Library Hi Tech

Conceptualizing the integration of digital humanities in instructional services: Possibilities to enhance digital literacy in the 21st century

Raymond Pun

Received 13 June 2014
Revised 18 November 2014
Accepted 14 December 2014

Conceptualizing the integration of digital humanities in instructional services

Possibilities to enhance digital literacy in the 21st century

Raymond Pun
New York University Shanghai, Shanghai, People's Republic of China

Abstract

Purpose – The purpose of this paper is to conceptualize how digital humanities (DH) projects can be integrated into instructional services programs in libraries. The paper draws on three digital projects from the New York Public Library (NYPL) and explores how librarians can creatively utilize these resources to teach new digital literacy skills such as data analysis and data management. For patrons, they can learn about the content of these crowd-sourcing projects as well. By integrating DH projects into library instruction, the possibilities and opportunities to expand and explore new research and teaching areas are timely and relevant.

Design/methodology/approach – The approach of this paper is to explore NYPL's three digital projects and underscore how they can be integrated into instructional services: "What's On the Menu," "Direct Me NYC" and "Map Warper" all offer strengths and limitations but they serve as paradigms to explore how digital resources can serve multipurpose use: they are databases, digital repositories and digital libraries but they can also serve as instructional service tools.

Findings – The paper conceptualizes how three DH projects can serve as teaching opportunities for instructional services, particularly teaching digital literacy skills. By exploring the content of each digital project, the paper suggests that users can develop traditional information literacy skills but also digital literacy skills. In addition, as crowdsourcing projects, the Library also benefits from this engagement since users are adding transcriptions or rectified maps to the Library's site. Patrons develop visual literacy skills as well. The paper addresses how librarians can meet the needs of the scholarly community through these new digital resources. While the paper only addresses the possibilities of these integrations, these ideas can be considered and implemented in any library.

Practical implications – The paper addresses positive outcomes with these digital resources to be used for library instructional services. Based on these projects, the paper recommends that DH projects can be integrated into such instructions to introduce new content and digital skills if appropriate. Although, there are limitations with these digital resources, it is possible to maximize their usage if they are used in a different and creative way. It is possible for DH projects to be more than just digital projects but to act as a tool of digital literacy instruction. Librarians must play a creative role to address this gap. However, another limitation is that librarians themselves are "new" to these resources and may find it challenging to understand the importance of DH projects in scholarly research.

Originality/value – This paper introduces DH projects produced in a public research library and explores how librarians can use these digital projects to teach patrons on how to analyze data, maps and other content to develop digital literacy skills. The paper conceptualizes the significant roles that these DH projects and librarians can play as critical mediators to introducing and fostering digital literacy in the twenty-first century. The paper can serve as an interest to academic and public libraries

The author would like to acknowledge and thank the seventh Shanghai International Library Forum committee (SILF 2014: July 9-11, 2014 in Shanghai Library, China) where this article was presented as a paper.

Library Hi Tech
Vol. 33 No. 1, 2015
pp. 134-142

0737-8831
DOI 10.1108/LHT-06-2014-0055

with large research collections and digital projects. By offering new innovative ideas of integrating DH into instructional services, the paper addresses how DH projects teaching tools can support specific digital skills such as visual literacy and data analysis.

Keywords Digital libraries, Research libraries, Case Studies, Library instruction, Academic libraries, Skills training

Paper type Conceptual Paper

Introduction

As an emerging field, "digital humanities" (DH) introduces innovative ways of sharing, analyzing, visualizing and thinking about data as information. Before DH, there was "humanities computing," which studies the intersections between humanities fields such as literature or art history with media or information technologies to uncover new research methods or solutions. With the arrival of emerging technologies, "humanities computing" became DH. DH is "an application of information technologies in analyzing humanities" and is often "data-driven, answering humanities research problems with multidisciplinary, interdisciplinary and cross-disciplinary approaches within the digital IT/realm " (Kamada, 2010, p. 484). Research libraries with large collections and budgets can afford to focus on the role of DH in their services. DH projects are often based on an open-source platform where anyone on the web can access the digital library or collections remotely. For discovery purposes, DH projects tend to focus special collections or primary sources where there may have been only a few scholars who have actually conducted research using the collection. There are also various features that come with these DH projects: some may offer the study of spatial relationships which is often considered as Geographical Information System (GIS); others include studying quantitative data where texts as data are explored, rearranged and analyzed carefully through a statistically analysis program. These DH projects can be used to stimulate new thinking in the interdisciplinary and multidisciplinary fields that they communicate with. They can also serve as teaching tools to explore new content and to develop new digital literacy skills in different possibilities. This paper explores how DH projects can be conceptualized as teaching tools to support new digital learning initiatives.

In this paper, three DH projects hosted in the New York Public Library (NYPL) are closely examined as teaching tools to identify the development of new digital literacy skills. In this context, "digital literacy skills address the fact that information is no longer limited to text but also includes still images, video, sound, interactive web pages" (Hin, 2005, p. 290). By introducing and integrating these DH projects into the library's instructional services program, participants can gain research skills that were not acquired initially through traditional library workshops. Traditional library skills often focussed on finding and using print and digital resources effectively for research, and gaining information literacy core skills such as critical thinking skills, which are still important and relevant. Additionally, there could be an expansion and integration of these "traditional" skills with newer ones that involve visualization, data and information systems. Thus, the possibilities of opening up new learning outcomes, program opportunities, research engagements and discoveries could be realized and seized through DH projects as teaching tools.

The paper addresses the positive role and outcome that DH can play in instructional services by exploring the Library's three DH projects as teaching instruments to support new digital learning initiatives: "What's On the Menu?," "Direct Me NYC: 1940" and "PL Map Warper." The author draws on these projects to form the nexus between

instructional services and DH. The librarians at the NYPL have used some of the DH projects as teaching tools; the ones that have be implemented will be discussed anecdotally: "What's On the Menu?" and "Map Warper"; the other one: "Direct Me NYC" have yet to be explored as data learning tool; however, the possibilities as conceptualized in this paper offer creative approaches to support new digital learning and literacy initiatives.

With approximately 45,000 menus dating from the 1840s to the present, the NYPL's restaurant menu collection is one of the largest in the world, used by historians, chefs, novelists and everyday food enthusiasts. They contain menus from Chinese to Russian to Middle Eastern restaurants from the nineteenth to the twenty-first centuries. However, these menus can be very difficult to search and assess all at once since some may be fragile and difficult to read. If scholars were interested in specific information about dishes, prices, the organization of meals in these menus, they would have many challenges in reviewing them all at once. The NYPL found a solution to promote the collection, and to provide an easy access for anyone to use: "What's On the Menu?" is a DH project that can reveal the stories of these "menu data" and draw new connections in the history of food and culture in the digital world (Figure 1).

In this DH crowd-sourcing project, the NYPL improves the access of the collection by allowing online participants to transcribe the menus, dish by dish. By doing this, the collection can be researched, accessed and discovered on the web. According to the web site, there are currently 17,000 menus already transcribed by participants but how does one build an instructional services program with this ambitious project? In an instructional services program, one can train participants in using this site to enhance their knowledge of food history. By making students comfortable to transcribe various scripts and prints of menus for the Library, they are also seeing what types of food were being served, how much they cost and where restaurants were located geographically.

For librarians at the NYPL, they have formed teaching collaborations with colleges that offer historiography courses to explore "food" as a historical lens to globalization. In the spring of 2012, about 15-history students from St. John's University in New York

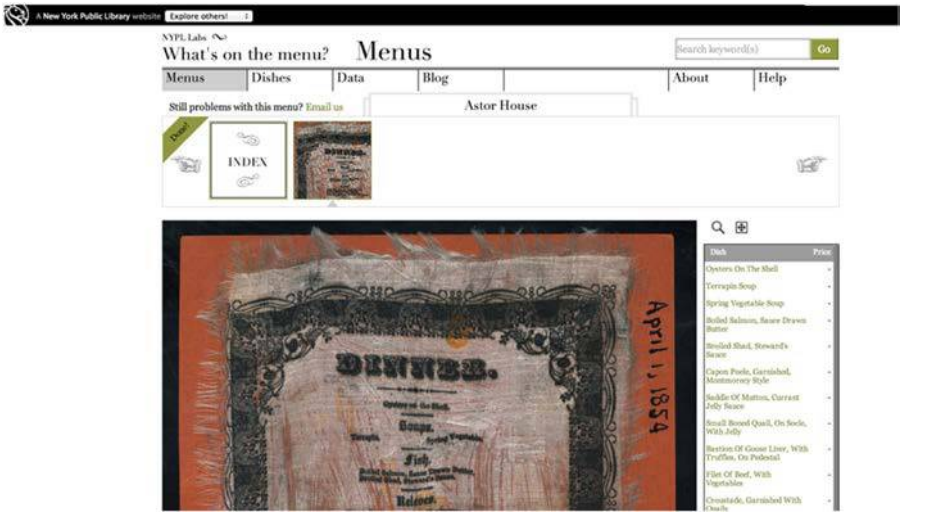

Figure 1.
"What's On the Menu?"

Source: www.menus.nypl.org

attended an NYPL workshop to learn more about the Library's collection; all of them were writing a historiography paper that incorporated primary research materials. The librarian organized the workshop, taught the general research approach to online databases and demonstrated the tool "What's On the Menu?" to students. After the demo, the students were required to "transcribe some of the menus of their interest." These students were working on various topics such as the historical development of ethnic restaurants in New York City and Russian communities in Brooklyn – they discovered new content through the menus that they have never seen, considered or even knew about. They learned how to read different types of texts and ephemerals; they supported the Library's project by expanding the content in these menus through transcriptions and gained more insight throughout the process. This was a type of "research lab" where students shared information and research anecdotes with one another. Some were surprised at the cost of a cup of coffee in 1911 and discovered new stories about their communities such as the arrival of Japan's sushi in New York or the rise of French restaurants.

During the workshop, the librarian showed them why this DH project is essential to learn about food history but to also teach digital literacy by using one dish as an example. According to a menu, a dish called, "preserved chow chow" was served in Rio De Janeiro, Brazil in 1900. When the students saw that cuisine in the menu, they did not know what it was but with image search engines such as "Google Images" or "Baidu," they found that "chow chow" referred to the "dog." This became an important lesson: the students, just like any users of this DH outside of the classroom, may have assumed that dogs were being fed in Brazil during that time based on these search engines. The librarian demonstrated that the DH project rectifies this knowledge by placing the food in context: the DH project links the dish into scholarly resources that can describe what the dish actually is or was. The students now know that "preserved chow chow" is a vegetable dish. But what is the significance of this? Part of the new digital literacy initiatives is to strengthen core skills of information literacy. Today, there are waves of web sites providing misleading or competing information. In this case, the students learned how to decipher food knowledge properly and understand the cultural context of food in history. More importantly, they learned how to "find credible sources" by reviewing the library's digital resources to verify or fact check the information. In this instructional services program, the librarian has shown students to think critically and globally about food and economics in their projects: how did food cost change over time and what was popular to eat back then? These important questions can only be answered through the data inside the digital menus. The students were learning to decipher and mine "data" which are also important digital skills to develop. With the help of the librarian to guide the users to access this resource and properly transcribe the data, this became more effective in the research lab. The workshop ended successfully based on the assessments of their research papers in incorporating ephemeral materials, particularly those who used "food" as a historical topic.

This DH project can provide useful resources for anyone conducting research in food history as explained with the student workshop but one needs to make sense of the "data" supporting the project through transcription and fact checking.

Direct Me NYC: 1940 is another DH project hosted by NYPL but functions very differently from "What's On the Menu?" For anyone interested in genealogical research, this DH project lists the telephone directories of the five main boroughs of New York: Manhattan, Queens, Bronx, Brooklyn and Staten Island in the year 1940 only. This

project was made for the purpose of the 1940 US Federal Census, which was released in 2012. The Federal Census is released every ten years in the USA due to privacy and legal procedures. As a result, genealogical research can be very difficult to conduct without the proper census. "Direct Me NYC" offers an innovative approach to conduct genealogical research: the site lists the telephone directories which contains names, addresses and phone numbers of residents and businesses in these boroughs but the site also converts the addresses to enumeration districts (ED) by opening corresponding census pages. The ED is a geographic area determined for the purposes of taking the census. From there, users can discover more information about the census and their genealogical research. How does all this information enhance one's digital literacy skills and more importantly, how can the library utilize this DH project in an instructional services program? (Figure 2).

First, this DH project engages participants differently: by contextualizing "data" from the telephone directories and Federal Census, users can learn and discover genealogical and local histories differently. They learn more about where people used to live based on surnames and where businesses or restaurants opened their services in New York. Most importantly, the Library can have participants learn how data is compiled, arranged, processed, analyzed and visualized differently compared to our contemporary times. Data analysis skill is critical in digital literacy[1]. By exploring these data sets presented in the telephone directories and Federal Census, there are new learning possibilities and outcomes for users to develop and delve into important quantitative studies based on these resources. One major critique of this project is that it does not effectively engage with participants but only presents the data that can be used for many research purposes beyond the genealogical one. Unlike the previous project, "What's On Menu?," this digital resource has yet to be explored in a DH integrated workshop but the possibilities to teach local history, particularly New York City history can be considered.

From a theoretical perspective, in an instructional services program, librarians can demonstrate on how to use this site effectively but also utilize additional tools to quantify and qualify the data meaningfully and contextually. One possibility is to

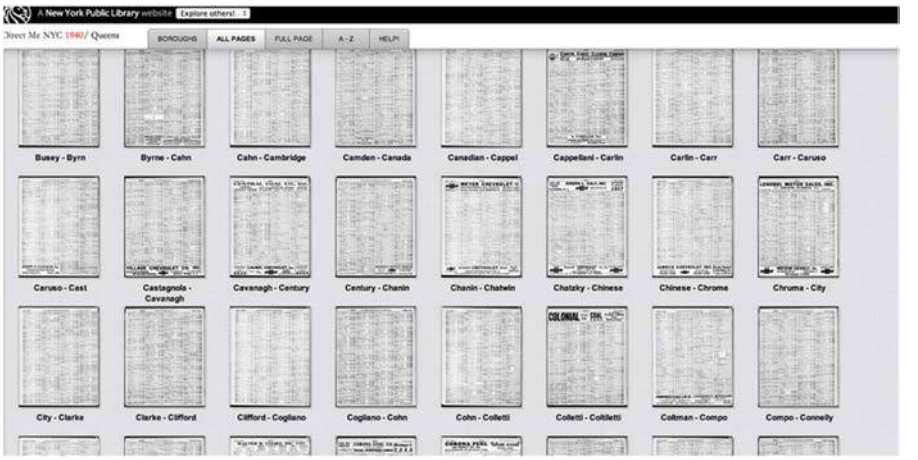

Figure 2.
"Direct Me NYC: 1940"

Source: http://directme.nypl.org

introduce quantitative research tools such as "R" or "SPSS Statistics" to conduct and support statistical analysis for these data; participants can learn how to manage and analyze their data sets based on these quantitative resources. From there, Direct Me NYC: 1940 can uncover new types of data in local history. These can offer new learning outcomes, challenges and assessments. Another alternative is to offer qualitative research tools such as "ATLAS.ti" since these phone books contain "text" – it would be of interest to create a qualitative analysis on textual relationships such as the surnames of specific ethnic groups in one area or businesses that provide a specific trade. There are innovative and numerous ways to conduct and present qualitative research using this resource but the drawbacks are clear: the Library must be able to provide these quantitative and qualitative software programs to assist researchers on conducting these analyses. Additionally, librarians must be trained to handle data analysis programs whether it pertains to the software or methodology of collecting and storing data.

A DH integrated workshop for advanced undergraduate or graduate-level history courses may find this tool to be useful for various research purposes, particularly if the courses focus on American history, New York City history, immigration or urban history. This tool would be useful for these groups because they offer the primary source content, but also a new way of looking at texts through an ephemeral: a phone book. Students can also learn how to read or identify census data in the process; it may be tedious but using this tool as an example to teach students on using the qualitative or quantitative research tools can help them use these tools for other research purposes. It becomes one possibility that "Direct Me NYC" can be the example to be used to teach other research tools since all the data are provided.

The significance of this DH project offers a new window of opportunity to explore and learn more about data research and analysis through genealogical text. These digital literacy skills are important in the context of research. Traditional information literacy workshops in libraries would not include extensive data-driven pedagogies; however, to utilize this tool effectively, librarians must also be knowledgeable in recommending and supporting quantitative or qualitative research tools as well.

According to the web site, the NYPL Map Warper is a "tool for digitally aligning ('rectifying') historical maps from the NYPL's collections to match today's precise maps [2]." NYPL has collected over 400,000 map sheets from all over the world since 1898. This vast collection can support researchers interested in history, geography, urban or environmental studies, cartography, and other interdisciplinary fields (Figure 3).

The purpose of the Map Warper is to assist NYPL align or rectify a map. Once users find an old map in the online collection, they can place the map in the current boundaries as it stands and formulate new ideas or questions in the geographic context on the "rectified maps." These "rectified maps" have overlaying digital images of historic maps onto a contemporary digital map, similar to "Google Maps" and can transform them into a virtual atlas. For example, a rectified map sheet of Manhattan, New York from 1857 can display the changes in the streets, or footprints of old buildings. To contextualize this map in local history, one can utilize archival records, newspapers, manuscripts, photographs or other historical documents associated with the places on the map. This DH project serves as a foundation for scholars and educators to support the Library's geospatial initiative by creating new "rectified" maps and thus, "new knowledge" of a location. Similarly, this can produce a type of geographic information system where old and new borders are revealed; users learn how to visually interpret maps, draw boundaries and focus and identify details in the map such as legends.

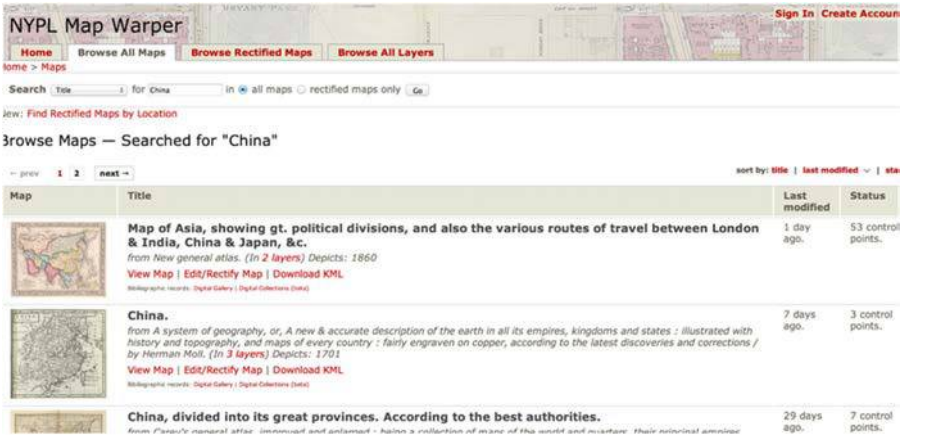

Figure 3.
NYPL Map Warper

Source: maps.nypl.org

This DH project can enhance digital literacy skills in geospatial knowledge by allowing participants to visualize and analyze data. More importantly, a key component of digital literacy is visual literacy. Participants learn how to read a map and understand its impact to and historical importance in society. They can also create programs that can visualize the data and space in the map. "Spatialization adds extra dimensionality that is absent from written language and in doing so facilities the display of simultaneity" (Jessop, 2008, p. 284). Drawing on instructional services program that utilizes on this DH project can produce different digital literacy skills: users would be reading primary sources and understanding how to "code" and "decode" the language of cartography or a visual media, an essential skill in digital literacy. In addition to teaching local history, librarians can play a key role in promoting data visualization, and visual literacy through the Map Warper.

The librarians at NYPL have utilized this tool to engage with students in various subject matters. In one example, the librarian introduced this tool to an American urban history class from St. John's University. In this course, students had to develop an understanding of how cities changed over time, particularly New York City in the twentieth century. Map Warper is an effective resource to demonstrate changing urban dynamics. To help students understand this, the librarian showed how to use this tool and required everyone to choose a map of their interest and "rectify" them. Thus, the Library gains new "rectified maps" and the students develop an understanding of historical urban landscapes.

The librarian was there to help students who found it challenging at some points. Some students explored the maps more carefully – particularly their neighborhoods. One student exclaimed that she did not know that the park near her neighborhood in Astoria, Queens used to have many buildings before based on a map from 1915. The buildings disappeared and a park replaced them based on Google Maps. The students were given some time to discuss and share their research findings and experiences as they explored the maps and how it changed their own perspectives of urban space. Students in the class had to write reflection pieces on this tool; their research experiences were overall positive. This was another successful attempt to introduce students to a relevant tool to address visual literacy where they were not

reading "text" but reading graphics of ideas and themes; how do they change overtime in these visual forms and representations; why are maps important in the field of history; how can learn dig deeper into the historical consciousness of our scholarship through maps? These larger intellectual questions came about with the instructor later on. Future courses that involved history, art history, geography, urban studies, anthropology and sociology could also incorporate this tool to support the academic curriculum.

The important part of teaching this tool is having a librarian who is a knowledgeable facilitator to support the classroom needs and is able to focus on the key ideas of the medium of maps in historical studies. Students in this particular class were able to see and discuss "history" changing in front of them. Today, there are a number of growing resources on GIS; many are free and are open access tools like the Map Warper. To effectively use and teach this resource, librarians must have strong visual literacy and technological skills to discuss the range of tools and their limitations in a DH integrated workshop.

Conclusion

From food to maps, these DH projects as case studies can provide meaningful and creative approaches to enhance and support digital literacy skills in instructional services program. DH is more than digitizing primary sources and adding them into a digital repository: there are multiple purposes and functions. In the examples, particularly for "What's On the Menu?," and "Map Warper," students learned about special collections or primary sources, and discovered or collected hidden narratives together. They learned how to read different texts in various ephemerals. In the case of instructional services program, NYPL's DH projects supported digital literacy skills in GIS and fact checking while reinforced the "traditional" information literacy skills such as critical thinking and research skills. The history courses benefited from the workshops that incorporated these DH projects. One conceptual approach includes "data" and "textual" analysis that "Direct Me NYC" could offer. Additionally, this DH tool can also serve as an example for students learning to use sophisticated qualitative or quantitative research tools for their research purposes.

The opportunities to teach these new projects allow the librarians to play a more active and critical role in supporting and teaching digital literacy: "librarians provide or help customize electronic information or data in a more interactive way as primary source data for individual computer-assisted research projects, in addition to continuing their effort to digitizing resources in a larger scale" (Kamada, 2010, p. 485). More importantly, librarians also need to be aware of the key skills being taught and learned such as visual and data literacy. If not, the librarians may miss a major opportunity to support new digital literacy skills of the twenty-first century.

There is a bridge connecting DH and instructional services as demonstrated these projects. By producing and promoting these resources in various workshops, the Library is continuously meeting the need of the scholarly community: scholars are analyzing text, data and metadata in their respective fields in the humanities differently, repositioning their findings and exploring new avenues of research.

Notes

1. See Martyn J. "Digital visualization as a scholarly activity", pp. 281-293.
2. See NYPL Map Warper: http://maps.nypl.org/warper/ (accessed March 10, 2014).

References

Hin, L. (Eds) (2005), *Handbook of Research on Literacy in Technology at the K-12 Level*, Idea Group Publishing, Philadelphia.

Jessop, M. (2008), "Digital visualization as a scholarly activity", *Literary and Linguistics Computing*, Vol. 23 No. 3, pp. 281-293.

Kamada, H. (2010), "Digital humanities: role for libraries?", *College and Research Libraries News*, Vol. 77 No. 9, pp. 484-485.

Further reading

Adams, J. (2012), "Digital humanities: where to start", *College and Research Libraries News*, Vol. 73 No. 9, pp. 536-569.

Berry, D. (2011), "The computational turn: thinking about the digital humanities", *Culture Machine*, Vol. 12, pp. 1-22.

Choi, H. (2009), "Expanding arts education in a digital age", *Arts Education Policy Review*, Vol. 110 No. 3, pp. 27-34.

Dalbello, M. (2011), "A genealogy of digital humanities", *Journal of Documentation*, Vol. 67 No. 3, pp. 480-506.

About the author

Raymond Pun is a Research and Reference Services Librarian in the New York University Shanghai. Previously, he was a Research Librarian in New York Public Library: Stephen A. Schwarzman Building. His research interests include digital humanities, data management and outreach and community engagement in libraries. Raymond Pun can be contacted at: ray.pun@nyu.edu

This article has been cited by:

1. Latisha Reynolds University of Louisville Louisville United States Samantha McClellan University of Louisville Louisville United States Susan Finley University of Louisville Louisville United States George Martinez University of Louisville Louisville United States Rosalinda Hernandez Linares Oberlin College Library Oberlin United States Eleanor Mitchell Dickinson College Carlisle United States . 2016. Library Instruction and Information Literacy 2015. *Reference Services Review* **44**:4. . [Abstract] [PDF]