

## Mapping Dreams to Pin the Future To: Access Ideas for the National Library Singapore

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### Abstract:

*The map collection of the National Library Singapore has a wide range of maps and charts dating from the beginning of the European Age of Discovery onwards. Aside from traditional issues of storage, conservation and preservation, there is also the question of how to enable wider access to the collection as maps are not the most robust of items. We will look at the concerns facing the collection of the National Library Singapore starting with preservation practice and going on to enabling wider access through digitisation and the possibility of using maps as a springboard for a whole new access point through geo-tagging to enable temporal and geographical co-location of materials.*

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### Introduction

The Special Collections of the National Library Singapore include a wide variety of non-traditional format materials including maps and photographs. Some of the challenges of maintaining such formats are preservation and conservation; cataloguing and indexing; and enabling access. What we will detail in this paper are staff ideas on improvement of the map collection.

### The Map Collection

The map collection at the National Library of Singapore contains a wide array of printed maps and charts, from the latter part of the 15th century till the present. The older maps in the collection represent the early European endeavours to discover safe sailing routes to the East Indies, in the hope of breaking into the lucrative spice trade there.

The earliest map in the library's collection to date is a Ptolemy map printed in 1478 by Arnold Buckinck. It is a map that recreates Ptolemy's idea of Southeast Asia. In his geographical treatise of the 2nd century, Ptolemy had divided Asia into 12 parts and assigned the 11<sup>th</sup> part to South East Asia and Ceylon. As such, this map on Southeast Asia is aptly titled "Tabula Asiae XI".

One of the historically significant maps in our collection is a 1598 East Indies map by van Linschoten, a Dutch merchant, historian and cartographer. Linschoten's map is based on secret Portuguese charts and archives that revealed the sailing routes to the East Indies and its profitable spice trade. His maps and his works on safe navigation to the East Indies helped the Dutch and English to break into the Portuguese trade monopoly in the East. The map is oriented with the north to the left, and here we have one of the earliest references to Singapore, which is noted as Sincapura.

The collection ranges from topographic maps and hydrographic charts to town plans and street maps, with a geographical coverage spanning Singapore, Malaysia and Southeast Asia with a significant number on Asia as well. Being a maritime nation, these include early hydrographic charts of the East Indies by the European colonial powers as well as the more recent charts of Singapore and its surrounding waters by the maritime body of Singapore.

Maps are always visually appealing and offer tremendous opportunities for research and displays. In a recent exhibition of Singapore maps, *Vignettes in Times: Singapore Maps and History Through the Centuries* (2009), public interest in the maps as windows to both history and heritage was clearly evident. Besides reflecting the early history of printed cartography, the map collection in the library also highlights the development of cartography within Southeast Asia.

## **Preservation Issues**

As with all other collections, the map collection also poses certain challenges in preservation, access and storage. As our library's map collection constitutes of printed maps only, we do not face issues of preserving maps made of material other than paper, such as manuscript maps or portolan charts.

Preservation and storage of maps is a key challenge due to their sizes. As such, safe and proper handling of such large formats is all the more important in ensuring their long-term preservation. From unfolding for storing folded charts and maps to encasing individual maps in archival material as seems to be the common practice in the world of map libraries.

The National Library's initial practice was to encase individual maps in mylar sleeves and to affix all labels pertaining to the map onto the mylar. This helped ensure some protection for the map when handled by patrons and staff as well as helping with secure and proper storage.

However, in our ever-evolving knowledge about preservation of materials, it became evident that mylar sleeves might not be very suitable for maps with colour, especially hand-coloured maps. Hence our preservation team started to mount individual maps onto archival boards. In order to protect the maps from exposure, they were then covered with archival tissue. To further protect the maps and their mounting boards, and for better handling, the whole set will be further encased in a mylar sleeve.

The main advantage of placing a map in a mylar sleeve is the relative ease of storing and viewing them. It allows more maps to be stored in map drawers and ease in flipping through them in order to retrieve the right map. Moreover as maps are visible through the mylar cover, they do not have to be removed from their protective covering.

On the other hand, mounted maps take up extra storage space and each map has to be lifted individually in order to retrieve the ones below. In addition, viewing becomes a more cumbersome process: the maps now have to be removed from their mylar sleeves and the archival tissues covering them taken off (without creasing them) in order to view the actual map. Maps on mounting boards

usually have the top edges affixed to the board, which does not facilitate viewing of the back of the map where there is sometimes text or other information.

Yet, archival boards offer secure backing and better protection for maps, facilitating easier handling and transportation of the maps. This brings us to means of reducing the viewing and handling of the actual physical maps (thereby reducing damage from wear and accident as well as minimising exposure to light) by providing digital copies of the maps for access.

### **Access to Maps**

Currently maps are accessed by request. For maps dating from the Second World War and earlier (before 1946), access is only granted via written request to the Director. The large nature of maps makes it unsuitable for frequent use or by patrons unfamiliar with the handling of maps (for instance the many teenage students using our facilities to do their projects assignments). With the increasing interest by Singaporeans in Singapore history, this makes digitisation for access an important goal for the Library. Coupled with the Library's initiatives to collaborate with the relevant government agencies (primarily the Singapore Land Authority the Urban Redevelopment Authority, and the Ministry of Defence) to make old maps accessible on the Internet, we intend to also address the growing demand for content to be available via the Internet rather than in a physical facility.

With the advent of software systems like the Google Earth and Bing Maps, users are now starting to expect geolocatability on a graphical interface as a basic feature. We have experimented with this previously in an experimental project called iRemember (Wang, Ang & Nurulhuda: 2010). In this system using the Bing Maps, we 'pinned' (mapped onto a GIS system) a 1935 tourist map of Singapore along with a current map from the Singapore Land Authority's OneMap service. In addition, users could switch to a double pane view to look at the same location on both maps. This was a useful feature in looking at historical changes that we hope to have in our map collection interface.

Not all maps can be treated in the same way though. Generally, land maps of Singapore in our collection that show a significant amount of details about the island are post-1819; and are, to greater or lesser extent, based on survey data. This makes them amenable to 'pinning'. We also have nautical charts based on details survey data dating from the 18<sup>th</sup> century onwards. Though we have not yet reviewed the nautical material, we expect that the survey data they are based on is fairly accurate, making 'pinning' possible.

Aside from the above geo-positionable maps, we also have pre-1819 European maps of Southeast Asia. Because these maps have positional inaccuracies, it is not possible to 'pin' them onto modern geospatial coordinate systems without serious distortion of the images. We are therefore at the present moment inclined to treat their eventual digital surrogates as pure images.

### **Demand for Information by Location**

The National Library sees a regular stream of students coming to search for information regarding specific locations in Singapore, this being a popular assignment topic or significant background information necessary for a range of assignment topics. We also experience a steady trickle of enquiries by patrons interested in where they or their ancestors stayed and/or worked. As one example of how dislocating the constant development and redevelopment of Singapore's landscape is, we receive quite a number of enquiries from veterans of the Second World War, the Vietnam War and foreign military personnel stationed here in the past asking for assistance in determining where they stayed before. They flew to Singapore to revisit their memories, naively believing that they could recognise something in the landscape from their memories of the 1950s, 1960s or 1970s. While the Singapore's downtown road layout is still fairly unchanged over the decades, we have to assist them

in locating where the buildings in their memories once stood. There is therefore a demand for finding information by geographical location.

Libraries have traditionally limited themselves to physical co-location of items by format and subject classification, and word-based subject headings and indexing. Problems with our current practice is the changing physical landscape with development, natural disasters, war and other events that seriously modify or even transform the landscape. Names of places changed too for reasons ranging from redevelopment to anti-colonialism in some other countries. Singapore has the added problem of having place names in the four official languages of Singapore in addition to unofficial names in several other languages. These cause problems with our current efforts which need resolution through some form of thesauri. But what if there were another way to co-locate items geographically?

### **The Idea of Co-location**

One of the main organising principles of libraries is the idea of co-location. The obvious need in this case is co-location by geographical location. Secondly would be by temporal location. Given that the boundaries of areas in Singapore change with each generation and subculture in Singapore having a different mental map of the island with their own names to the places, the traditional library method of assigning items with geographical place names and time periods falls distinctly short of ideal. The ideal for indexing would be to indicate the precise geographical boundaries the item is related to and the precise time period.

For this, tagging of geo-locatable items to a map would seem to be the best solution. Given that the software programmes for doing this is already available and in common use, perhaps it is time to start looking at geo-location indexing coupled with, or perhaps even in place of, traditional subject cataloguing and indexing (Vandenberg: 2008). Map libraries are already making their aerial photograph collections available using area maps as an index. As one instance, the University of Florida Map & Digital Image Library uses the Google Maps in the indexing of their aerial photograph collection. Perhaps this should be expanded to include other objects and not just aerial photographs.

Tagging to a point, while a common practice, is not suitable for photographs as a photograph shows an angle of view starting the position of the photographer extending to the main subject of the photograph but also the background. This means that photographs cover an area rather than a point. For researchers, any of these visible points in a photograph might be the significant object of research interest. This is particularly true where buildings and landscape are being studied or in trying to date a photograph by comparing the visible terrain with those of other photographs. Representation of the geographical coverage of the image would therefore more appropriately be an area rather than that of a point. This is equally true when it comes to dating photographs. Apparently the most common practice is to assign a year or decade to them if the exact date cannot be ascertained. However, in our experience of studying images, we find that images can often be dated to a date range that does not match up neatly with 1<sup>st</sup> January or 31<sup>st</sup> December. This of course applies to not just photographs but to articles, books and just about anything else relating to any location.

### **Audience Familiarity & Current Capabilities**

The system that is at once both widespread and familiar as well as similar with what has been described is the Google Earth, particularly the function allowing users to post geolocated images onto their site. There are also websites such as historypin and SepiaTown which host collections of historical photographs pinned to specific points on maps. What is missing from their user experience which would be needed for this envisioned project are the following:

1. geotagging to an area rather than to a point;
2. ability of the system to change maps to dates in the past rather than the current map;
3. ability to compare different maps from two or more dates in the past.

The Library had experimented with a similar system using seed funding from the National Library Board's 'Black Box' initiative that allows staff to experiment with novel ideas (Wang, Ang & Nurulhuda: 2010). The team produced a system using two maps of the Singapore city area: a pre-War tourist map and a current map. The software system that the Team developed allowed user to switch between the two maps as well as to tag photographs to a location and a year. Because addresses in Singapore have been geotagged and the data made publically available by the postal authorities (Singapore Post), the Team was able to tag a sample set of photographs which were obtained through donations and from our sister organisation, the National Archives of Singapore.

Unfortunately, as it was an experimental system using a small set of photographic images, it did not have much of an impact and was eventually decommissioned. Not that the experiment was unique. Across the library world we have come across other projects and proposals with aspects similar to various parts of this project. For instance, the projects of Kingston Public Library (Vandenburg: 2008); Quinnipiac University in collaboration with Kerry County Library (Ballard: 2009); and the research of Dodsworth and Nicholson (2012).

### **Resources Suitable for Geographical Co-location**

Not every item is suitable for geographical tagging. The primary requirement would be that the item must be significant related to an identifiable geographical area and that place must be locatable on a map produced from survey data. The range of such suitable information in our collection includes photographs; articles in books, magazines and newspapers; videos; and newspaper articles (digitised, and run through optical character recognition (OCR) and made freely available online). In addition, we have created a database of articles about various historical aspects of Singapore that includes entries about places and buildings called Singapore Infopedia.

Our image collection is a recent sibling. Born in the 2005, out of a project to make available visual materials about Singapore online, the collection grew from photographs of Singapore's places and buildings to turn-of-the-19<sup>th</sup>-century photographs and picture postcards acquired through the Library Donors programme as well the Heritage Roadshow. Because the project started with digital photography, access has always been primarily digital, first through the Singapore National Album of Pictures (SNAP) website and now through PictureSG website. Photograph and postcard donations are all digitised, indexed and loaded onto the website with the physical items kept in storage.

A significant milestones was achieved with Singapore's main newspaper publisher, the Singapore Press Holdings (SPH), which grants the Library to make newspapers under the SPH available online. Most of newspapers articles can be fairly accurately dated as the events reported were generally happen within a few days of the article's publication (generally before but sometimes after). For many locations that are not nationally famous, particularly specific addresses, the newspapers are the primary readily accessible information resource for most.

Aside from newspaper articles, there is also Singapore Infopedia articles as well as printed publications by geographically-located community organisations (in Singapore's case this would primarily be Community Clubs) and organisations centred around a specific location (particularly religious congregations of temples, mosques and churches). Finally, from our sister organisation, the National Archives of Singapore, there are the building plans which can be precisely located in both time and space.

### **Conclusion**

We have detailed here our plans regarding the National Library Singapore's map collection. From the concern with the physical storage for preservation of old colour maps, we take up digitisation as a

means of allowing wider access to the maps without increasing the risk of damage or deterioration. In addition, we see this as an opportunity to promote usage of the collection and also as an opportunity to improve co-location of not just maps but other materials through the use of GIS and geo-tagging.

For too long the organisation of library resources has been physically limited. The digital world allows us much more freedom in co-locating items of different formats together. Where logical forms of systematic co-location occur, they should be explored to increase not just findability but also the potential to increase researcher serendipity (or as the modern world puts it, 'mashups'). Not to mention the prospect of making it easier for our photograph indexing efforts which currently depends a lot on background knowledge of our indexers to accurately identify images.

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