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Europe's Cultural Heritage in the Digital Age

Abstract
In 1995, over 95% of the Internet was in English. In 2003, English represents 35% of the Internet. Europe today has at least 50 million more persons using computers than the United States.[1] The American vision of the Internet is focussed largely on uni-lingual e-commerce. The European vision, through its links with tourism, which now represents over 12% of the world economy,[2] also has financial concerns. At the same time, Europe is developing a multi-lingual approach to its cultural heritage that includes historical and cultural dimensions.

This paper surveys some trends of the past decade: that digital cultural heritage in Europe now extends far beyond traditional memory institutions to include archaeological sites, historical cities, cultural landscapes and cultural routes (e.g. Silk Roads); that these interests are leading to new links between local, regional and national culture; that these approaches are transforming scholarship; that there is a need for a Distributed European Electronic Resource (DEER). It also outlines challenges for the future: Can Europe define its own approach to intellectual property, which leads to more creativity than the Hollywood method? Europe has traditionally been the only continent interested in developing a global view of culture and civilization. Can Europe, which now represents just over 5% of the world population, redefine its role such that it gives due recognition to cultural diversity and the contributions of other nations and peoples?

1. Introduction

The Internet is changing rapidly. In 1995, there were about 5 million users and over 95% of the Internet was in English. In 2003, there are over 650 million users and there are now three clusters of users. English represents about 35%, European languages represent about 35% and Asian languages (notably Chinese, Japanese and Korean) represent just over 26%.[3] Chinese, which is now the second largest language on the Internet, is due to become the most used language of the Internet within three years

In the United States, where there was euphoric enthusiasm about the importance of the Internet in the early and especially the late nineties, there is now s a tendency to speak of a dot.bust period since 2000 and especially since September 11 2001. From a global viewpoint the statistics provide us with a very different story. In 2000 there were just over 200 million users. That figure has more than tripled within three years.

Media enthusiasts often compare the number of years it took to reach 50 million users to show that the Internet has grown much more quickly (figure 1). More remarkable is the successive growth of the Internet. It took 74 years for the telephone to reach 50 million users. In the three years since 2000, the Internet has grown eight times that amount. The prediction is that the Internet will grow another three times that original amount by the end of 2004 to 940 million. Stories of the demise of the Internet, like those about Oscar Wilde, are greatly exaggerated. Something which, only a decade ago appeared to be largely a North American development, is now truly a global phenomenon.

This shift to a global arena is much more than a shift to more users. American visions of the Internet continue to assume uni-lingual communication and focus on business-- especially e-commerce[4] --, the military[5] and space.[6] By contrast, European visions assume a multilingual context with a far greater emphasis on culture and history. While there are also many sites on individual museums, galleries and other memory institutions in the United States, Europe's approach is more linked with tourism in terms of personal experiences, involves much more than the objects of memory institutions, is closely linked with transformations in knowledge and is leading to a re-assessment of Europe's sense of its place in the world.

Internet	5	4	6	5	
Cable	10				
Wireless Telephone					14
Television	13	14	40	17	24
Radio	38	38[7]	50[8]		39
Telephone	25[9]			74[10]	77[11] Households

Figure 1. Number of years for different methods of communication to reach 50 million users or households according to different sources.

2. Changing Scope of Cultural Heritage

Since the advent of the World Wide Web (WWW) in 1990 there has been a clear commitment to making individual artifacts of culture accessible on line, typically in the form of virtual museums, libraries and archives. Pioneers in this respect were the National Gallery in London and the Uffizi. As the ICOM site shows there are now tens of thousands of such sites, which typically reproduce representative highlights of a given museum.[12] One of the most ambitious examples in this context is the Louvre[13] which is scheduled to make all 120,000 of its museum objects available online in 2003.

Most of such websites show thumbnail images of less than a Megabyte. Meanwhile, libraries and museums are scanning in their images at ever greater levels of resolution of up to 767 megabytes for a single page and 30 Gigabytes for a single image, typically with up to 24 images for a complex three dimensional object such as a sculpture or a musical instrument (cf. the Sculpteur project). As a result the newest version of the *Gutenberg Bible* is nearly half a terabyte. While the percentage of digitized collections remains small, there are already many exobytes (thousands of terabytes) in museums and memory institutions which could provide enormously useful resources for research if the infrastructure for sharing them were in place (cf. section 4 below).

Meanwhile the scope of digital culture has been growing steadily. Already in 1992, Eric Hoffert (then at the Banff Centre) and his colleagues produced a virtual museum[14] in the sense of André Malraux's *Musée Imaginaire*:[15] a collection of objects in a spatial context with no necessary counterpart in the physical world. Such imaginary museums range from personal collections of enthusiasts, to the equivalent of specialized exhibitions of dispersed works by a given painter to collections of professional work by painters who may not be considered politically correct.

The past decade has seen a constant trend towards intelligent heritage, whereby physical objects are not simply copied passively in digital form but acquire active and inter-active characteristics with respect to visitors and users. One excellent example is Lily Diaz Kommonen's[16] Aztec Map of Mexico (c.1550) whereby a digital surrogate of the original acquires a number of hypermedia characteristics.

Another example is Ranjit Makkuni[17] from India, who worked a number of years at Xerox PARC. His project, *Gita Govinda*, a 12th Century epic by Jayadeva:

was developed with the objective to familiarise audiences on the fundamental concepts of Indian music, dance, art and their inter-relationships and interpretation. The content was conceived by Dr. Kapila Vatsyayan….The experience consisted of a network of 13 physical and virtual multimedia spaces that interpreted six songs of the poem spatially, laid out across two circular rings. Arranged on the circular axis were the songs of the poem, showing various emotional situations of Radha and Krishna in love. The two rings represented the poem's meanings through diverse media.[18]

Another project led by Makkuni, the Crossing Project, uses multimedia to recreate the atmosphere of Benares[19] which has over 2000 temples and is deeply linked with transformation of the soul after "death".

The Crossing Project points also to trends away from study of material and tangible culture in isolation, to include immaterial and intangible culture, in the form of music, dance, dance, food, customs, beliefs and of course, language. Linked with this are trends whereby the emphasis is no longer on a single object in a museum, and more on sites, towns, landscapes and even cultural routes. Since these have been described elsewhere they will no concern us here, other than to note a basic shift from a study of single objects, to a study of the contexts and routes whereby the sharing of objects was made possible.

3. National, Regional and Local

Traditionally culture was very much linked with a particular place or a region. In the nineteenth century, the advent of the nation state attempted to identify culture mainly or even solely at the national level. Hence, "Italian culture" was emphasized above the traditions of Etruscan/Tuscan, Florentine, Sienese, Bolognese, Milanese and other local cultures. In the course of the twentieth century, the enduring value of these regional and local cultures was increasingly appreciated. Thus a new challenge has emerged of linking local (e.g. Florentine) with regional (e.g. Tuscan) and with national (e.g. Italian) culture, in such a way that the uniqueness and cultural diversity of the local is not compromised.

4. Networks

Since the 1970s there have been trends towards networks. These have typically been specialized with respect to specific kinds of institutions such as libraries or museums, or with respect to given disciplines, e.g. art, sociology or philosophy.[20] One of the important developments of the past five years has been a trend to create larger collections of knowledge. One of the most significant of these has been what began as the Distributed National Electronic Resource (DNER) and is now called the Information Environment in the United Kingdom. This offers access to important materials such as the Arts and Humanities Database. In France, the efforts of the Maison des Sciences de l'Homme are leading to new interplay between ethnology, anthropology, sociology and archaeology.[21] As a result very specialized knowledge from individual disciplines is becoming available

to a larger range of scholars resulting in new inter- and trans-disciplinary interplays between and among traditional disciplines.

5. **Culture, Knowledge and Scholarship**

The new media are also affecting many dimensions of scholarship with respect to treatment of sources, names and concepts, claims, Dynamic Time, Dynamic Space and scope. Here we shall survey briefly these ideas, which have been developed elsewhere.[22]

Sources

One of the distinguishing characteristics of the European tradition has been to emphasize the value of the original object. Hereby copies, versions, imitations are all considered less valuable than the original object. In this context, conservation and restoration become significant professions. As a result knowledge about the originals in the form of literary and other sources also becomes important. During the Renaissance, this quest to return to the sources (*ad fontes*) has been a basic part of the humanist tradition. During the 19th century, there was a renewed enthusiasm to locate, to reprint and frequently to republish the major sources. In France, for instance, Jacques-Paul Migne published the *Patrologiae Latinae Cursus Completus* (217 vols. in all, 1844-55), and *Patrologiae Graecae Cursus Completus*, (81 vols., 1856-61).[23] In Austria, Eitelberger von Edelberg published the *Quellenschriften für Kunstgeschichte*.

 In the past, scholarly thoroughness was judged on bibliographical references to sources. More references were better than fewer references. The advent of networked computers adds new dimensions to this quest. Theoretically all sources can be digitized. Some of these digital versions will be copies of copies, whereas others will be based on the original painting, manuscript or book. In future, digital versions, which are produced by the holder of the original, could be considered closer to the original than those based on second or third hand copies. Hence a digital image of the Mona Lisa based directly on the original in the Louvre will be taken more seriously than some other surrogate of the same painting. Not just reference to sources but directness of links to sources will become a criterion for scholarship.

Names and Concepts

In the past, names were often a matter of considerable controversy in scholarship, the rhetoric being that once one had determined the correct way of writing a personal or place name then everyone would follow that correct spelling. In some scholarly traditions, e.g. Thieme-Becker, there was a convention that one nonetheless included alternative spellings by way of orientation. Again electronic media allow us to add new dimensions to this tradition. One can choose one familiar version of the name as a standard and then add all the variants as alternative means of reaching this standard. Instead of quibbling about variants once accepts them all as alternative paths to a common goal in the form of a familiar standard name.

This problem of alternatives was even greater with respect to concepts, which are combinations of words rather than words in isolation. Again electronic media allow us to choose a generally accepted version as an adopted standard and then link this to other related, variant terms via a process called mapping. Instead of trying to impose on everyone the use of a single term, different users can continue to use their variants and still arrive at the generally accepted version. To achieve such mapping in a multilingual context is a basic goal of the *Accès Multilingue au Patrimoine* (AMP) Consortium.[24]

Claims

In the past articles were typically about a specific claim: e.g. that painting x was by Rembrandt, by a student, from the school of Rembrandt or not at all by Rembrandt. Or articles provided a static list of all paintings claimed to be by Rembrandt. Occasionally there was a review article, which provided a summary of a number of such claims. But for the most part claims remained static. Over time there were a series of such lists which tended to grow as scholars ascribed ever more paintings to Rembrandt, and then decreased again as critical scholars (cf. the Rembrandt Commission) warned against the excesses of such lists and reduced them to a minimum.

Electronic media allow such lists to be treated dynamically. Instead of isolated static lists one can have a master list that grows and shrinks over time. Such a dynamic list permits a more systematic overview of how scholarly research comes to different conclusions in the course of time.

This same principle can be extended to other claims also. For instance, on the question as to who was responsible for the second world war, some claim that it was country A while others claim that it is country B. An electronic system could present dynamically a list of all the extant claims and then show who committed themselves to which view.

Dynamic Time

Traditional media were static not only in their presentation of claims but also with respect to their choice of time frame. One author typically used a Christian chronology (of B.C. and A.D.), another used Hebrew, Arabic, Indian or Chinese Chronology.

Electronic media allow a dynamic approach to time. The Internet already has numerous, isolated, calendar conversion programmes such as Gregorian to Julian,[25] Gregorian to Hebrew,[26] Arabic (Hijri),[27] Chinese[28] or conversely.[29] These could readily be integrated as a basic tool in all computer activities such that if one came a cross a date in a Hebrew or Chinese text, the software could "automatically" provide us with the equivalent time using another calendar.

Dynamic Space and Maps

Traditional print media wee also static in their presentation of spatial knowledge, particularly with respect to maps. Publications typically present a given map of a country

at a given time. Electronic media potentially permit the use of dynamic maps. On the one hand this would permit us to trace, for example, how the map of Poland changes over time, from a small country in c. 1000 A.D. to the largest country in Europe around 1440 A.D. It could also show us how Polish maps of Poland sometimes differ from Russian or German maps of the "same country."

Scope

In the past, one's access to knowledge was limited by the size of one's library or memory institution. Accordingly, in major collections such as the Bibliothèque de la France or the British Libraryone had access to 10-15 million books. Networks of libraries such as the Research Libraries Information Network (RLIN) now include more than 100 million unique titles. Potentially one could have access to the full texts of all these titles. This would greatly increase the scope of sources on which claims are based.

One of the emerging challenges lies in being able to search systematically at different levels of granularity. To search the full texts of over 100 million books for any query would clearly be wasteful and impractical. A layered approach to searching would avoid these problems. Initially one might start at the level of general terms such as those found in a classification system or a thesaurus. This list would provide one with categories. Other levels would define and explain these categories as in dictionaries and encyclopaedias). A further level would give access to titles. A level beyond this would provide abstracts, while a further level would provide full-text. While these levels are conceptually hierarchical in nature, one is not forced to descend in a strict order: i.e one can go directly from terms to titles, or directly from titles to full texts if one so chooses. This approach leads to a concept of virtual reference rooms.

6. **European Approach to Intellectual Property**

The European tradition, especially in France, has long fostered an idea of public good:[30] the idea that knowledge and cultural resources made possible through taxpayers' monies should be available free of charge to citizens. Europe has also been the innovator and champion of copyright methods. In the 19th century Europe developed a complex approach to copyright and it was the United States that championed pirated versions. This makes it all the more remarkable to find the United States now posturing as an absolute defender of copyright, as if it were an either/or question.

Few would disagree that a book, film or other intellectual product should have a copyright. Plagiarism is not to be condoned. Perhaps the real question lies in deciding what the reasonable limits of copyright: Should copyright extend beyond intellectual products to ideas, concepts, themes, images, images of actions and even possible actions of a person?

If one is tempted to say yes to such questions, it is instructive to remember the experience of history. Had there been a copyright on the title of the *Annunciation* or the themes of

the *Bible* and the Greco-Roman classics there could not have been a Renaissance. Similarly had there been a copyright on the name, Christ, Virgin Mary, Zeus, Venus, or any other figure from Biblical or classical literature, there would have been no Renaissance with respect to art, literature and culture. Indeed there would effectively have been no basis for a history of art in the West.

Similarly, if there were copyrights on the names of modern film stars such as Marilyn Monroe, artists such as Andy Warhol and others would not have created many of the icons of modern art. Had there been copyrights on the all the characters of films, Disney could not have made its classics of *Sleeping Beauty* or *Snow White*.[31]

The secret of creative success in Western literature was a simple principle. Direct, full copies of books or paintings or other cultural objects required special permission, contractual or financial agreements. Citations, references, quotes, allusions to ideas, concepts, persons, themes in these books, paintings or other objects of culture required no copyright or other contractual agreements although, by way of courtesy, some reference to the source, especially in scholarly and other literature was customary.

Interestingly enough in newer media such as recorded music, video, film, and television there is much discussion and rhetoric about the problems of pirating full copies, but little has been done qua software to enable creative persons to make the visual, aural, multi-medial or multi-modal equivalents of quotes and references. Perhaps this is one of the great challenges of the next decades. It may even prove to be the case that once persons are able to make such quotations freely, the problem of paying regularly for complete copies might resolve itself.

7. New Global Models of Culture

When Abbott Suger at Saint Denis launched his translation campaign of books from Arabic and Greek into Latin (c. 1142 A.D.), one of his initial motives was to translate the *Koran* in order that he could understand thoroughly the religion to which his Church was opposed at the time. This quest to understand the other, even the perceived "enemy" on their own terms is another of the distinguishing characteristics of the European tradition.

In the Renaissance, this led to the study of ancient languages such as Chaldean, Assyrian, and Aramaic. From the 15th century onwards European missionaries, especially Jesuits studied "native" and "aboriginal" languages all around the world.[32] This fervour for genuine understanding of other cultures led to the deciphering of the Rosetta Stone that unlocked the secrets of Egyptian Hieroglyphics and to the systematic study of so many of the world's 6,800 languages.[33] It led also to the fields of religion, philosophy, linguistics, archaeology, anthropology, ethnology, ethnography, sociology and their comparative equivalents.

When these studies flowered in the nineteenth century, they often began from an assumption that the Western models of culture and civilization could serve as a model for the entire world. Only gradually, as monumental projects such as Max Mueller's *Sacred*

Books of the East Only (50 volumes 1879-1910)[34] or later, Joseph Needham's *Science and Civilization in Ancient China* (25+ volumes 1954-)[35] evolved, did it become obvious that traditional models from the West could not serve as a standard for all cultures around the globe.

European civilization and Western culture in general is inextricably linked with both written and printed cultures. Many oral societies, especially nomadic peoples[36] are not bound by these conditions. Some cultures such as Tibet and Nepal have traditionally been closed to outsiders and as such cannot be compared easily with other cultures where an open attitude with respect to "foreigners" has been the case for centuries or even millennia – e.g. the Lycians in Southern Turkey.

Needed therefore are new models for comparative culture and civilization which at once acknowledge these differences and at the same time allow us to appreciate the enormous range of intangible and tangible cultures. The changes that Havelock traced in moving from oral to written culture and which McLuhan signaled in moving from hand-written to printed culture need to be extended to include the whole range from pre-literate oral societies, though literate print culture to new forms of literate and post-literate culture in multi-medial and multi-modal environments.

8. Distributed European Electronic Resource (DEER) in a Grid for Culture

To meet these new challenges of scholarship and to provide a context for these new models of culture much more is required than yet another attempt to collect all the documents and materials of interest in a single building or monumental complex in the tradition of the Library of Alexandria. Needed, rather, is:

> a unifying mechanism for European networked cultural content, with the long-term ambition of eventually embracing the whole digital cultural memory of Europe. The DEER will serve the function of facilitating access to our entire rich and varied cultural heritage, in the context of our multilingual and multicultural information environment.[37]
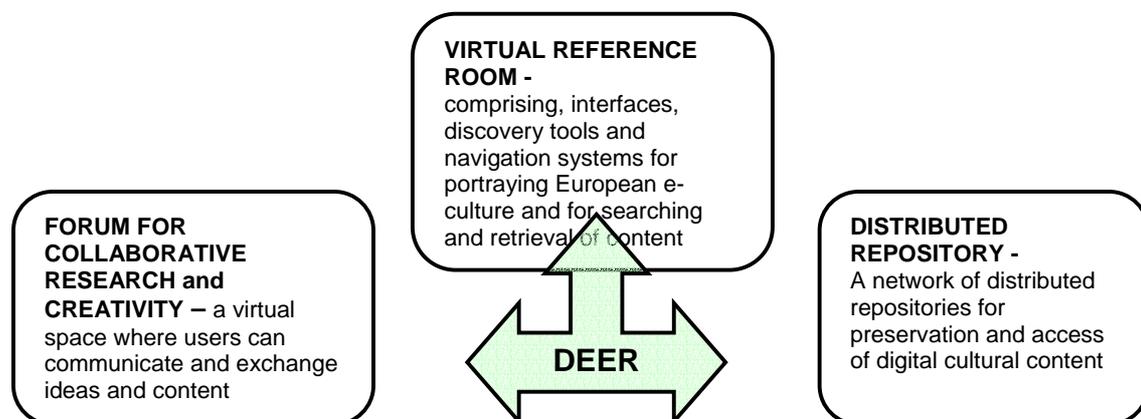
VIRTUAL REFERENCE ROOM - comprising, interfaces, discovery tools and navigation systems for portraying European e-culture and for searching and retrieval of content

FORUM FOR COLLABORATIVE RESEARCH and CREATIVITY – a virtual space where users can communicate and exchange ideas and content

DEER

DISTRIBUTED REPOSITORY - A network of distributed repositories for preservation and access of digital cultural content

Figure 2. Main elements of the initial DEER.[38]

This Distributed Electronic European Resource (DEER) will have thee basic ingredients: 1) a Distributed Repository/repositories spread out among European institutions will contain digital databases; 2) a Virtual Reference Room as outlined above will provide multi-dimensional access to these repositories and 3) a Forum for Collaborative Research and Creativity, which will serve as a virtual agora (figure 2).

9. **Conclusions.**

The Internet is growing with remarkable speed. Whereas it took earlier media decades to arrive at the first 50 million users, it took the World Wide Web less than a decade to reach the first 50 million users and it has grown to more than ten times that amount in the past 5 years.

The Internet's potential as an instrument for financial transactions has rightly been recognized and will clearly continue to develop. A decade ago it could have seemed as if this would remain largely an enterprise dominated by the English language. Today it is clear that English will take its rightful place as one of many languages on the world scene.

This paper has explored another dimension of the evolving Internet, namely, its potentials for sharing knowledge in order to arrive at new definitions of culture and new forms of knowledge. While many still regard the Internet mainly as a digital version of existing knowledge, the new media offer much more than the same in a new form. They entail a shift from static to dynamic forms of knowledge. They entail a shift from linear to multidimensional presentations of knowledge. They offer new ways of approaching knowledge, which allow us to take into account multi-lingual, multi-cultural and historical dimensions.

These new forms of knowledge allow a new integration of knowledge at local, regional and national levels and as such bring into a new light the wealth of Europe's heritage. Hence, these new forms of knowledge are central to Europe's ambitions to create a knowledge society. They have obvious economic implications for tourism and many service industries. They have profound implications for e-learning and offer new approaches to e-identity in an expanding Europe. The goal of creating a Distributed European Electronic dynamic Resource (DEER), can this lead in the long term to a World-wide ON-line Distributed Electronic Resource (WONDER).

Notes

[1] See: http://www.glreach.com/globstats/

[2] See: http://www.tours.com/travelstats.php

[3] See: http://www.glreach.com/globstats/

[4] See: http://glreach.com/eng/ed/art/2004.ecommerce.php3

[5] The Internet officially began with funding from DARPA and its next phase as an Interspace is again being planned by DARPA.
  See: http://dli.grainger.uiuc.edu/talks_papers/AAAS.HTM.
  Cf.: http://www.canis.uiuc.edu/projects/interspace/index.html

[6] See: http://www.ipnsig.org/

[7] See: http://www.utoronto.ca/isrn/MillsBrail_Diagrams.pdf

[8] See: http://www.cnytdo.org/ceosyracuse.ppt, Slide 35

[9] See: http://www.imagequestdesign.com/facts01.asp These figures vary. A survey based on NUA claims that the figures are: Radio 38, Television 14, Internet 4.
  Cf. http://www.utoronto.ca/isrn/MillsBrail_Diagrams.pdf

[10]   See: http://www.wkforum.org/wkf_eng/wkf_eng_forum/meeting/2001/10/15/custom_310_8405_Bloomberg-e.doc

[11] See: http://www.wirelessweek.com/index.asp?layout=article&articleid=CA4830:
  "CTIA said it has taken just 14 years to hit this subscriber hallmark; the first wireless phones went into service Oct. 13, 1983. In comparison, it took 24 years for television to reach 50 million households, 39 years for radio and 77 years for landline phones, CTIA said."

[12] See: http://icom.museum/vlmp/

[13] See: www.louvre.fr/louvrea.htm -
  Cf. http://www.rbjones.com/rbjpub/philos/classics/class001.htm

[14] Eric M. Hoffert, Miller, G., Chen E.S., Patterson, E., Blackketter, D., Rubin, S., Applin, S., et. al., "The Virtual Museum", *Proceedings of the Imagina '92 Conference (Monte Carlo, France)* February 1992.
  See: http://versatility-inc.com/EMHBackground.html

[15] See: www.malraux2001.culture.fr/ -
  Cf. http://www.culturel.org/DOSSIERS/MALRAUX/pages/musee.html

[16] See: http://sysrep.uiah.fi/projects/map_mexico/report_digital_facsimile. Cf.

[17] See: http://www.informatik.uni-trier.de/~ley/db/indices/a-tree/m/Makkuni:Ranjit.html

[18] See: http://www.ignca.nic.in/gita.htm

[19] See: http://www.crossingproject.net/project/research.htm

[20] See: http://www.eculturenet.org/FP5/publicPDF/deliverable8.pdf

[21] See: http://www.msh-paris.fr/les_sites/liste_msh.htm

[22] See: the author's: Four Ways that Digital Communications are Transforming Scholarship: *Sources, Names, Claims and Scope*, Unpublished Paper, Maastricht, 2002.

[23] See: http://www.newadvent.org/cathen/10290a.htm:
  o *Patrologiae Latinae Cursus Completus*, in two series (217 vols. in all, 1844-55), with four volumes of indexes (vols. 218-221, 1862-64), and
  o *Patrologiae Graecae Cursus Completus*, of which one series contains only Latin translations of the originals (81 vols., 1856-61). The second series contains the Greek text with a Latin translation (166 vols., 1857-66). To

the Greek Patrology there was no index, but a Greek, D. Scholarios, added a list of the authors and subjects, (Athens, 1879) and began a complete table of contents (Athens, 1883).

[24] See: http://www.culture.gouv.fr/culture/mrt/numerisation/fr/f_01.htm#Autres

[25] See: http://www.rosettacalendar.com/

[26] See: http://www.jewishgen.org/jos/josdates.htm

[27] See: http://www.rabiah.com/convert/

[28] See: http://umunhum.stanford.edu/~lee/chicomp/lunar.html

[29] Cf. other sites with respect to ancient Egypt.
  See: http://www.abbottfamily.clara.co.uk/chronoapplet.htm
Chinese   calendars.   See: http://webexhibits.org/calendars/calendar-chinese.html#SECTION00910000000000000000
  Cf. Julian to Gregorian.
  See: http://www.vpcalendar.net/
Mayan to Julian and Gregorian:
See: http://www.mayabelize.ca/maya/longcountgenerator.shtml

[30] For a discussion of public domain in the United States see: http://eldred.cc/

[31] This is a theme that has been explored at length from a legal perspective by Lawrence Lessig. See: http://www.lessig.org/blog/. Cf. http://randomfoo.net/oscon/2002/lessig/

[32] Cf, for instance, Albertine Gaur, "European Missionaries and the Study of Dravidian Languages," INTAMM, 1997. See: http://www.intamm.com/linguistics/europe.htm

[33] See: http://www.ethnologue.com/ethno_docs/distribution.asp
  Cf. http://www.rosettaproject.org/

[34] See: http://www.sacred-texts.com/sbe/

[35] See: http://www2.soas.ac.uk/Needham/SCC

[36] See: http://www.unesco.org/culture/dialogue/eastwest/html_eng/iisnc.shtml.
  Cf. http://users.ox.ac.uk/%7Ecnpc/

[37] Suzanne Keene, Francesca Monti, "The DEER. Final Report," *E-Culture Net, 2003, p.12*. See: http://www.eculturenet.org/FP5/publicPDF/deliverable11a.pdf.

[38] Ibid.