

## Exploring cartographic storytelling. Reflections on mapping real-life and fictional stories.

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### **Abstract:**

Conventionally, the map provides a graphic description of a selection of reality that shows an 'excerpt' (usually made by the cartographer) of reality. To work, it needs to be classified, generalised and scaled to show the relative positions of objects to one-another, and placed in an absolute pictorial 'world' defined by latitudes and longitudes that relate to a map projection (based on a certain mathematical description of the Earth). The resulting depiction is a compromised view of reality, but one that is accepted and used to define a mental image of a geography.

But, whilst showing the correct position of geographical elements, they do not illustrate the true nature of personal experiences 'in' a geography – 'personal geographies'. Maps can show 'what is where', or 'where I am', but they do not necessarily best represent personal geographies. Other 'map-like' or 'map-connected' artefacts (connecting to artefacts that are that are not maps) might be more useful tools to communicate aspects of a personal geography. Our research is focussed on seeking alternative approaches to 'mapping'.

From a cartographic perspective, this research and development of prototypes resulted in the assembly of geo-placed information from archives, public on-line resources, official documents and literature to generate cartographic representations of a personal narrative – a true story of a personal geography - and a fictional story from literature. As, in many instances, the sparse availability of records for supporting the development of prototypes to tell: (i) a true story (the personal geography); and (ii) the geo-placed elements of a book provided interesting challenges. The records from which the personal geography was built and the book used as a mapping/narrative example sometimes lacked precise geographical information or even ignored completely certain aspects of geography. Looking at the geography in literature, from the author's perspective, some areas of geography do not exist whatsoever in the storyline, or they may be inferred implicitly. From the cartographer's perspective this demands a mapping which must work-around how sometimes the geography described in documentation or in the passages in a book may be vague, sparse, or even eliminated completely.

For cartography, this research provides a most interesting challenge – to develop a design process whereby the nodes of information can be merged into one composite geographic narrative (three-space + time) – resulting in a representation of a geography that is true to the experience of an individual's story or that of a fictional geography the author of a piece of fiction envisaged. The knowledge gained from developing and evaluating techniques for representation will provide a valuable insight about how to facilitate the mapping of 'different' geographies – those not defined by traditional geographical concepts, and thus demanding innovative mapping solutions.

In this paper we report on the development of projects that use accessible, Web-delivered mapping applications to build cartographic storytelling applications, built around places, or geographical nodes around which the story may be told. It tells, from a cartographic perspective, how narratives of other geographies can be constructed through maps.

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## Introduction

We inhabit spaces and by inhabiting these spaces we leave marks that can be traced by others. These marks can be permanent -like worn trails through grasslands where people have tramped, temporary -like our imprints in the sand where we walk on a beach, or virtual – where permanent marks have been built-over or removed or where impermanent marks have disappeared altogether, or their 'life' was short.

So, how can we understand – properly understand – where important events that have effected our ancestors, will effect us now, or might effect us in the future have occurred or will occur?

We usually do this using maps and these narratives of three-space + time provides us with insight into how people have moved through a landscape or how one's place in a landscape has we determined certain outcomes, or 'fate'.

Maps tell stories. They provide a narrative that is linked to or determined by three-time space + time. They show the real, the not real, the past and projections of a future. They are powerful tools for representing events that have challenged nations and peoples and stories of personal human endeavour, overcoming obstacles and tragedies.

However, 'just' maps is not nearly enough to provide real insight into these stories. To be best exploited they need to be enhanced with rich media artefacts that illustrate what it was like to be there, the impact on individuals, human impact on a place itself and, in the case of conflicts, the wider effect on those at home.

This paper describes work undertaken that has explored the concept of 'geographical storytelling' by designing and producing media-rich interactive cartographic products to tell the story of a personal journey of an Australian soldier who fought and died during World War I.

## Geographical Storytelling

For geography, stories can just provide statements of facts, where no embellishment is required and the user only wants to know 'the facts'. These facts can be stand-alone, or supported by 'on-line' experts who are able to give expert opinions on the geographical space being explored. It may be a narrative, where a documentary-type video, supported by a comprehensive, and interactive, narrative can 'walk' a user through 'unknown territory'. Users may construct their own story, or be 'talked' through an area, where they construct a story using programme support materials and aural navigation aids. Finally they may decide that they wish to experience a landscape by investigating a 'literate landscape' by being told a story (Cartwright, 1990)

Examples of documentary-type videos, where users/viewers have been 'walked' through a geography are the Aspen Movie map, the Domesday project's 'surrogate walks' (Rhind et al., 1988), the Queenscliff Video Atlas (Cartwright 1988). Michael Naimark's 'movie maps' (Weber, ND) (Naimark also was involved in the production of the Aspen Movie map).

More recently, Google's *StreetView* can be used to generate surrogate walks and Esri Inc's *Story Maps* (<http://storymaps.arcgis.com>) allows the integration of interactive maps with rich media. Esri Inc's applications were used to develop the geographical narrative that is the focus of this paper.

## Exploring storytelling as a means to tell 'personal geographies of warfare'

The research and development reported here explored the use of geographically-referenced interactive integrated media artefacts to a story related to the personal geography of an Australian soldier who fought and died in the WW1 Gallipoli campaign in Turkey in 1915. It sought to determine the methods needed to intertwine real geographies with personal geographies. Also, it built a 'proof-of-concept' product that linked geo-referenced landscapes, places and artifacts that can be used to 'ground truth' this personal geography – building a narrative that is linked to space and place. By developing a Web-delivered contemporary integrated media 'montage' it could subsequently be employed to navigate through the narrative 'place' and to provide links between the personal and physical geographical spaces, providing insight into an individual's part in a campaign, where the wholesale weight of warfare and the war 'machine' can hide individual stories of commitment, endeavour and sacrifice.

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## The story of one soldier

John Henry Cartwright was killed in the 'Gallipoli' campaign of World War I. Like many Australians of his generation, John Henry enlisted in the Australian Imperial Forces (AIF) to serve 'King and Country'. He joined the Australian Imperial Forces (AIF) at 31 years of age and he traded his job as a farm hand in Korumburra, rural Victoria, Australia, for one where his tools of agriculture were exchanged for tools of warfare. He is the great uncle of one of the co-authors of this paper, William Cartwright.



**Figure 1.** John Henry Cartwright

Source: Korumburra Returned Servicemen's League (RSL) memorial.

He enlisted to fight away from his native land and family. His journey to war took him from Korumburra, to the Broadmeadows training camp outside Melbourne, then by ship to Egypt, Greece and then to the Dardanelles. He arrived in Turkey, on the Gallipoli Peninsula with the 14<sup>th</sup> Battalion of the AIF and it was here that he met his fate – missing in action 18 August 1915, later reported killed in action.

This generation of Australians laid down their lives in foreign lands. They travelled to places that they would not dream of visiting during their normal lives. War picked them up from the remote Antipodes, took them on a journey to the other side of the world and made them make the ultimate sacrifice.

### Telling the story of a 'personal geography of warfare'

John Henry's personal story of warfare links together and illustrates his journey from the small Australian farming and timber town of Korumburra to his final resting place near Suvla Bay, on the Gallipoli Peninsula in Turkey.



**Figure 2a.** Korumburra, Victoria, Australia 1914.

Source: State Library of Victoria. <http://www.slv.vic.gov.au/pic-aab19526/1/mp0062>.



**Figure 2b.** Gallipoli Peninsula, Turkey. 1915.

A view of Malone's Gully looking north with Suvla Bay and the Salt Lake beyond, seen from Russell's Top near the Nek. Source: Australian War Memorial.

[http://cas.awm.gov.au/TST2/cas\\_disp\\_pkg.pr\\_detailed\\_scr?url=1382918600ZZPVFQTUMYNJ&acid=2000&pi\\_query\\_id=23043125&pi\\_umo\\_id=402492&ps\\_selected\\_coll=ALL&ps\\_view\\_type=BRIEF&current\\_page\\_number=1&ps\\_access\\_level=Public](http://cas.awm.gov.au/TST2/cas_disp_pkg.pr_detailed_scr?url=1382918600ZZPVFQTUMYNJ&acid=2000&pi_query_id=23043125&pi_umo_id=402492&ps_selected_coll=ALL&ps_view_type=BRIEF&current_page_number=1&ps_access_level=Public)

Building the narrative required access to media that would provide both locational information (ranging from a placename, a street address or a precise location on a topographic map). The richest resource was the Australian War Memorial, in Canberra. It provides access to digitized the records of all Australians who served in World War I. Here were original AIF records (figure 3), reports from the Red Cross that formally established his demise, to the records of the posthumous awarding of military medals to his family.

PROCEEDED TO JOIN M.E.F.  
Gallipoli  
3 APR 1915  
Army Form B 103.

**Casualty Form - Active Service.**

Regiment or Corps: **14th BATTALION A.I.F.**  
 Regimental No: **692** Rank: **Private** Name: **CARTWRIGHT John Henry**  
 Enlisted (a): **11/9/14** Terms of Service (a): **four years** Service reckons from (a): **11/9/14**  
 Date of promotion to present rank: \_\_\_\_\_ Date of appointment to lance rank: \_\_\_\_\_ Numerical position on roll of N.C.Os: \_\_\_\_\_  
 Extended: \_\_\_\_\_ Re-engaged: \_\_\_\_\_ Qualification (b): **Coor**

Date	From whom received	Particulars of promotions, reductions, transfers, casualties, etc., during active service, as reported on Army Form B, 203, Army Form A, 20, or 10 other official documents. The authority to be quoted in each case	Place	Date	Remarks taken from Army Form B, 203, Army Form A, 20, or other official documents.
19/1/15	Bombay	Donated	D'nelles	19/1/15	16/8MPC 5174/5 C1026
20/1/15	Headst	ADMIT. NO 1 GENERAL	Helipolis	20/1/15	776 C1251
21/1/15	Collyer	From 6 to 6th Camp	Helipolis	22/1/15	1228
	Int Base	Embarked per Sardinia	D'nelles	4/1/15	Brood record
8/1/15	B.ley/102	Reported Missing	"	8/1/15	A4559 A.20 exp. 2/2/15 21/1335/15
6/4/16	Pro. of Enquiry 774	Previously reported missing now reported Killed in Action	D'nelles	6/4/16	D7553 A.20 exp. 2/2/15 21/1335/15 A.20 exp. 2/2/15 21/1335/15

(a) In the case of a man who has re-engaged for, or enlisted into Section D, Army Reserve, particulars of such re-engagement or enlistment will be entered.  
(b) e.g., Signaller, Shooting Instructor, etc., etc., also special qualifications in technical Corps duties.

**Figure 3.** Casualty Form – Active Service. Source: Mapping Our Anzacs. Record NAA: B2455, CARTWRIGHT J H. Page 12. mappingouranzacs.naa.gov.au

Other resources were the Melbourne office of the Returned Servicemen’s League (RSL), where the diary of another soldier, Private P. M. Fyfe, was archived. It contained an account of the day when John Henry Cartwright was killed. He is the same soldier who gave a report to the Red Cross.

The various libraries and archives provided maps and photographs.

Other Web-based sources provided images of transport ships (here HMAT Ulysses), general views of ports where the 14<sup>th</sup> Battalion stopped on their way to the Dardanelles, images of military camps and hospitals and photographs taken in the field (Figure 4) and rare movies, like that of English war correspondent Ellis Ashmead-Bartlett (the only known moving images of the 1915 campaign at Gallipoli), sourced from the Australian War memorial Archive that showed the men at Gallipoli.



**Figure 4.** The 14th Battalion in Reserve Gully, Gallipoli, August 6th, 1915. Source: <http://www.hardjacka.com/images/gallipoli2.gif>

As well as these digital repositories, one photograph was sourced from a physical photomontage memorial (Figure 5). This is the photograph of John Henry Cartwright (Figure 5 and also on the opening screen of the application – Figure 6). The memorial consists of photographs taken by Korumburra photographer, A. Pam, who presented it to Korumburra on Armistice Day, August 11th 1920. Pam was a local photographer who

had photographed the 262 soldiers and 1 sailor from the town and surrounding region who had fought in World War 1 (Neil, 2013).



Figure 5. Memorial Photomontage by A. Pam. Presented to the Korumburra Primary School and the Korumburra RSL, 1920. Source: <https://open.abc.net.au/explore/62033>

In building the personal geography of warfare for John Henry Cartwright, these records provide locational information like placenames – Dardanelles, Heliopolis, Boort, Elliminyt; places – aboard the HMAT Ulysses; addresses and general fields of combat – Hill 60, Dardanelles. Contemporary mapping tools that allowed the production of rich media-enhanced interactive applications were used to map this the personal geography and show how these globally-dispersed places and events impacted on one soldier's life.

### Building the Story Map

The application was built using the Esri Story Map Journal<sup>SM</sup> App (<http://storymaps.arcgis.com/en/app-list/map-journal/>). This allows a narrative to be built, whereby the map component of the application can be enhanced with appropriate rich media – photographs, videos, sketches, historical artifacts, etc. Users are able to navigate the narrative via the timeline (at left of the screen grab in Figure 6) or the map.

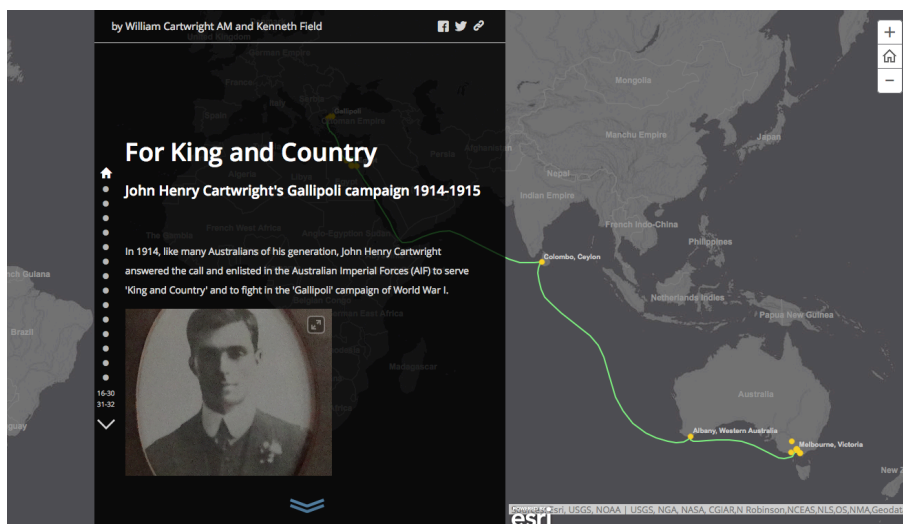


Figure 6. For King and Country. John Henry Cartwright's Gallipoli campaign 1914-1915. Source: <http://carto.maps.arcgis.com/apps/MapJournal/index.html?appid=d36f6f26b831456d9401e33875d6def2&webmap=d4972ca401df462fa666f04771efb061>

Rather than use the default base map, a bespoke base map was constructed to show political boundaries, placenames, etc. for that period. An extract of the base map is shown in Figure 7.

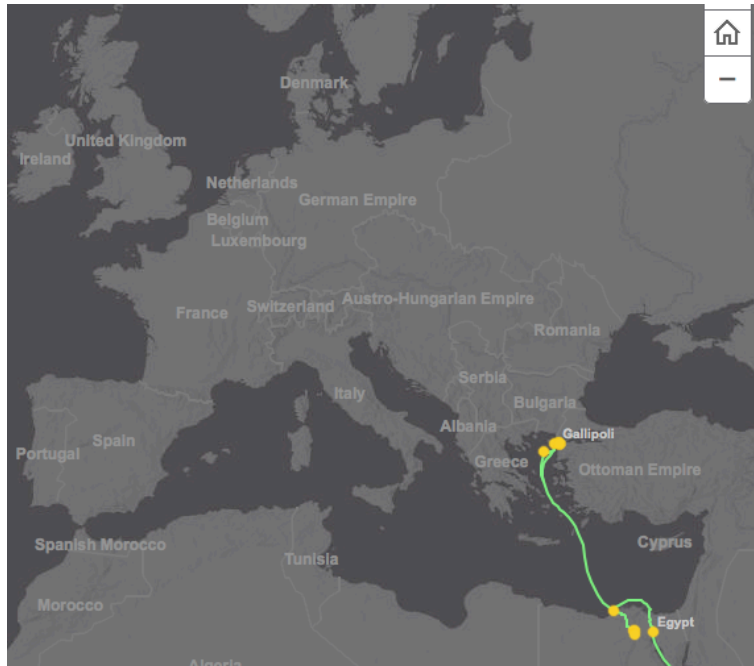


Figure 7. Base map showing international borders 1915.

Included in the base map are placenames and other locations referred-to in the narrative. The map extract shown in Figure 8 shows the places that Private Cartwright was transferred to after he was wounded at Gallipoli.



Figure 8. Mapping narrative 'nodes'.

When the narrative 'zoomed' into particular places, and the base map was deemed to not offer enough detail to support the narrative, the map is replaced by satellite imagery (Figure 9).



Figure 9. Imagery used for more detailed information visualization.

## Further work

There are three planned follow-up stages staged in the project:

- An evaluation
- Extending the application
- Developing a framework for potential automation of the narrative generation

### Evaluation

An evaluation of the narrative will be undertaken to ascertain the usefulness of the narrative. It is worth noting that a posting about the map was made by Keir Clarke (2014) at Maps Mania: “The map is a fitting memorial to the sacrifice made by John Henry Cartwright and somehow even brings more clearly into focus the lives of the millions of other servicemen and women who died fighting in World War I.”

As well, the methodology used to generate the application will be reviewed.

### Extending the application

Another 23 soldiers from Korumburra fought at Gallipoli. Plans are to extend the application to include all 24 soldiers, who are included with the other on the Cenotaph in the town of Korumburra.

### Developing a framework for potential automation of the narrative generation

When producing conventional mapping products the terms of scale, symbolisation, classification and generalisation are used to define the amount of information provided and the detail illustrated. It is argued that the same terms can be applied to Geographical Storytelling, whereby the stories are geographically referenced and ‘scaled’ and their contents classified and generalised (i.e. more generalised stories developed). Methodologies need to be developed and trialled so as to provide ‘best practice’ guidelines for building such products. For example, when using scale the scale chosen would determine the amount of detail that a story provides. A very small scale will cover a large area, but only provide general details. At a large scale a much smaller geographical ‘footprint’ is made, and the story provided will contain much more detailed text. Accordingly, scale determines how much a reader can ‘zoom’ into a story. Similarly, how

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information is symbolised dictates the genre of the story. Classification allows for similar stories to be clustered and assembled in a hierarchy. Generalisation is directly related to scale – the smaller the scale the greater the generalisation of the storytelling.

## Conclusion

This paper has provided a background to the general ideas behind the project. We were interested in exploring the narrative for better describing geography and the way in which the narrative might be generated using contemporary tools. A narrative was constructed to tell the story of one soldier's journey from a small country town in Australia to fight in the Great War. This story was constructed around digital resources and some analogue items like diaries and a photomontage memorial.

The narrative "For King and Country. John Henry Cartwright's Gallipoli campaign 1914-1915" was built using the Esri Story Map Journal<sup>SM</sup> App.

Further work will extend the application to include another 23 soldiers who fought in the Gallipoli campaign.

## References

Byrnes, P., "Gallipoli on Film", Australian Screen. <http://aso.gov.au/titles/collections/gallipoli-on-film/> Web page accessed April 9, 2015.

Cartwright, W.E., 1988, "Video Atlases as a Tool for the Decision- Making Process", proceedings of the 7th Australian Cartographic Conference, Australian Institute of Cartographers, Sydney, vol. 1, pp. 197 – 219.

Cartwright, W. E., 1990, "Mapping and Videodiscs: Some Observations on the Design, Production and Program Assembly of Atlases on Videodisc Based on Research Results from Pilot VideoAtlas of Queenscliff, Victoria, Australia", paper presented at the 1990 British Cartographic Society Annual Symposium, Newcastle, United Kingdom.

Clarke, K., 2014, "One Man's War Remembered". Blog: *Maps Mania* (Thursday, July 31, 2014). <http://googlemapsmania.blogspot.com.au/2014/07/one-mans-war-remembered.html>

Neil, P., 2013, "Honor Board of WWI digger portraits", ABC Open. <https://open.abc.net.au/explore/62033> Web page accessed April 9, 2015.

Rhind, D., Armstrong, P. and Openshaw, S, 1988, The Domesday Machine: A Nationwide Geographical Information System, *The Geographical Journal*, Vol. 154, No. 1 (Mar., 1988), pp. 56-68. <http://www.jstor.org/stable/633476>.

Weber, M., ND, "Going Places: A History of Google Maps with Street View", <http://www.computerhistory.org/atcm/going-places-a-history-of-google-maps-with-street-view/>. Web page accessed 9 April 2015.

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## **Biography of authors**

Professor William Cartwright AM is Professor of Cartography in the School of Mathematical and Geospatial Sciences at RMIT University, Australia. He is Chair of the Joint Board of Geospatial Information Societies and Immediate Past-President of the International Cartographic Association. He joined the University after spending a number of years in both the government and private sectors of the mapping industry. His major research interest is the application of integrated media to cartography and the exploration of different metaphorical approaches to the depiction of geographical information. In 2013 was made a Member of the Order of Australia for “significant service to cartography and geospatial science as an academic, researcher and educator”.

Dr Kenneth Field is a self-confessed cartonerd. After 20 years in UK academia he now works at Esri in cartographic research and development for the Mapping Systems team. He researches, writes, teaches and blogs about map design, is Immediate Past-Editor of The Cartographic Journal (and current Assistant Editor), co-founder of the Journal of Maps and is on the advisory board of the International Journal of Cartography. He is Chair of the ICA Map Design Commission, a Fellow of both the British Cartographic Society and Royal Geographic Society and a Chartered Geographer (GIS). He has won numerous awards for his mapping and also for pedagogy in cartographic education. You can follow him on twitter @kennethfield and he blogs at cartonerd.com.

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