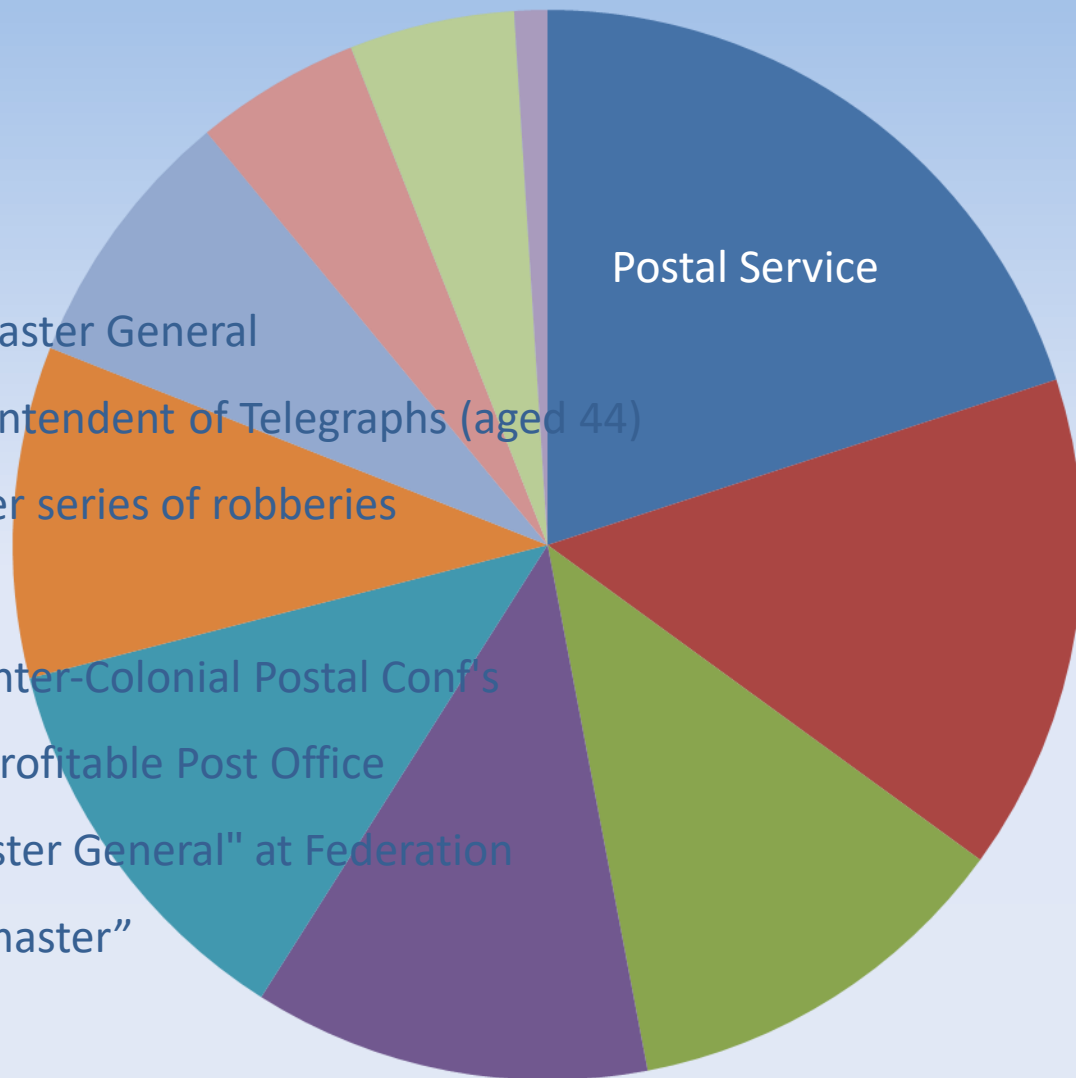
1887 - Introduced postal notes

1880's-90's – Major contributor to Inter-Colonial Postal Conf's

1901 – At Federation, ran the only profitable Post Office

1901 – Designated "Deputy Postmaster General" at Federation

1905 – Retired with the label "Postmaster"





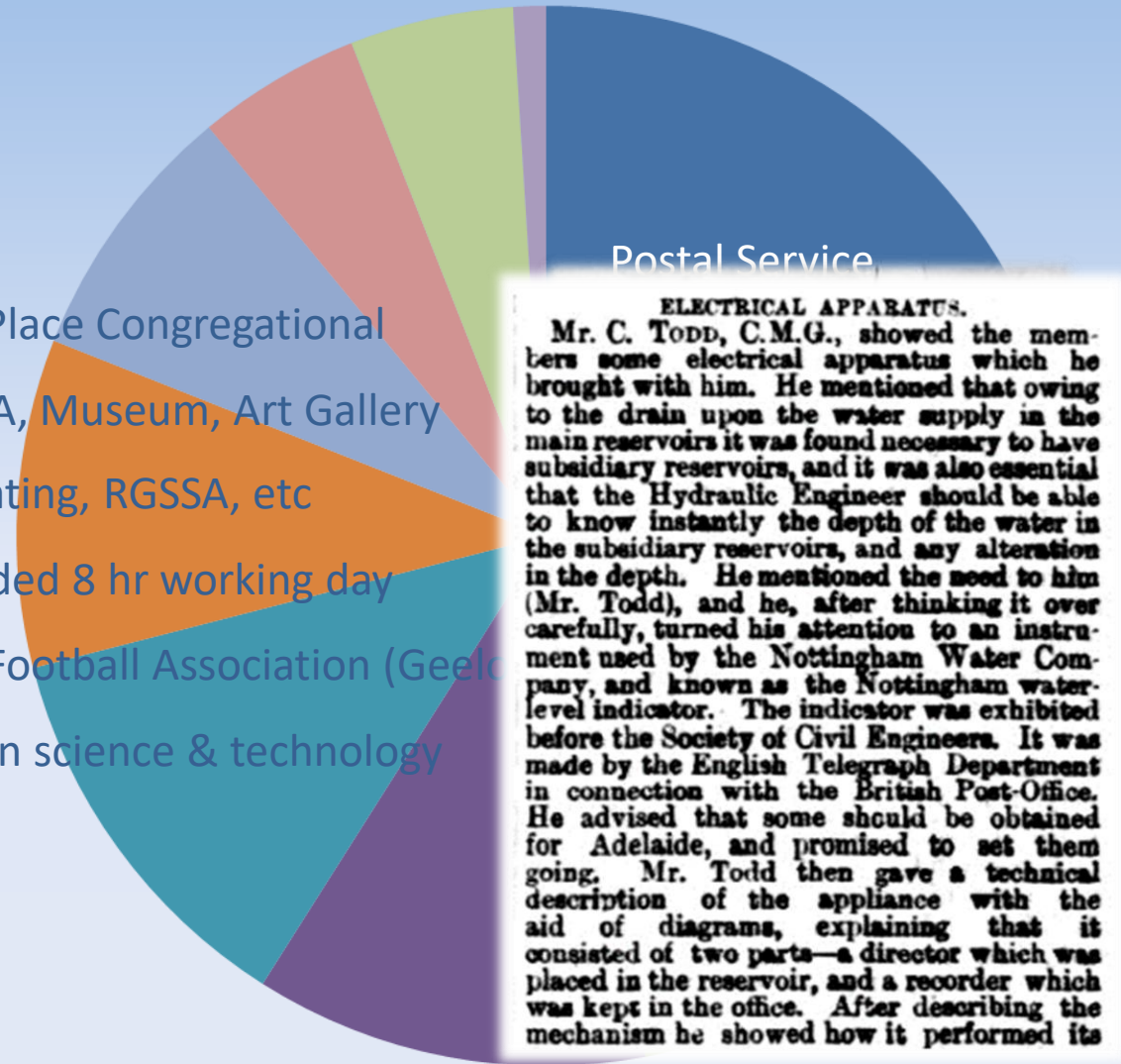
SIR CHARLES TODD

The Polychrome Todd

Civic Activities

Stowe Church (Pilgrim), Brougham Place Congregational
Board member U of Adl, SLSA, UniSA, Museum, Art Gallery
Philosophical Soc, Literary and Debating, RGSSA, etc
Government Board that recommended 8 hr working day
SA Cricketing Association, VP of SA Football Association (Geelong)
Countless public lectures, exhibits on science & technology

Story yet to be told





SIR CHARLES TODD

The Poly

Overland Telegraph Inter-Colonial Telegraph

1855 - Appointed Head of the Electric Telegraph Dep't

1856 - Completed SA's 1st gov't line, to the Port

1858 & 61 - Telegraph connection to Melbourne

1867 - Telegraph to Sydney

1872 - Completed the Overland Telegraph Line

Plus the Post Office

1877 - Telegraph to W.A., connecting at Eucla

1856-1905 - Ran the S.A. Telegraph system for 50 years

Attended numerous intercolonial and Federation
conferences on telegraphy
(ghost lives on in Telstra SOP's)



Overland

Inter-C
Tele



SIR CHARLES TODD

The Polychrome Todd

Meteorology

1855 – Appointed Meteorological Observer

1856 – Publication of met observations

1860's – First to theorise west to east

1879 – First (?) to systematically report

1880's (mid) – World's largest synoptic

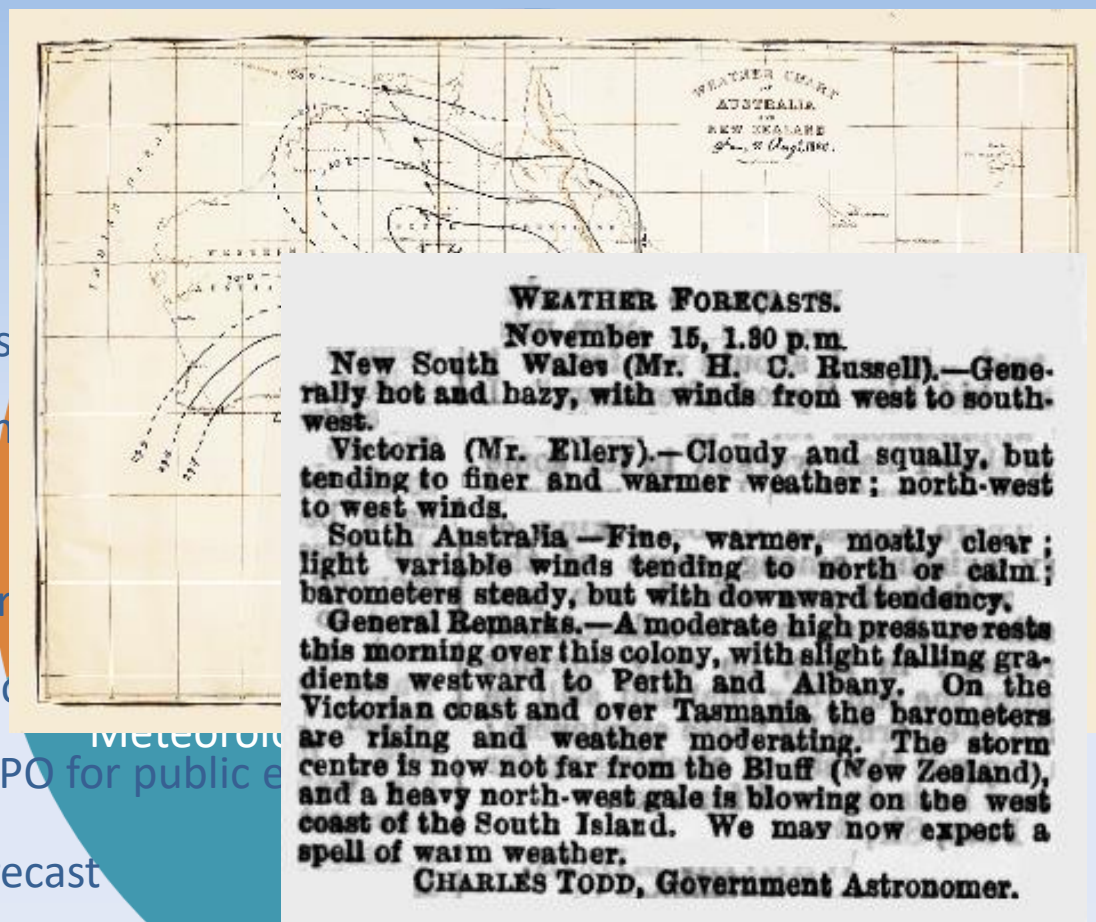
1883 – Synoptic charts displayed at GPO for public use

1888 – Published his first next day forecast

1893 – First known to hypothesise teleconnections in meteorology (100)

1879, 81, 88 – Intercolonial Met Conferences (1 of 3)

1901 – Longest serving Senior Meteorologist at Federation



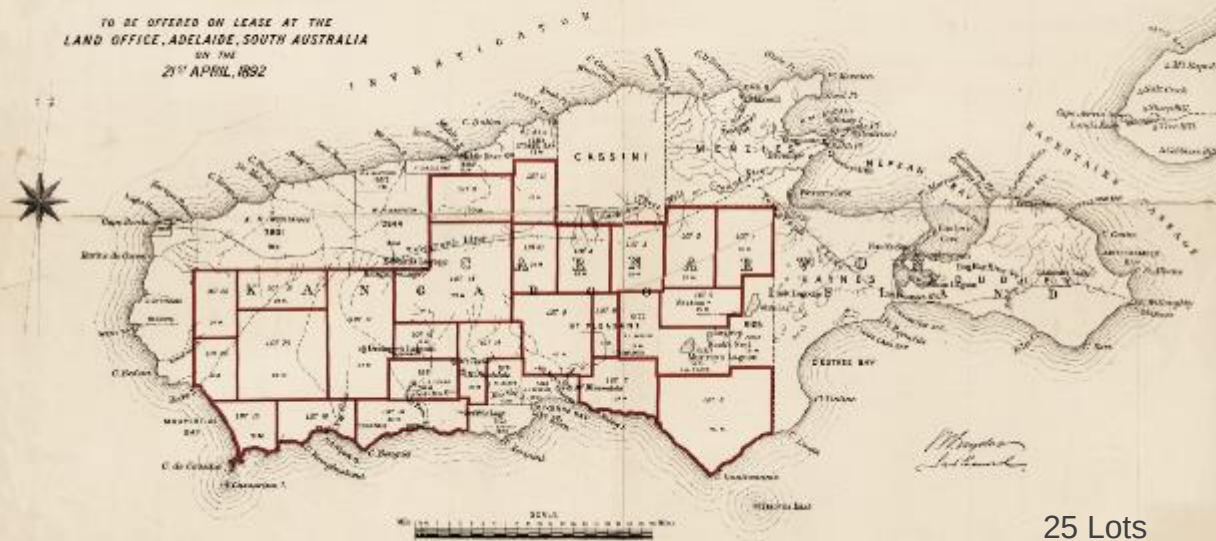
Adelaide has a significantly long observation record



SIR CHARLES TODD

PLAN OF PASTORAL BLOCKS KANGAROO ISLAND

TO BE OFFERED ON LEASE AT THE
LAND OFFICE, ADELAIDE, SOUTH AUSTRALIA
ON THE
21ST APRIL, 1892



25 Lots

9 a.m. before reading it. If he is a new hand, why have you not instructed him properly? How is it that day after day the minimum (that is the lowest) reading of the thermometer should be higher than all the night readings and you never notice it? The observations, too, are disgracefully entered on the sheet, which is enclosed for you to see the great number of errors. The entries must be checked from the Field book before the sheet is sent in to the Observatory, and the sheet must be signed "checked by....." when this has been done. Instructions to this effect were issued some time ago. The muslin on your wet bulb thermometer must be changed oftener ^(once a week) in summer. In future rain, to be recorded in points, - vide enclosed form. The sheet is to be returned.

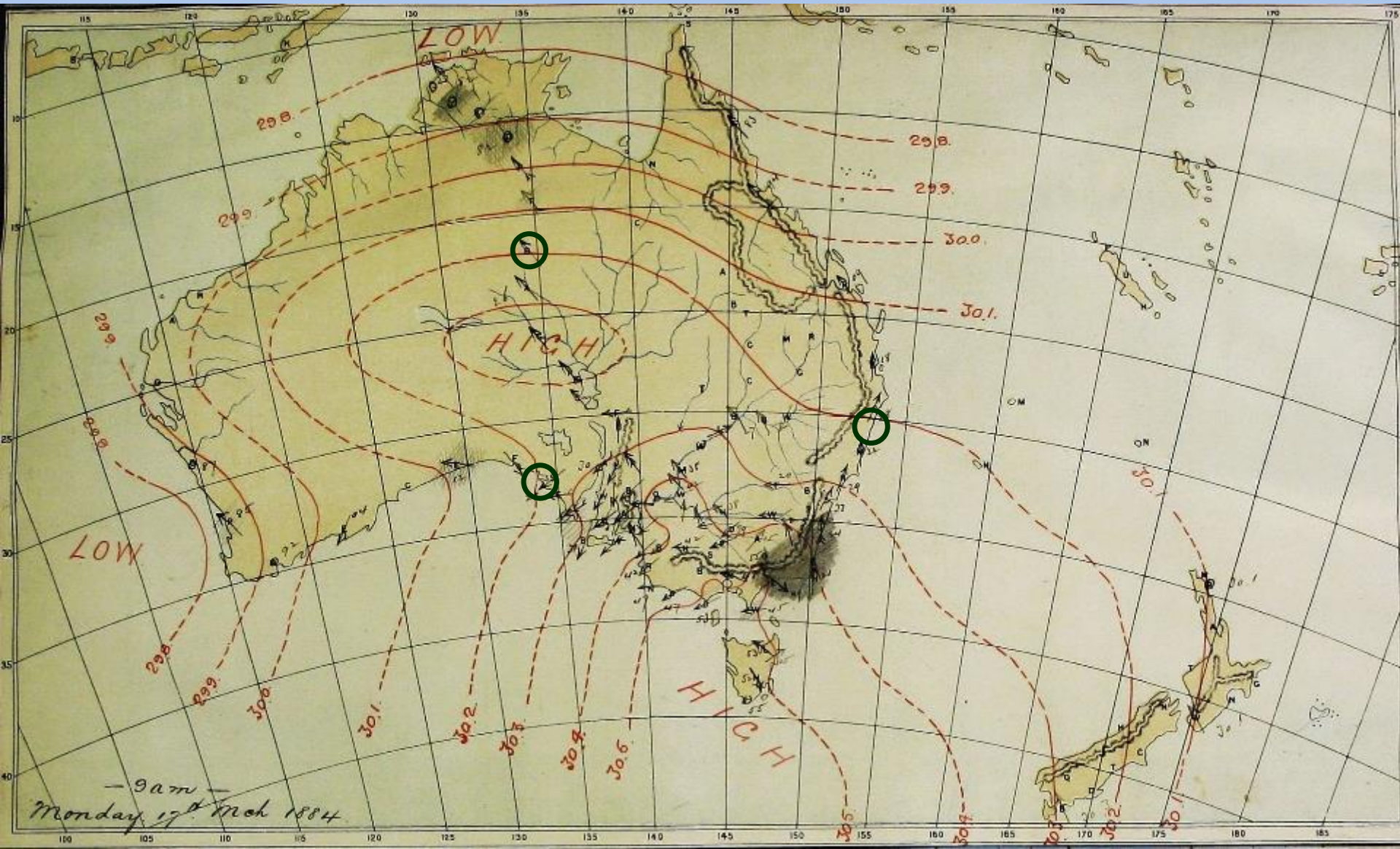
Chubb
Government Astronomer.



SIR CHARLES TODD

Importance of Telegraph to Meteorology

A synoptic map connects equal lines of surface pressure at a moment in time





SIR CHARLES TODD

The Polychrome Todd

Astronomy

Todd was an astronomer at heart

1864 – Fellow of Royal Astronomical Society

1860's-70's – Helped establish size of solar system

Early 1880's – Standard point for geodetic surveys

1886 – Made an Honorary MA of Cambridge

1891 – 1st President of Astronomical Society of SA

1893 – His astronomical work was key to getting his KCMG (Knighthood)

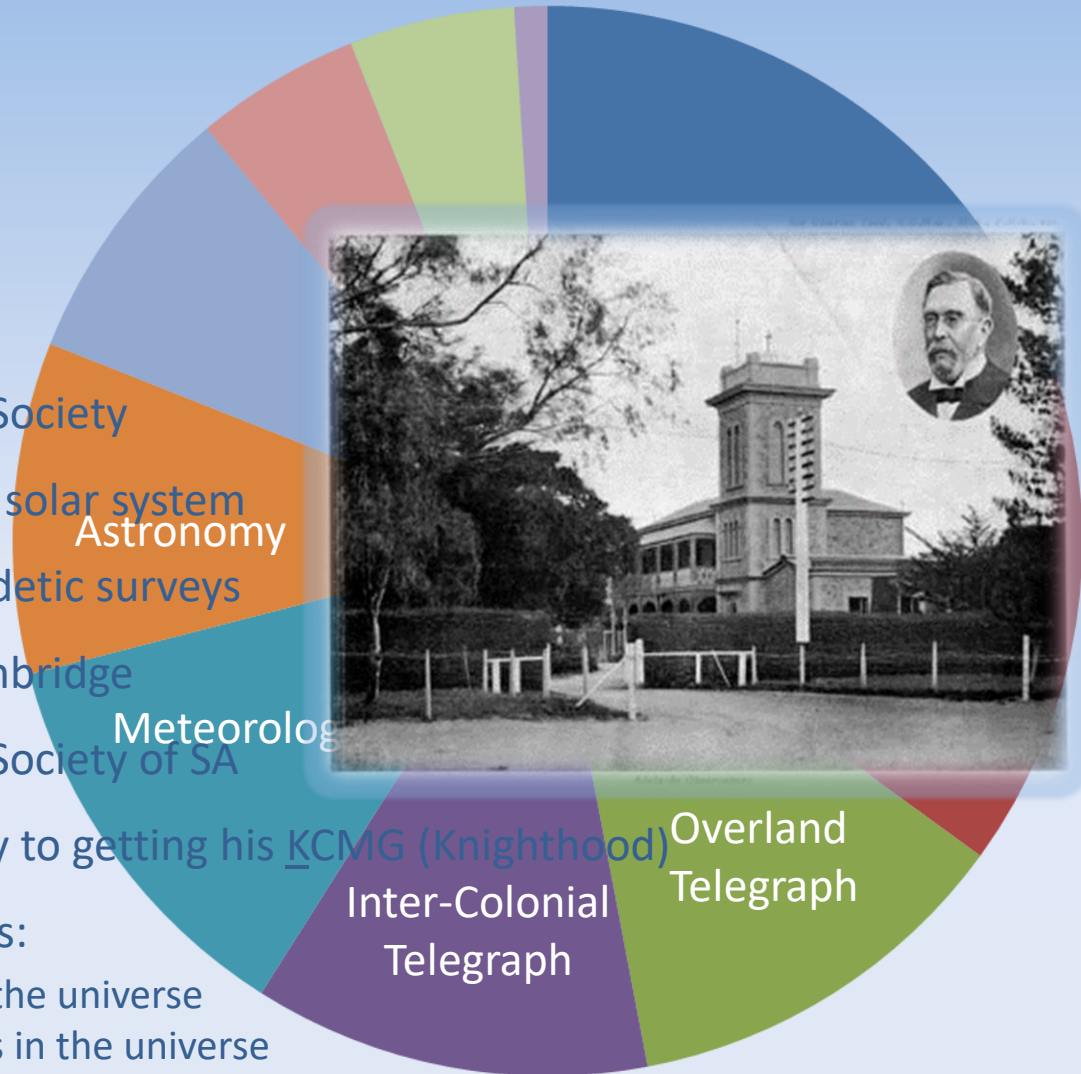
He was active in astronomical debates:

- Disagreed that sun was at centre of the universe

- Assumed there were other life forms in the universe

- Speculated that our galaxy was not alone (universe was much bigger)

- though he's rumoured to have had an interest in the supernatural





SIR CHARLES TODD

The Polychrome Todd

Electrical Engineering

Todd was often referred to as Government Electrician

1858 - Wrote lengthy dissertations on electrical matters

1860 - Gave SA's first demonstration of electric light

1867 - First demonstration of arc lamp (built himself – Institute)

1867 - Demo'd first use of street lighting

1888 - Foundation President of the S.A. Electrical Society

1891 - Installation of electric light in Parliament House

1889 - Was present at first trial of electric transport

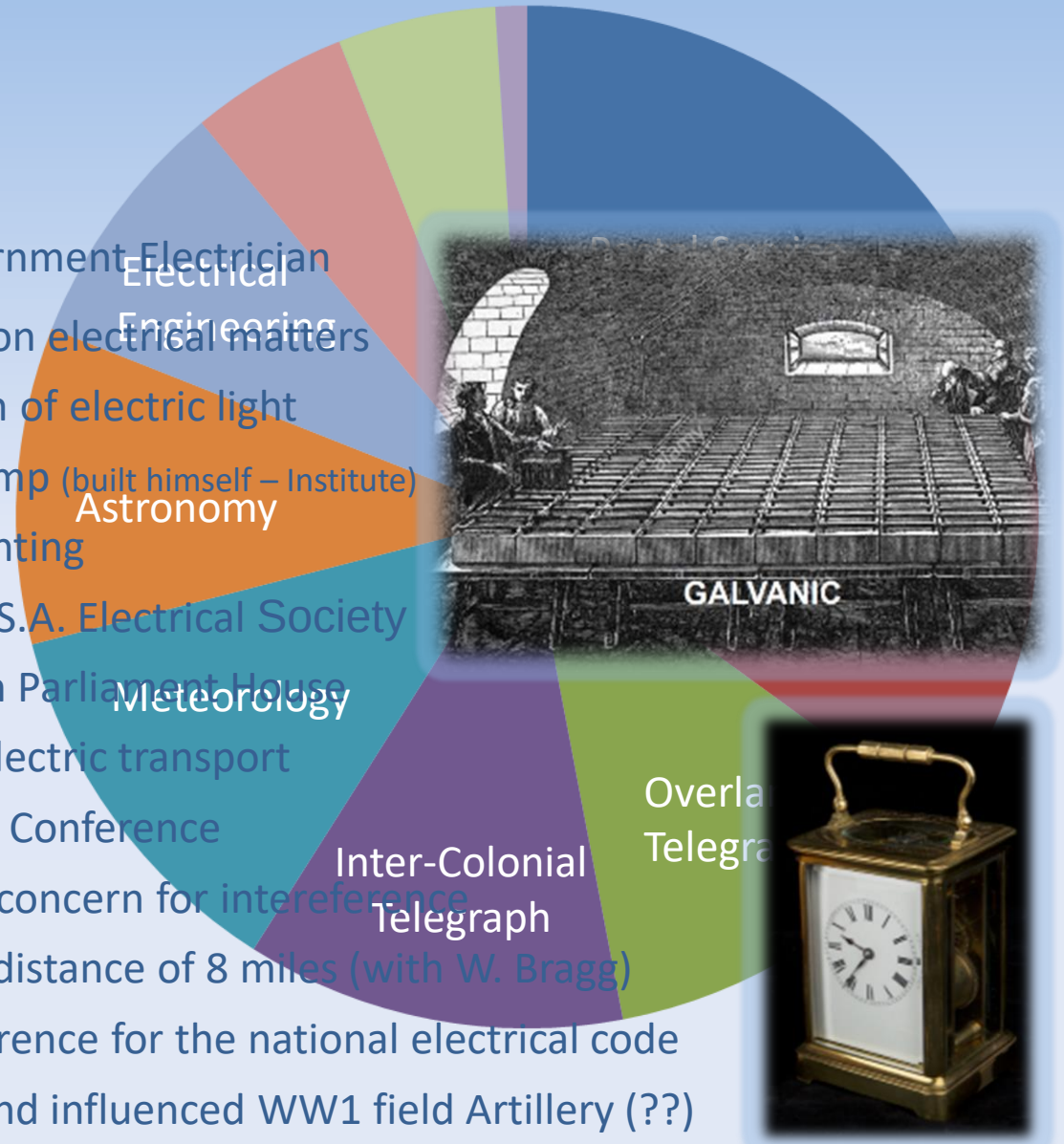
1894 - Chaired Intercolonial Electric Conference

1898 - 1st power station (P. Adel) – concern for interference

1900 - Demo'd wireless telegraphy distance of 8 miles (with W. Bragg)

1901 - Chair National Electric Conference for the national electrical code

Military - in charge of “torpedos”, and influenced WW1 field Artillery (??)





SIR CHARLES TODD

The Polychrome Todd

Horology

- 1856 – Time cannon at the Port to set chronometers
- 1867 – Installed a transit telescope at the Observatory
- 1866 – Bought/installed electric clocks in Parliament House
- 1875 – Semaphore Time Ball built to Todd's design
- 1876 – GPO Clock designed and assembled by Todd
- 1887 – Sourced clock in Mortlock Library while in England
- 1891-93 – Key mover for implementation of time zones



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SCANNING THE HEAVENS
This instrument is Universal Telescope, has a focal length of 30 ft. and an 8 in. object glass. It can be directed to any part of the sky.



Adelaide's Time Lord



SIR CHARLES TODD

The Polychrome Todd

Spatial Systems (Surveying)

1858 & 61 – Surveyed connections of Vic-SA telegraphs

1868 – Established an accurate border with NSW

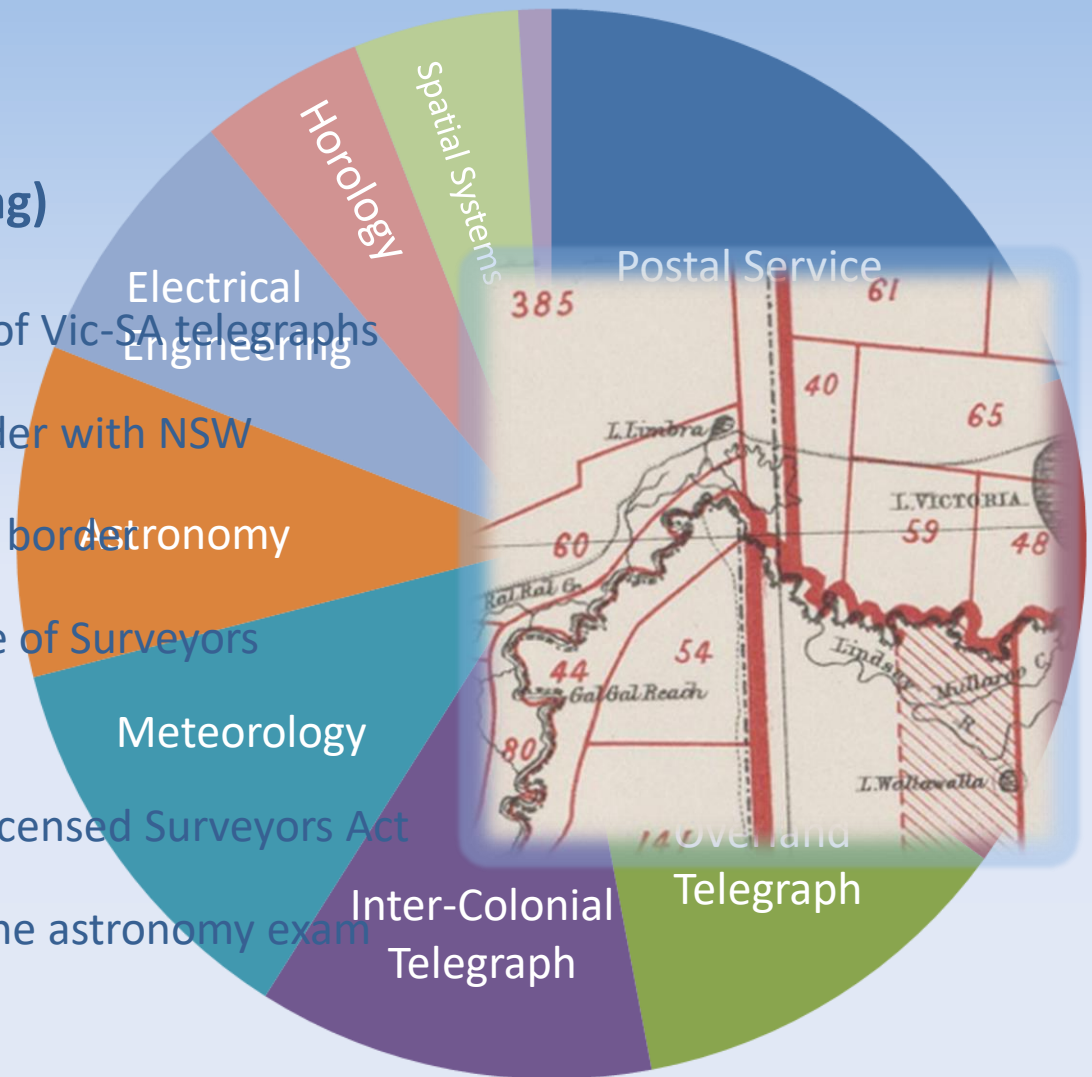
1880 – Telegraph used to fix SA-WA border

1882 – Establishment of SA Institute of Surveyors

(Todd was 1st President)

1884 – With Goyder, initiated the Licensed Surveyors Act

Until 1905 – Todd set and marked the astronomy exam

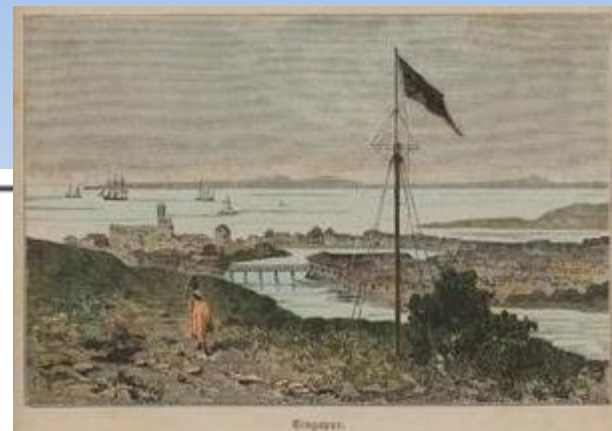




SIR CHARLES TODD

The Polychrome Todd

Todd's Reach was International



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Correspondence.

[No. 78.]

CORRESPONDENCE.

To the Editor of 'The Observatory.'

Determination of Local Longitudes in the Indian Ocean and Australia.

SIR,—

I have lately received from Mr. Todd, of the General Post Office, Adelaide, the following important information on the determination of local longitudes in the Indian Ocean and Australia.

The White House, Greenwich Park,
1883, Sept. 12.

G. B. AIRY,
Astronomer Royal

"Communication of CHARLES TODD, Esq., dated General Post Office, Adelaide, June 21, 1883.

"You will be glad to hear that the longitude business has been satisfactorily completed as far as New Zealand. As I could not myself go to Port Darwin, Mr. Ellery and I selected a Mr. Barrachi, a talented young Italian observer; and we arranged with him to exchange signals with Captain Darwin at Singapore and with Captain Helb at Banjoemanjie on the one side, and with me at Adelaide and Mr. Ellery at Melbourne on the other side. It was also intended that he should exchange signals with Mr. Russell at Sydney; but this, for want of time, could not be accomplished.

"Barrachi and Captain Darwin observed together and with Mr. E. J. White at Melbourne, for personal equation, and both observed at Sydney with Russell. Barrachi and I also observed together, when I was recently in Melbourne on my way from a postal conference in Sydney.

"The following are the results:—

True Longitude of Singapore by Oudemans in 1870.

	h	m	s
Flagstaff, Government Hill.....	6	55	22.714
Reduction to Captain Darwin's station			+1.510
	6	55	24.224

Differences of Longitude determined by Captain Darwin at Singapore, Captain Helb at Banjoemanjie, Barrachi at Port Darwin, C. Todd at Adelaide, R. L. J. Ellery and Mr. E. J. White at Melbourne, and H. C. Russell at Sydney:—

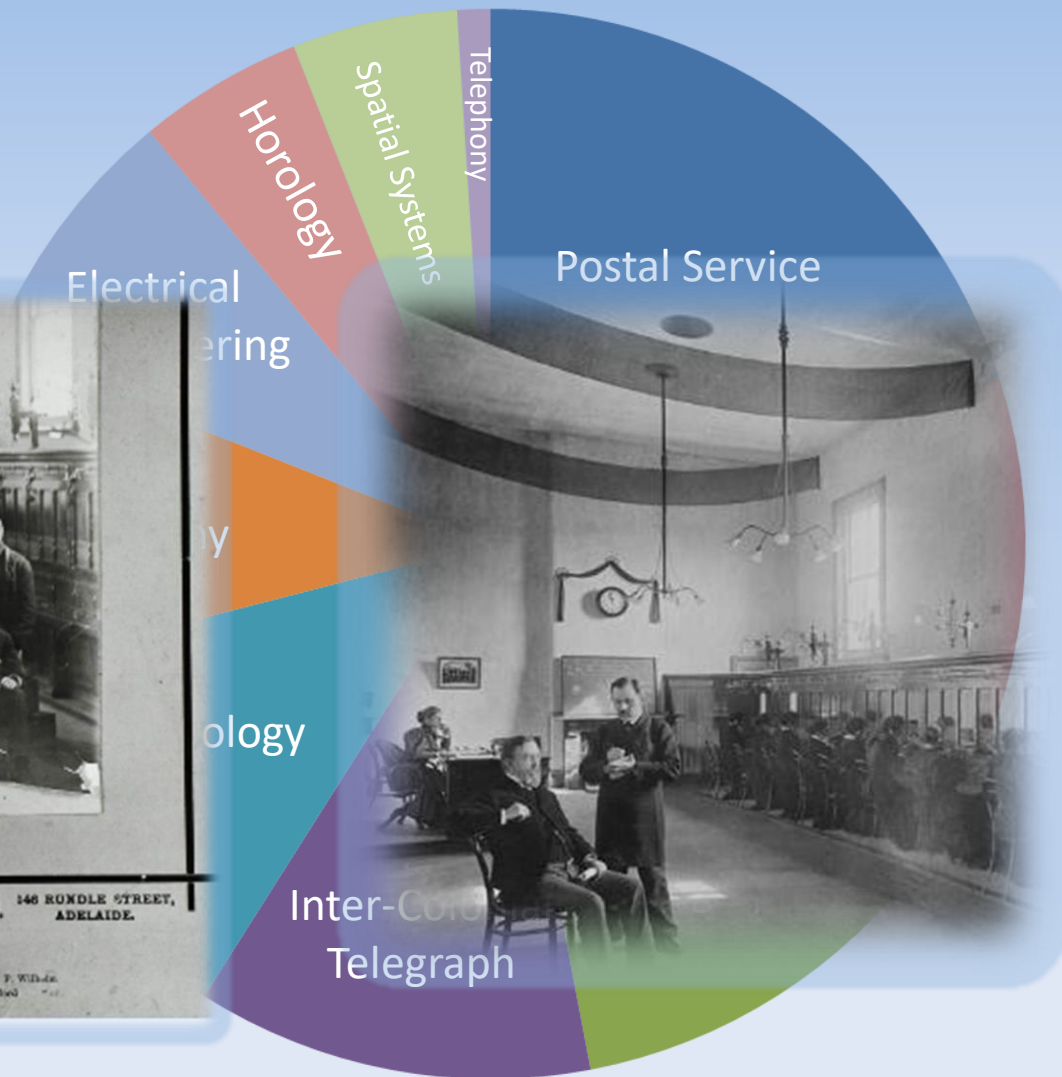
	h	m	s	
Singapore—Port Darwin	1	47	57.512	±0.04
Port Darwin—Adelaide	0	30	57.879	±0.030
Adelaide—Melbourne	0	25	33.737	±0.015
Port Darwin—Melbourne	0	56	31.640	±0.030



SIR CHARLES TODD

The Polychrome Todd

Telephony





SIR CHARLES TODD

He was one of us

Served as a senior Public Servant from 1856 to 1905 (49 years)

1867 He was a committee member of the Public Servants Club

South Australian Register, Mon 2 Sep 1867, pg 2
Members of Parliament and Distinguished Visitors.

Civil Service Club - A meeting of the members of the Civil Service was held in the Land Titles Office, Government Buildings, on Saturday, August 31. There was a tolerably large attendance, and Captain O'Hara, Auditor General, was voted to the chair.... The report of the Committee appointed to report upon the most basis for the formation of a Civil Service Club was then brought up in the form of resolutions, which were discussed and adopted by the meeting with slight amendments. The main features in the scheme were as follows:—
1st. That it was desirable to form a Civil Service Club to promote union and good feeling, and otherwise to advance the interests of the officers in the service.
2nd. That all heads and subheads of departments and classified (deified) officers of the fixed establishments be invited to join....
4th. That the rule should provide for the admission by ballot of retired officers ...
7th. That the officers include a Patron, President, three Vice Presidents, a Committee of 15, two Auditors, a Treasurer and a Secretary... Committee— Messrs J Boothby, J. N. Blackmore, V. W. Cater, G. P. Dashwood, S. Deering, B. Douglas. G. W. Goyder. G. Hamilton, H. C. Mais, G. W. Hawkes, J. W. Lewis, R. B. Moore, W. T. Shepherd, J. Varley and C. Todd...

Aquatics.

CIVIL SERVICE ROWING CLUB.—A meeting of the members of the above, presided over by Mr. G. E. DeMole, J.P., was held at the Prince Alfred Hotel on Thursday afternoon, August 18, for the purpose of electing officers in addition to the Treasurer and Secretary, who were appointed at a previous meeting. It was decided to request His Excellency the Governor to become the patron of the club, and the following officers were then appointed:—President, Mr. G. E. DeMole, J.P.; Vice-Presidents, Mr. O. Todd, O.M.G., Major Fergusson, and Mr. F. J. Sanderson, J.P.; members of the committee, Mr. W. T. Sheppard, J.P., Mr. F. Halcomb, B.A., Mr. Ronald Keene, Mr. R. O. Downer, and Mr. W. Aldwell. The members decided to postpone the appointments of captain and vice-captain to a future meeting. Upon the conclusion of business the health of the President-elect was drunk with musical honours.

club, which appears to have been disbanded by 1872, but it is noteworthy that its executive consisted entirely of the most senior officers. It may have had some connection with the then recently formed Adelaide Club.

Geoffrey N. Hawker, PhD Thesis
September 1967



SIR CHARLES TODD

He was one of us

Served as a senior Public Servant from 1856

1867 He was a committee member of the P

1901 Good bet he was the longest serving c

1905 His decision to retire at age 78 held up

64 years of public service

He was endeared to the population of

1909 Public Service Club gave him life mem



THE SUN, MOON, AND STARS BID ADIEU TO SIR CHARLES TODD.

Cartoon by John Chinner
Chronicle, 4 February 1905, page 36



SIR CHARLES TODD

What was it about South Australia that attracted and held such a world class technology entrepreneur and manager

*After all, he was one of the first to
have his own SMS text messaging*





SIR CHARLES TODD

South Australia in 1887 - Adelaide Jubilee Intern (from the introduction by S

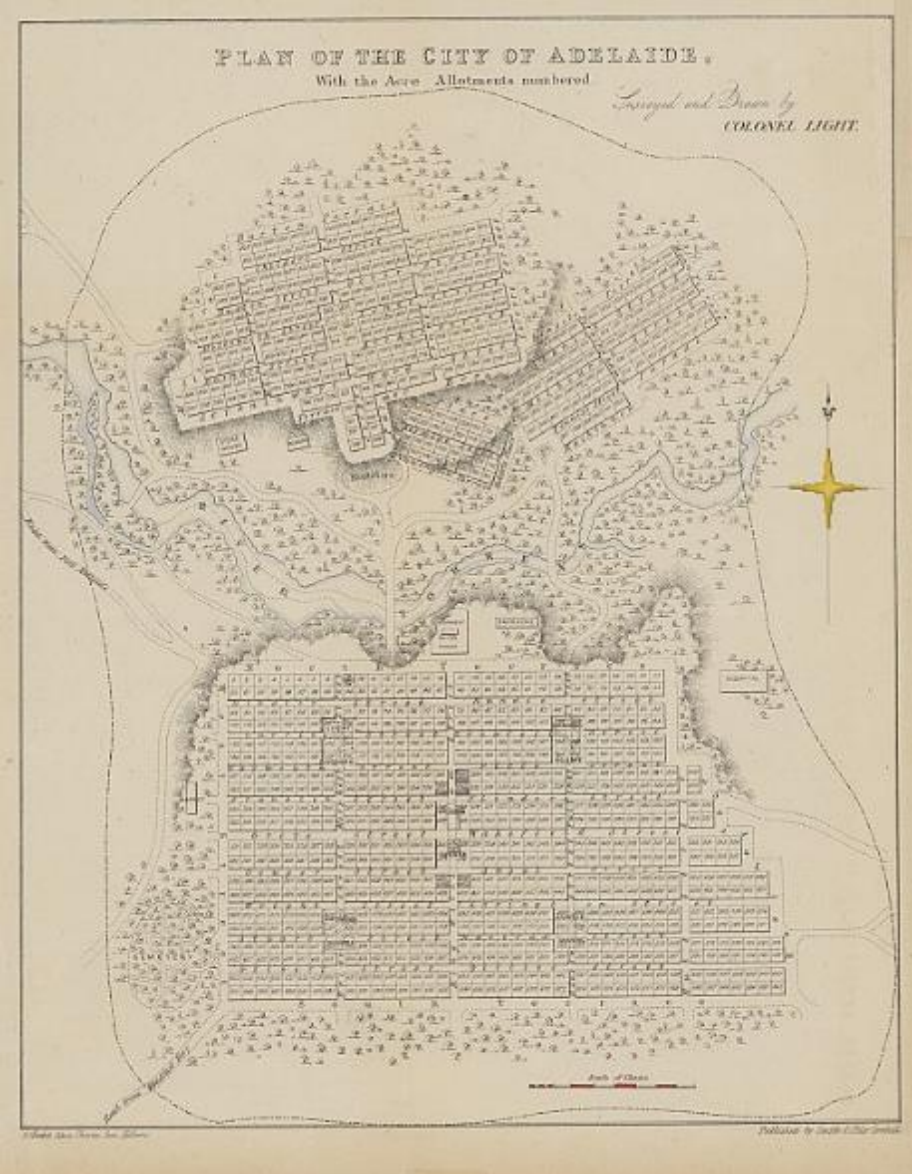
South Australia was not the offshoot from another colony. It was a new colony, but with roots stem and branches, it had its own complete and coherent system. It was the exponent of a new theory of colonization evolved by Edward Gibbon Wakefield. This was to supply the capital for the introduction of labor necessary for the development of the colony.

So at its birth an illustration was started of Penn's theory (1681) and nourished by the care of the wise and populous nations".

The Act authorising the founding of the colony defined certain guidelines for the sale of land. Revenue obtained in ordinary ways should not exceed the price, and therefore not under a £1 per acre.... Three fourths of the revenue was to be for labor, the rest to provide roads and bridges. Thus three elements of general traffic.

The settlement of population was to be regulated in groups in order to achieve the end. For this end the lands generally were to be surveyed in small blocks. Land sales were to be by public auction, so that the evils of large monopolies were avoided as far as possible by families.

But it be grateful on this occasion to recall to mind the ..long list of pioneers, civilians, pastoralists, and farmers, whose intelligence, energy and enterprise affected the great conquest of a savage land, growing meat and wool from the wilderness, where forests have been reduced to smiling fruit grounds and vineyards - and who have constructed cities and towns - telegraphs and telephones, to so vast an extent, considering the



So is it surprising that a 29 year old, who already had 14 years experience working with some of the best scientific brains of his time at Cambridge and Greenwich, took a perilous 3 month journey to seek his fortune in this colony which practiced a "theory" of settlement? We don't know what was in his mind but maybe this young scientist felt an attraction to a science friendly experiment in colonisation in a land that was a blank canvas . Over the next 50 years, he was happiest as he coloured it in.



SIR CHARLES TODD

We have proof of his enormous ambition in a letter to the editor, one year after arriving as a new migrant.

Having grown up in a country only one 60th the size of Australia, he boldly laid out a plan for a continent-wide system of weather observation which would require one of the world's largest telegraph networks to record and transmit the data. This at a time when he had so far built only one telegraph line, 15 kms from Adelaide to Port Adelaide
(!!!)

SA Register November 10, 1856

METEOROLOGICAL.

TO THE EDITOR OF THE REGISTER.

Sir—In presenting you, for public information, with the following meteorological observations I regret being obliged to supply them in so imperfect a form, but my present active official duties make too large demands on my time to allow me to be so careful and attentive an observer as I should wish ; but such as they are I think it may lead to good results if, by publishing them, I can induce others to co-operate with me in establishing a complete system of meteorological observations throughout the colony, based on that adopted by the British Meteorological Society, of which Society I have the honour to be a fellow. During my recent visit to Melbourne I had the pleasure of concerting measures with Captain Clarke, the Hon. the Surveyor-General, for a uniform system of observation throughout the Australian colonies, and I now want a staff of intelligent observers to aid me in carrying out our plans in South Australia. An isolated ob-



Who Was Charles Todd? (version 1.0)

Simply put, he was the undeclared Government Scientist of the last half of the 19th Century. He excelled at both research and development (R&D), a combination sorely missed in contemporary Australia.

Todd was able to accomplish such a magnificent opus of work because he occupied a number of senior positions in the civil service over a period of 49(!) years and 23 Governments administrations. In a city averaging 50-90,000 souls, he could exercise great power and influence over his professional interests in the Colony.

He was universally known as the go-to man for topics scientific or technical. His capacity to work tirelessly, combined with his deep scientific and technical knowledge, enabled him, by his death in 1910, to accomplish what he could only have dreamed of when he arrived fresh from the scientific ferment of the Greenwich Observatory.



Who Was Charles Todd? (version 2.0)

Todd did not excel so much as a research scientist but as an exceptional technology entrepreneur and administrator. His capacity to implement science and technology in our young country was due in large part to his legendary affability, his even temper, his reputation as a fix-it man, his seniority and his obvious resolve to push through, to fight the odds.





Who Was Charles Todd? (version 2.0)

Jim Collins - American business consultant on company sustainability and growth

The term Level 5 refers to the highest level in a hierarchy of executive capabilities that we identified in our research.

A Level 5 leader is an individual who blends extreme personal humility with intense professional will. We found leaders of this type at the helm of every good-to-great company during the transition era... they were self-effacing individuals (**affability**) who displayed the fierce **resolve** to do whatever needed to be done to make the company great.

Level 5 leaders channel their ego needs away from themselves and into the larger goal of building a great company. It's not that Level 5 leaders have no ego or self-interest. Indeed, they are incredibly ambitious - but their ambition is first and foremost for the institution, not themselves.



Who Was Charles Todd? (version 2.0)

In the popular record, he was the man who put in the Overland Telegraph. If nothing else, my message to you is that it is outrageous to summarise this man's 64 years of public service by this single effort of 2 years, heroic as it was.

His contribution to our Colony's development spans 6-8 fields of science and technology which is recognised by his status as a founding father by the six professional societies that cover these disciplines. And he was able to do this through his legendary skills to get the best from those who worked for him and those he had to work with.

Ultimately, to us in the 21st century, he was our STEM pioneer, a great example of entrepreneurship driven from the public realm AND he was Adelaide's first Hipster.





SIR CHARLES TODD

Civil Servant as State Development Entrepreneur?

How many of you
know about
Playford's
whisperer?

John William
Wainwright,
Auditor General



J.W. Wainwright

