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Increasing Access to Historical Cartography through the Web: The Darfur Case

Afriterra mission is to provide access to cartographic material, connect people to their past heritage, to foster geographic knowledge of the land, and to give homage to the ancestors of the diaspora. Afriterra policies of open data access are manifested through fostering of education and outreach to the different users across different countries as well as through making cartographic material accessible via Internet. Several possible pathways are explored and presented herewith.

Afriterra promotes collaboration with the One Laptop Per Child, (http://www.olpc.com) a spin off project of the Media Lab, MIT, U.S.A. Afriterra also assure maximum and easy access to the cartographic data and metadata both via online catalog and through the use of Google Earth API interactive interface via Internet.

OLPC-Afriterra collaboration attempts to reach out to and educate users around the world on historical cartography through the cartography of Africa. The design architecture of Afriterra-OLPC collaboration can be seen schematically in Figure 1.

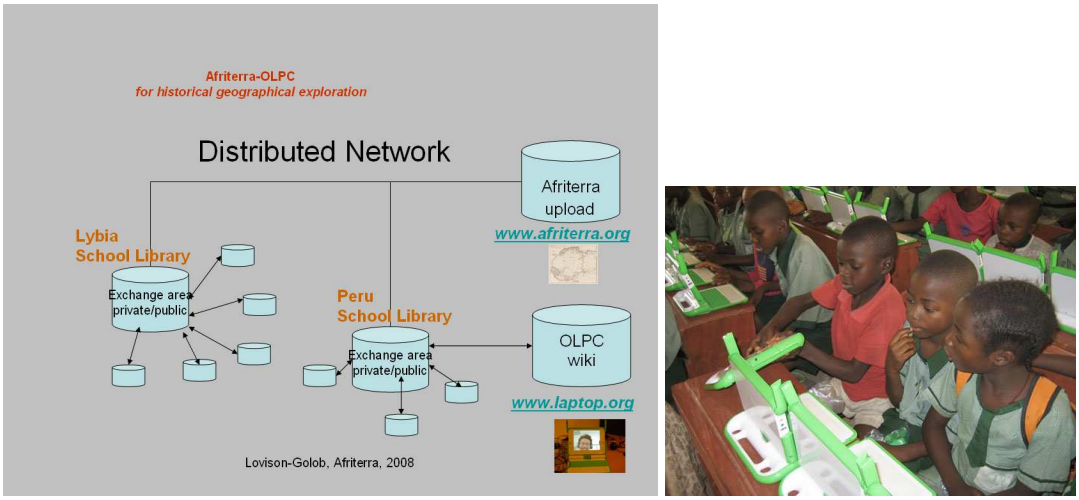

Figure 1—Design of Afriterra-OLPC collaboration for the exploration of historical cartography.

As it is visible in Figure 1, one component of the education is achieved through Internet connectivity and web meshing via an interface shown in Figure2.

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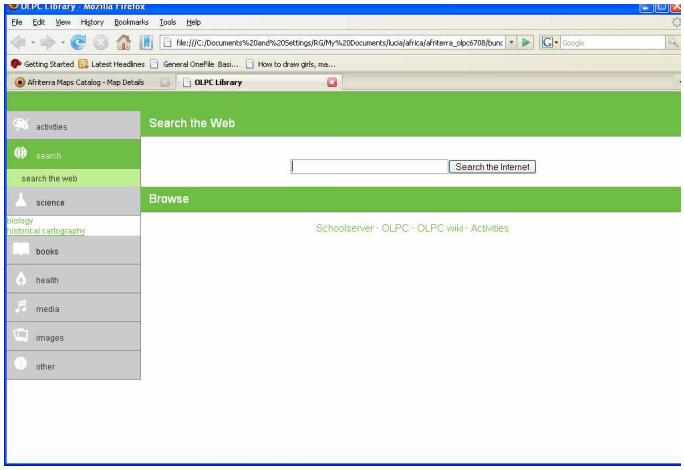

Figure 2- Interface for the access to historical cartography via One Hundred Dollar Laptop.

The final result, shown in Figure 3, gives the opportunity for educators and children around the world to access some of the maps made available by Afriterra Foundation with notes commenting the data set.

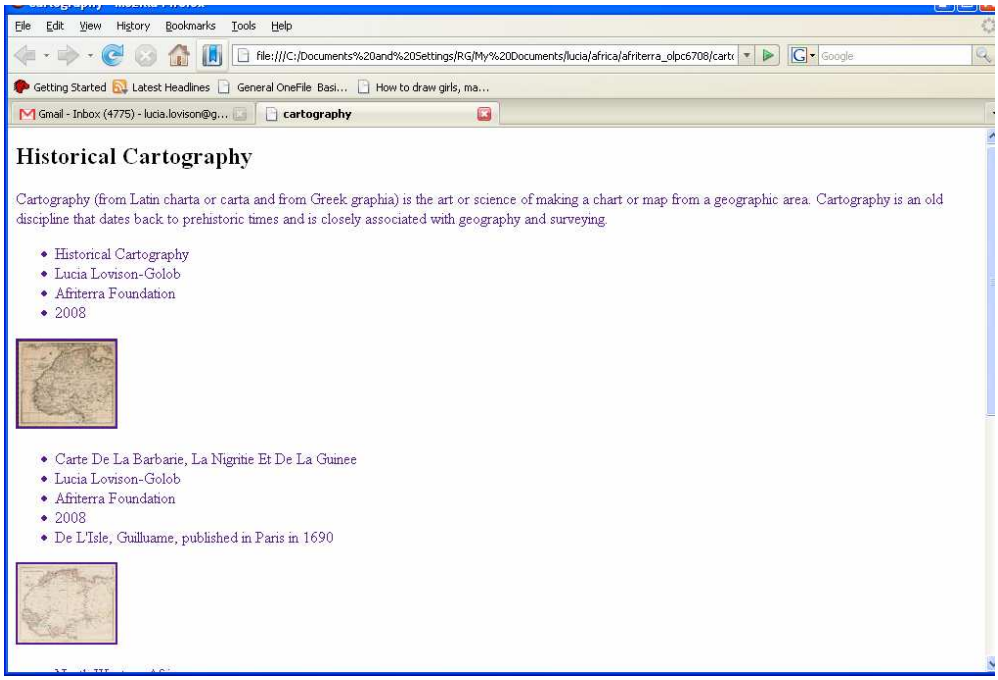

Figure 3 – Internet OLPC interface accessible through One Hundred Dollar Laptop Activities interface.

In the case of no connectivity, Afriterra built a corresponding similar interface in the local machine or school server, so that students and educators have access to the cartographic material.

As mentioned in the introduction, the main approach behind the outreach of Afriterra to the general public occurs through Internet and has become possible thanks to the development of the online catalog as seeing in Figure 4, achieved by Eric Rizzo.

Figure 4 – Afriterra online catalog located at http://www.afrieterra.org

Afriterra Online Catalog provides both searches by maps, by creators, by keywords and by date. Further and more detailed queries can be performed in the advanced tab area. The backend database currently contains more than 1400 maps focused on Africa, more than 1000 ultra-high-resolution digitized images, and over 1100 unique creators (a creator or contributor is a person or organization that contributed to the creation and/or publication of a map). Each map is related to one or more creators according to categories: cartographers, engravers, publishers, and other. To increase and optimize the user experience, user feedback and the participation to a network of experts are encouraged. Afriterra plans further development of the online catalog functionalities, specifically regarding the metadata cataloguing component and the use of semantic-based tools to improve the user experience.

Afriterra is actively exploring the use of Google Earth API interactive interface as a mean for advancing new techniques and new ways to access historical cartographic knowledge. As an example, and thanks to Dr. Gerald Rizzo's strong interest in the area, we decided to look at the historical cartography of Darfur in part because of the present-day issues afflicting the people and environment of the region.

Thanks to Dr. Gerald Rizzo, the founder of Afriterra Foundation, and his strong interest, a series of historical maps from Afriterra holdings were examined. I'll be discussing in particular one.

Through Google API, we were able to select some specific thematic information of the area, in particular the location of water wells in the Darfur region between Dongola and El Fasher,

in Sudan. After georeferencing the selected historical map and warping it to Google Earth, a digital map with the location of water wells that were active in 1881 was obtained for further analysis. As you may see from Figures 5 and 6, the information and the reflections that an analysis of this type offer profoundly increases our geographic knowledge and may guide people to a better use of extreme scarce resources in the present-day Darfur.

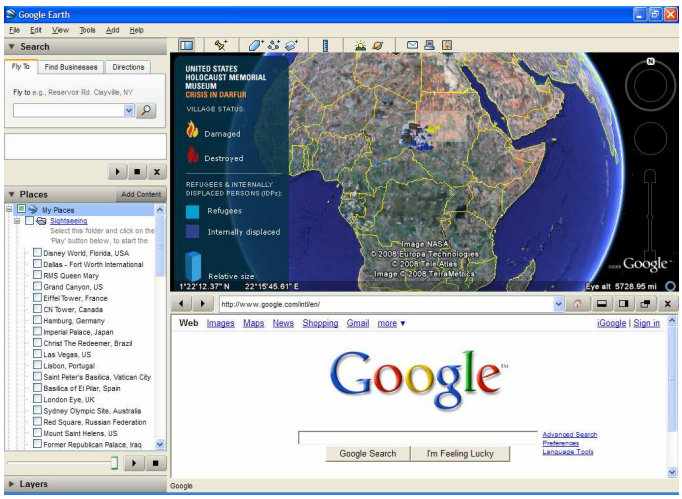

Figure 5

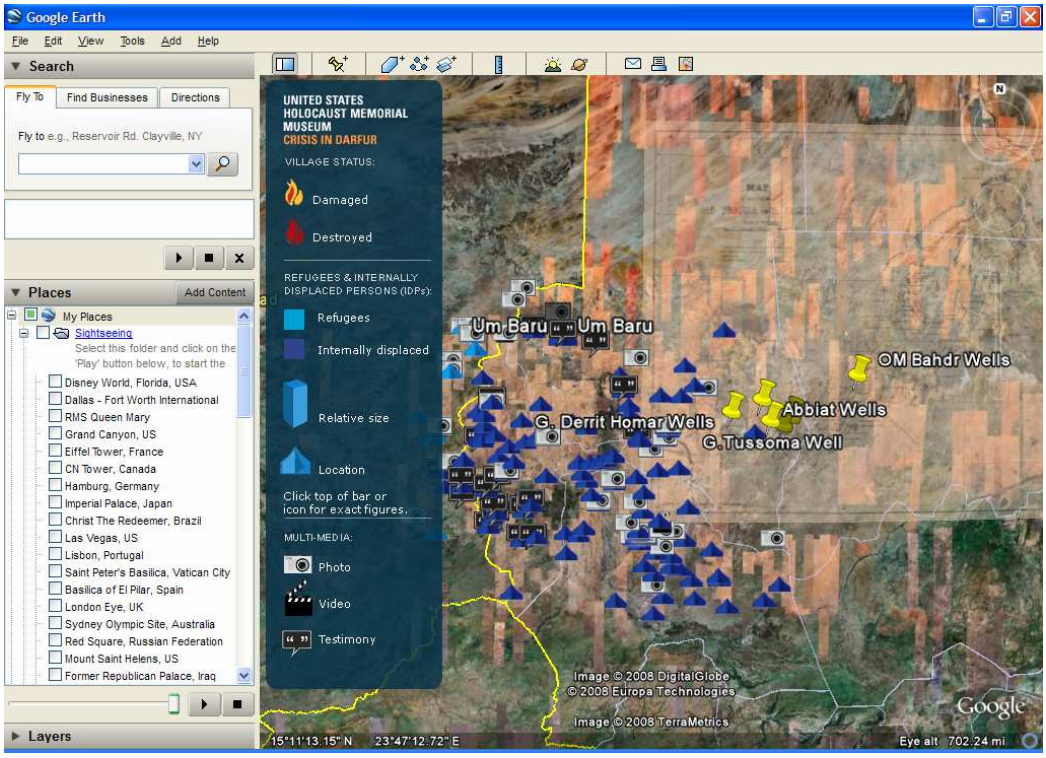

Figure 6 – Yellow push pins indicate the location of water wells in the Darfur area around 1881.