Emerging Research Fields in Information History

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Abstract: *After providing a fresh information history basics we roughly present three new, promising, deepening domains with growing importance, getting progressively into the center of intensified scholarly attention: History of Information Architecture, Complex History of Measurement and Information Archaeology.*

Keywords: *Information history, Information architecture, Information archaeology, Measurement history*

I. INTRODUCTION

„The field of information history has only been seriously theorized and discussed as an independent area of scholarship over the last ten years or so, and there remains much to be done in order to bring it into the wider academic spotlight. However, during this same period, scholarly work on information in history has been abundant and ever increasing".

Toni Weller (2010a) presents the growing importance of information history research in her latest review in this way. Thanks to the emerging domain and the focused attention, information historians are facing with enormous challenges: deepening, enhancing and intensifying the „multitude" with new scholarly approaches, re-interpretations, experimental papers, and, simultaneously, setting up new theoretical frameworks, models, definitions, producing literary steps to the more and more needed synthesis.

Few years ago I tried to identify several rising information history research topics (trade routes as information channels, translation history, typologies of information revolutions, early networks and information flow, etc.) in a Hungarian language monograph (Z. Karvalics, 2004). In this paper I roughly present three new, promising, deepening domains with growing importance, getting progressively into the center of intensified scholarly attention.

Before that it seems to be indispensable to define the information history as a relatively new paradigm (Black, 2006, Weller, 2008, 2010) and summarize its main research directions for all those, who meet first time with the information history discourse itself.

The legacy of information history is a programmed re-discovery, re-conceptualization and re-interpretation of well known forms, technologies, tools, institutions, activities, flows, specialists and lot of other aspects of the universe of information and knowledge, transforming them a direct object of targeted research instead of their traditional, simple supporting role of economic, political, cultural, legal, military (etc.) history writing.

It is easy to find information history relevance in every geographical and chronological crosspoints of the history of mankind. However, the theoreticians of information history could identify five or six special "domains", research directions, schools, representing different approaches, aspects or topics.

	Z. Karvalics (2004)	Weller (2008)
1	Information-centered analysis	Cultural and social aspects of information
2	History of Information metabolism (sub)systems	History of Information Systems and infrastructures
3	Social history of Information Technology	Library and Book History
4	The History of the Information phenomena	The history of Sciences, dealing with the phenomena of Information
5	Pre-history of Information Society	Origins of Information Society
6	General Information History	

Table 1. Main research directions of Information history

"Information-centered analysis" focuses on a given historical period, process, or event and utilizes an information approach to achieve a better description of its subject.

The concept of an *"information-metabolism system"* places the complex set of information processes of a given era or of a given area into the focus of investigation.

The *Social History of information technology* is a multidimensional study of given information activities, information technologies or information institutions in a far more complex way than the simple description of the invention processes and their results as a tools, objects or methods.

The *"history of information"* (or the *natural history of information*) scrutinizes the information phenomenon, both in its qualitative and quantitative aspects, as a basic organizing principle of living systems, beginning with the emergence of early representation systems (Levinson 1997).

The *Pre-history of Information Society* is a constant investigation to find the historical roots of the contemporary post-industrial society. Beniger (1986), Black (2001) and Weller-Bawden (2005, 2006), Weller

(2009) are digging back to the mid-19th century, other scientists (Mattelart, 2001, Headrick, 2001, Darnton, 2000) propose to start the storytelling in the late 18th century.

"General information history" aims to develop a valid model and a uniform terminological texture of information-based historiography, as applied to the process of world history (Weller, 2008, 2010b).

Information history research domains are appearing in almost all these directions in varicoloured ways. It is time to zoom for the selected few "streams" of the literature to illustrate the latest improvements. I call them in order *History of Information Architecture, Complex History of Measurement and Information Archaeology*.

II. HISTORY OF INFORMATION ARCHITECTURE

In the mid-11th century hermetic text, named *Picatrix* we can read about a large mythical city, Erdetentym (Adocentyn). All around outside the walls of the city Hermes lined up pictures in a well composed structure to influence the habitants' life and moral.

The "pictured wall of Adocentyn" represents only a short chapter in a history of (built, made, spun, carved, fabricated) artificial objects in closed or plain air space for *intentional information and knowledge management purposes,* i.e. memory support, warning, orientation, navigation, education or coordination, etc., from small items (aboriginal cylcons, lunar calendars, stone landmarks, metes and bounds, advertisement tables in Pompeji, scratched beggar signs on walls) to complete architectural objects (lighthouses, clock towers, code steles, like Hammurapi's, etc.). The Roman *portico* and *exedra* was designed for triggering the thoughts and the *cubiculum* to host the meditation. The Renaissance *studiolo* has educational and memory training functions. Kirkbride (2009) could show that the famous Gubbio and Urbino studiolos of Federico da Montefeltro were simultaneously *recombinatoriums* to generate new ideas.

The other aspect of information architecture is the art and profession of *presenting, arrangement, structuring, combining, sizing, coloration of the sets (clusters) of information on the given information carriers* for the most effective transmission of meanings, relationships and contexts. The alphabetic order used for information storage by the early encyclopedia makers was an information architecture innovation. The *history of mapping* and the *history of tipography* are also sub-domains of this "Infographic History".

The excellent review of Friendly (2009) presents more than 330 bibliographical items, listing the milestones of Infographic history. We observe growing interest about the life and work of *William Playfair* (1759-1823) the inventor of modern diagrams (line graph, bar chart, pie chart and circle graph), developing them between in 1786 and 1801 in his *Commercial and Political Atlas and Statistical Breviary* re-published few times since the late 18th century. However, the "diagram history research" is going back to the early medieval times, see Kühnel (2005) about the "Karolingian infographics".

Summarizing the prospects of research on early forms of information architecture, there are open doors and windows to expand and augment the concept of environment in historical context, shifting the reconstruction of *Information Environment* aside of other popular and well-processed "environments" (ecological, geographical, settlemental, political, etc.).

III. COMPLEX HISTORY OF MEASUREMENT

At the end of the 16th century Tomas Digges has proudly constructed his *Pantometria*, the science of *measurement of everything* (Digges, 1591). Later, Theodor Mommsen, the famous 19th century archaeologist and linguist was standing the art of measurement aside to writing in his influential *Römische Geschichte's* (1854-1856) 14th chapter (Measurement and writing) as the most important tool of mankind while conquering the World. After all, the positivist turn degraded the role of history of measurement to be a useful and diligent *auxiliary science* of economic history and history of technology and science, with a clear mission: to collect, list, explain and interpret every small and even local units of weight, length, size, distance, time, value, etc. in encyclopaedic form with concordances, supporting the scientific papermakers with up to date conversion tables.

In the last decade, blissfully, a new and prolific era of more and more complex history of measurement was born. The buggle call for a re-emancipation was an important book of Witold Kula (1986) with a strong need to find macro-patterns and longitudinal relations, getting over the good old measurement unit reconstructions. Few years later Crosby (1997) made a giant step towards creating a complex measurement history framework, analyzing the role of quantification in pre-modern Europe. But the real "detonation" of the socially, economically and culturally embedded measurement history is taking place ahead of us. Morley and Renfrew (2010) edited an excellent book on the holistic role of measurement in ancient societies, exploring archaeological evidences. Gooday (2011) "*shows how the advent of commercial electrical lighting stimulated the industrialisation of electrical measurement from a skilled labour-intensive activity to a mechanised practice relying on radically new kinds of instruments"* (as the product description briefs). Allen (2011) explains the revolution of (governmental and corporate) control bodies with the innovations of standardization and performance management, putting a new "puzzle" to the analysis of industrial revolution.

IV. INFORMATION ARCHAEOLOGY

The school of cognitive archaeology (see Renfrew, 2009) puts the thinking process into the center of the examinations, using such a concepts like symbols,

beliefs, motivations, or - horribile dictu - ideology. Otherwise: they are dealing with the prehistory of the mind (Mithen,1996).

Information archaeology is a kind of vestibule of cognitive archaeology, focusing the basic perception and information sharing processes.

The artificial lighting, for example, has a 70.000 years old history, and we have iron age evidences of light telegraphy.

The acoustic factor is falling into line with the visual: the new, most popular targets are the (many a time 30000 years old) musical instruments (the discourse is now about the tuning of the flutes, and the scientists are trying to play on them experimentally) and the ancient rock gongs (a giant piece was found recently by a Westfälische Wilhelms-Universität Münster researcher, Tim Karberg, in Sudan). The archaeologists could also identify lot of important acoustic moment studying prehistoric Maltese temples, Stonhenge ruins and the pre-columbian civilizations in the Andes and Mezo-America. John Rick discovered a special voice-duct system in caves, used by the religious leaders of ancient Chavín de Huántar civilization, and Jonathan Abel (Stanford University) identified them later as "acoustic weapons". (Kolar et al., 2011).

And this is not the end. In a previous monograph on the cultural history of smell (Classen et al, 1994) the authors could compose an almost 40 pages chapter about the aromas of antiquity. The research of early hallucinogenic materials now locking into each other with the interpretation of cave drawings and paintings.

However, and of course, the primary target of information archaeology is the objectivated information itself: pre-writing marking systems, signs, tamgas, motifs, symbols. The families and clusters of these signs, their inter-cultural migration, recombination, development or reuse. The discovery of previously unknown cave paintings and drawings, petroglyphs, scratched bones and other archaeological objects and the growing publicity of these results are gradually enhancing the need for a worldwide, unified pool of the mankind's full early sign asset (a well designed, conceptually univoque, quality assured, open online database). Probably the brand new International Society for Mark Studies, Signum will undertake this lesson. Their coming out book (Pim et al., 2010) seems to be a good starting point.

V. CONCLUSION

It was strongly arbitrary to choose these three research domains and call them "rising". However, we are absolutely sure that in the next few years we'll meet lot of excellent and thought-provoking new books and papers on these topics, affecting and touching many information history directions. Instead of mentioning again the names, I try to denominate the next generation "hot domains" in information history. My prediction is the accelerating strengthening of the following four topics:

- *History of Data Culture*

(The origins of data recording, early database technologies and the formation of complete data cultures, including standards, specialists and user training)

- *Early warning, alarming and signalling systems*

(Especially the history of fire services and other *disaster prevention* technologies, like the old tsunami stones in Japan. This direction is also in close connection with the *paleoastronomy*).

- *Origins of numeracy*

(New evidences are expected about the Neolithic roots. Concerning to the early civilization centers' numeric culture, the revival of *accounting history* is foreseeable.)

- *Information management protosystems*

(Professional "workflow" of state and corporate bureaucracies, in particular in the early modern Europe and the century of the control revolution – from mid-19th to mid-20th century (Beniger, 1986).

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