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European Networks of Excellence and Global Digital Culture

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Abstract

A European Network of Centres of Excellence in Digital Cultural Heritage, Euro E-CultureNet, has been formed.¹ It will be funded by the European Commission as a Thematic Network for one year beginning in June 2002 with a view to becoming a full-fledged Network of Centres of Excellence within the Sixth Framework Programme. This paper provides a brief outline of the goals of the network and focusses on a larger challenge: the need for a new framework for global digital culture. It is in this context that Europe seeks co-operation with China.

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1. Introduction

E-CultureNet arose out of the Memorandum of Understanding (MOU) for Multimedia Access to Europe's Cultural Heritage in parallel with the G7's pilot project 5: Multimedia Access to World Cultural Heritage.² It began as an informal consortium of the Universities of Bologna, Madrid, Maastricht, Vienna and the Scuola Normale (Pisa).³ At this stage, the consortium consists of 6 European Networks, and 24 members, which include important memory institutions (e.g. British Library, Centre Georges Pompidou), leading universities (e.g. Bologna, Madrid, Oxford, Vienna), the national supercomputing facilities of Italy and Spain and a number of leading research institutes. The Euro E-CultureNet has links with two international networks (namely the Canadian Heritage Information Network (CHIN) and the Asian Network of Excellence in Digital Silk Roads⁴ (led by the National Institute of Informatics, Tokyo, in conjunction with UNESCO). It is hoped that links with China can also be established.

The idea of linking work of cultural institutions is not new. For instance, the Research Laboratory of the Museums of France (LRMF) was founded in 1931. It was a human network before the Internet. The Canadian Heritage Information Network (CHIN) was founded in 1972. Experiments in linking digital content from different museums began seriously during the 1990s.⁵

2. Goals of E-Culture Net

Euro E-CultureNet goes further than these earlier networks in five respects:

1) It aims to achieve a coherent approach to research and to teaching programmes in digital culture at the Masters and Doctoral level. These are essential in order to create a methodological basis for the new field, which can help with scientific guidance and monitoring; to propose research programmes; promote e-learning; to inspire e-creativity, and to help achieve an European Research Area (ERA) in this field.

2) In order to achieve the above, the network aims at new connectivities between content (memory institutions), context (language: i.e. terminology, multilingualism, metadata, semantic web, annotation and editing) and communication (e-learning, interfaces, agents, interactive and mobile technologies). By gradually integrating emerging national networks into the Network of Centres of Excellence the consortium aims to achieve new combinations of memory institutions, universities/ research centres and industry at a European level. In these new combinations lie new potentials for research.

3) The Network aims to provide a big picture and guidelines with respect to both established fields such as tourism and e-publishing and to establish new paradigms for e-work and e-business, which are then carried out by national networks and adopted in turn by regional and local projects. Implicit here is a new integration of knowledge at local, regional, national and international levels which ensures that multi-cultural, multi-lingual and historical dimensions are maintained and developed.

4) It aims to use broadband to create a grid for culture similar to that in high-energy physics.

5) While based in Europe, the vision of the new network is international.

3. Technological Developments

The past decade has seen numerous developments with respect to digital culture.⁶ A decade ago there were only a handful of museums on-line. Today the International Committee of Museums (ICOM) lists over 3000 sites in Italy alone.⁷ The quest for virtual or digital museums has expanded to include virtual memory institutions (museums, libraries and archives).⁸

The quest for virtual museums has also expanded far beyond physical buildings with cultural artifacts to include historical sites, cities and even cultural landscapes. Europe has projects dedicated to Cultural landscapes.⁹ Canada has examples with its Aboriginal natives.¹⁰ China has impressive examples in the Yellow Mountains.¹¹ Projects such as NUME (Nuovo Museo Elettronico)¹² and SANTI (Sistema Avanzado de navegacion sobre Terrenos Interactivo) are linking satellite images, Geographical Information Systems (GIS and potentially GPS) with Computer Aided Design (CAD) reconstructions

of individual buildings such that one can zoom from a view in space to a specific monument or building on earth, enter the building and then walk around in them.

Our ideas of what is possible have also changed radically. The Library of Congress is now scanning pages of the Gutenberg Bible at 757 MB per image leading to a file of nearly half a terabyte for a single book. At the Uffizi in Florence, paintings are being scanned at a level of 1.4 Gigabytes per square meter. In Japan, there are high-level images of 5-7 gigabytes for a single painting. Meanwhile, reconstructions, which were typically 10-100 MB a decade ago, now range from 100s of MBs to 5 terabytes in size.

Five years ago, the on-line sites of museums such as the Uffizi, the Louvre and the National Gallery (London) represented the state of the art with respect to what was technically possible. Today this is no longer the case. There is an enormous divide between what we typically see in museum and library sites and what is technologically possible. In the sciences there are now computational grids with gigabyte connections and terabyte connections in the making. A similar cultural grid is necessary if we are to share the high level images and reconstructions which already exist and which are increasing in size and scope daily.

Multimedia became one of the buzzwords of the 1990s. Some claim that this buzzword should now be replaced by Information and Communication Technologies (ICT). In any case it is important to recognize that we have only begun to understand and utilize the technological potentials of digital media.

As the late Marshall McLuhan pointed out, analogue media had the characteristic that each new medium tended to use the prior medium as its content. Hence the telegraph used printing as its content. Printing used writing as its content. Writing used speech as its content and speech used thought as its content. Analogue media also had the characteristic that each medium tended to replace the earlier medium. Hence the advent of printing radically reduced and threatened to render extinct the manuscript tradition.

Once information and knowledge are recorded in digital form, they can be translated at will into another medium and used with another sense organ. For instance, a digital document can be printed as printed book, as a manuscript, or (using stereo-lithography) in cuneiform. Alternatively, it can be printed in Braille for the blind, or read aloud for the illiterate. Technically an illiterate person could record their knowledge both through a verbal recorder and via video to record their gestures. Once in digital form this knowledge from an illiterate person could both be shared with other illiterate persons elsewhere and become part of a literate database of cultural heritage in its widest sense.

It has become fashionable to speak of a digital divide. Paradoxically, the digital revolution is the first technology to include all five senses (sight, sound, touch, smell and taste¹³) and as such is the first technology, which potentially bridges the enormous divide created by literacy.

The makers of Simputer have recognized this, noting that it: “has a special role in the third world because it ensures that illiteracy is no longer a barrier to handling a computer.”¹⁴ Even so it will probably take a few generations before we have begun to appreciate the full potentials of these advances with respect to introducing a more comprehensive vision of humanity, whereby the enormous “invisible” wisdom of the illiterate becomes part of our knowledge bases and recognized as a significant dimension of our cultural heritage.

Traditional notions of heritage were fixated on the physical objects collected in museums. The new technologies allow us to explore, record and understand processes of interaction among persons, even nomads, what they do and say, rather than just what they make and leave behind.

4. Changes in Method

We have noted that the new technologies introduce new possibilities with respect to nomadic peoples and even for illiterate persons. In the West, the past centuries have also introduced many changes in our approaches to more traditional notions of culture and heritage.

The latter nineteenth century, particularly through the Austrian and German schools, saw a fascination with the importance of and a return to sources (*ad fontes*). In art history, this began with reprints of major sources (*Quellenschriften für Kunstgeschichte*, ed. by Rudolf Eitelberger von Edelberg) and culminated in the early twentieth century with Julius von Schlosser’s monumental *Artistic Literature (Die Kunstliteratur)*, which provided a first serious survey of all the theoretical literature on art: from anatomy and pattern drawing books¹⁵ through perspective treatises.

Von Schlosser’s student Otto Kurz produced a new edition of his teacher’s book but did not expand its scope dramatically. Von Schlosser’s other student, Sir Ernst Gombrich, abandoned the strictures of bibliographical lists and chose instead to focus on problems of interpretation. One of his great contributions lay in making it clear that the history of art could not be reduced to a single goal and that one needed to consider a series of goals of art: e.g. magical aspects (in what used to be called primitive art); pattern or ornament; illusion; narrative, and symbolism.¹⁶

The latter twentieth century went further with their questioning. The advent of printing in the Renaissance led gradually to the notion of a corpus or canon of books, which were known by an educated person. The rise of nationalism during the nineteenth century further defined this canon and typically linked it with one’s country and native language. Hence an educated German read their Goethe and Schiller, an educated French person read their Rabelais, Montaigne, Molière and Voltaire. An Englishman knew their Chaucer, Shakespeare and Pope.¹⁷ China had its own equivalents especially with the Confucian tradition.

Through monumental efforts such as Mueller's *Sacred Books of the East*, the same nineteenth century introduced Europe to different belief systems and great literature from other cultures (China, Japan, India). By the latter twentieth century the evidence from these other cultures had become overwhelming. Claims for a single corpus crumbled. UNESCO has pointed towards a more global vision in its important history of humanity.¹⁸

The twentieth century brought into focus not only questions about which sources to read, but also new questions as to how sources should be, can be read. In the early twentieth century, the rise of the new criticism and close reading seemed to offer a solution.¹⁹ But the subsequent rise of structuralists, post-structuralists, modernists, post-modernists, constructivists and de-constructivists threw havoc into this hope.²⁰ By the end of the twentieth century, there was no longer any simple agreement in the West about either a closely defined corpus or how a text within such a corpus should/could be read. There have also been changes in China.²¹

It would be an exaggeration, however, to conclude that this led only to a complete relativism. Amidst the confusion, there was new attention to sources. In the West, the greatest efforts of the nineteenth century such as the corpora of all Greek and Latin texts (the *Patrologia Graecae* and *Patrologia Latinae*), and all the *Records of Early English Drama* (the REED project) were translated into digital form. In the East, a similar feat occurred in the case of the *Tripitika*.²² In addition to such sources an important number of great reference works also appeared in digital form including the *Oxford English Dictionary* and the *Dictionary of Old English*. The vision of a virtual reference emerged.²³

In printed books, footnotes had provided a way of referring to one's sources. The introduction of networked computers brought the notion of hypertext. This provided new means of linking one's claims about sources with the sources under discussion. Hence, if the twentieth century removed certainty about which sources to use and how to interpret them, it also provided new means of linking one's reading (interpretation) with one's sources thus pointing away from complete uncertainty back to a contextualization, whereby other's could check for themselves one's claims against the evidence of the sources.

It may be a world where any fool can make any link they want. But once the linking process has reached a certain maturity, even everyman should be able to discern quickly the difference between the wise links of a serious scholar and the idle links of a fool and if not there will be experts to help him.

5. Needs for a New Global Vision

Authors such as Barber believe that globalization will necessarily lead to a tension between jihad (bloody regionalism) and McWorld (bloodless global interests).²⁴ This overlooks a number of positive insights which global awareness has brought. For instance, instead of assuming that there is one global answer, we are recognizing the

importance of distinguishing between international, national, regional and local definitions with respect to culture.

In the process of discovering more local differences we are also finding unexpected connections. For example, persons in Canada and Australia have recognized parallels in their treatment of aboriginals and this awareness has led to a much greater appreciation of native peoples in both countries.

In the past, there was a rather simplistic notion that high civilization produced great monuments and thus the built environment was frequently seen as a measure of civilization. Globalism is making us aware of unexpected connections: parallels between pagodas in Nepal, China and Japan. Globalism is also making us aware that structures once assumed to be unique: e.g. the pyramids of Egypt have related structures all around the world: in Nubia, Sardinia, Sicily, Terneriffe, Guatemala, Mexico, Peru, Iran South East Asia and even the coast of Japan. These structures were all linked with an advanced knowledge of astronomy and may well have been linked with the origins of the alphabet.²⁵

All over the world we are also discovering planned cities, which often had complex geometrical patterns and symbolism. What once seemed isolated efforts appear to belong to a larger collective consciousness.²⁶

The work of UNESCO has helped us to appreciate that, in addition to the built environment, it is important to understand the role of tangible heritage (what persons make in the form of pottery, baskets etc.) and the role of intangible heritage (what persons do (with respect to language, music, song, dance, writing etc.)).

This has led us to discover many unexpected values of everyday life (cooking, drinking, customs, rituals), of folk tradition, even among cultures which are illiterate. These cultures no longer have the negative connotations of low culture.

At the same time this approach is leading us to appreciate at a new level, dimensions whereby literate cultures have a complexity that sets them apart, and whereby the notion of high culture cannot simply be swept aside. In the West, for instance, even if the notion of a canon is under fire, there were a handful of great books notably, Homer's *Iliad*, Virgil's *Odyssey*, the *Bible*, the Dante's *Inferno* and the legends of *Alexander* and *Arthur*, which functioned as much more than simple texts. They inspired the Ancient and Mediaeval equivalents of multimedia, inspiring songs, ballads, poetry, plays, operas, ballets, visual narratives in the form of drawings, manuscript illustrations, frescoes, paintings, water-colours, indeed just about every artistic expression which exists.

One of the interesting consequences of globalism has been to make us aware that this process is not limited to the West. In the high culture of China there are also great religious texts such as the Buddhist *Scriptures* and great literature such as *The Tale of Three Kingdoms*. In India, there are the *Mahabharata* and the *Ramayana*. In Japan there is the *Tale of Gengi*. As in the West, these works functioned as much more than texts.

Built Environment	1. Making Buildings
Tangible	2. Making Artefacts and Art
Intangible	3. Doing (Eating, Drinking) 4. Expressing Written Beliefs in Different Media 5. Translating Among Media 6. Publishing Among Media with Tolerance 7. Sharing 8. Helping

Figure 1. Eight levels of culture.

They served as sources for a whole gamut of artistic expressions. Hence one of the measures of a great culture lies not only in its producing great texts, but in the capacity of these texts to inspire expressions in a whole range of arts.

When we examine these effects more closely we discover also differences between East and West. The Eastern texts tend to inspire expressions in the dynamic, performance arts (theatre, dance, puppets) whereas the Western texts inspire expressions in the static, fine arts (especially painting and sculpture). Even so, richness of expression remains a universal measure of high culture (cf. level 5 in figure 1).

Some cultures built amazing structures under great force and violence, and then disappeared for no clear reason. The examples of the Khmers in Angkor Wat and the Aztecs in Mexico come to mind. Thus a more subtle criterion for high culture becomes not just great physical achievements and richly varied expressions of the spirit, but also an atmosphere of tolerance whereby one's beliefs are maintained and spread to others.

Most of the greatest cultures have an ambivalent history in this context. One of the secrets of Europe has been its openness to study all the cultures of the world. And yet the same Europe has had its dark hours of closed-minded dictatorship. Similarly China has had periods when it was intolerant of others, as when it built the Great Wall.

Yet at other times its greatness lay in an ability to be open to beliefs, inventions and ideas from abroad. It was via China that the Korean idea of printing reached the West. Already in Antiquity the Chinese were trading with the Romans, whom they called the little people.²⁷ And as the late Professor Joseph Needham has made us aware in his *Science and Civilization in Ancient China*, the West learned an enormous amount from China. China's openness to Marco Polo brought it Western technology, and that same openness brought the West many new wonders.

Hence, where once there was a notion of culture as something monolithic, which pretended that man is what he builds, we are quietly moving towards a recognition that culture has at least eight layers, a new eightfold path, and an insight that the more intangible aspects are quintessential to understanding the spiritual dimensions of high culture (figure 1). We could even argue that the greatest cultures of the world have been those who shared most and helped others most.

A recognition that sharing is an essential dimension of culture might lead us to look at tourism in new ways. In any case, it means that not only monuments are important, but also the routes which link them. For instance, in the latter Middle Ages in the West it was the pilgrimage routes which linked towns such as Vézalay in France with Santiago da Compostella in Spain, which served to spread first the Romanesque and later the Gothic styles of architecture.

In the East, pilgrim scholars brought the insights of Buddha, born in Nepal and made famous in India to China, Korea, Japan and all over the Far East. In the East to this day the great pilgrimage routes that take the faithful to holy sites in China, Tibet, Japan and elsewhere remain important sources of cultural understanding and inspiration.

It was Aristotle's travelling student, Alexander the Great, who created routes between East and West. These became the great Silk and Spice routes. It was along these routes that the Magi travelled to bring (frank-)incense as one of their gifts to Christ. It was also along these routes that the *Tale of Balaams' Ass* made its way from its Sanskrit roots in India to the pages of Chaucer's *Canterbury Tales*, themselves written underway to another of the four pilgrimage sites of the Latin West.

In Western philosophy, Ernst Cassirer drew attention to a gradual shift from substance (attention to the quiddity of objects) to function (attention to their relations).²⁸ In a sense, Western culture is making a parallel discovery: a shift from attention to the substance of the built environment, to study of functions, relations among objects, relations between objects and the spiritual ideas which inspired them. The *I Ching* recognized this long ago:

When men are to be gathered together, religious forces are needed...Only collective moral force can unite the world. Such great times of unification will leave great achievements behind them. This is the significance of the great offerings that are made. In the secular sphere likewise there is need of great deeds in the time of gathering together.²⁹

Thanks to the initiatives of UNESCO there has been considerable study of the Silk and Spice routes during the past decade. There are plans to create electronic, digital equivalents of these silk routes, these routes whereby the great cultures of the world shared their trade, their ideas, beliefs, inventions and inspirations. It was along these routes that East met West in spite of Kipling's doubts.

If we share knowledge there is much we can learn. There are obvious examples of influence in both directions. The waves of Hokusai inspired the waves on the front cover of Debussy's *La Mer*. Dutch Blue and White pottery had an impact on Chinese porcelain. Chinoiserie had an enormous impact on Europe. Jesuit gardens influenced China, Chinese gardens had a great influence in the West particularly in Britain. Unless we compare notes we shall never understand how closely intertwined are our traditions.

There is a more elusive challenge. European histories of culture have been largely Euro-Centric. Chinese histories of culture have been largely Asian Centric. Europe may have an important past but it represents less than 5% of the world's population. China is very important but even China represents just over 10% of the world's population.

We need to work together to develop new models of culture, which duly reflect the great contributions of all the world's cultures. We need an approach that makes evident the synchronicity between the building of the Altar of Heaven in Beijing, the Alhambra in Spain, and the Italian Renaissance in Florence, Venice and elsewhere.

We need a new model which helps us to understand how/why the West creates a subject-object distinction and uses art create aesthetic distance, to separate man from nature; while the East uses art to unite man with nature and while the Orthodox tradition of Greece and Russia uses art to link man and nature. Only through a comparison of traditions can we understand how great cultures do some things so differently. Only through understanding can we learn to be tolerant and only through tolerance will we achieve a higher level of culture whereby a future generation will judge how much we have achieved. Physical networks are useless if they do not lead to more lasting metaphysical bonds.

For this reason the European E-Culture Net is already working with the Asian Network of Excellence in digital Silk Roads and for this reason we are particularly interested in working together with China, one of the oldest and deepest cultures of the world.

6. Conclusions

The new technologies are bringing several fundamental developments to the realm of culture. First, they have helped us to expand our vision beyond the built environment and material aspects of culture traditionally found in museums to include cultural landscapes, and to appreciate the importance of both tangible and intangible culture.

Second, in so doing they have helped us to appreciate nomadic cultures and cultures which are pre-literate, which do not have enormous collections of material objects and yet have great dignity and worth in their own right. As such they are teaching us to appreciate in new ways those who would have been dismissed in an earlier age as primitive cultures.

Third, they are teaching us to understand in new ways the characteristics of what have traditionally been called high cultures. These have literacy and cultural expressions. What sets them apart, however, is that their literacy increases the range and depth of their cultural expressions, the extent to which they establish tolerance for other cultures, and their amount of sharing and helping. We suggested that herein lies a new kind of eightfold path (figure 1).

Fourth, as a result, they are leading us, to look to the trade routes and pilgrimage routes whereby persons shared objects and ideas, sometimes for economic reasons, sometimes

for spiritual gain and sometimes for tourism (which at its best is a kind of secular expansion of the spirit). At the outset it was assumed that computers would link physical museums. This expanded to include memory institutions (museums, libraries and archives). In the meantime, we are discovering that our networks should expand to include not just institutions but all the routes, which linked them in the past. Hence, the old physical trade and pilgrimage routes will soon have their electronic equivalents via Internet.

Fifth, these new networks are confronting us with the limitations of our traditional world-views. If we follow the temptation to assume that all things which are different are somehow linked with danger, with an enemy, as do some recent nations, then we shall imagine terrorism everywhere, and are hardly likely to develop tolerance, which is one of the hallmarks of advanced civilization.

So there is a new challenge for the old cultures of the world such as China and Europe to work together in developing new models, which go beyond a simple Euro-Centric or Asian-Centric paradigm. We need to work together in arriving at a vision of global digital culture, which goes beyond a uni-lingual information highway, and takes us ever further in the direction of a multi-lingual and multi-cultural knowledge society.³⁰ For this reason we hope that the Euro E-Culture Net which is already linked with the Asian Network of Excellence in Digital Silk Roads can work with China in creating a new World E-Culture Network. This challenge is much more than a diplomatic gesture: in its success may lie the future of a civilized world.

Notes

1. See: http://www.mmi.unimaas.nl/digital/cent_index.html

² Cf. The author's : "World Access to Cultural Heritage: An Integrating Strategy", *Acts of Congress: Beni Culturali. Reti Multimedialità*, Milan: Politecnico di Milano, 1999, pp. 69-80.

³For earlier discussions of the network see: "European Network of Centres of Excellence in Digital Cultural Heritage and ICT," *EVA '99 Moscow, Proceedings. New Information Technologies in the Cultural Area in the New Millenium*, Moscow: Centre PIC, 1999, pp. 10~3~1-3; "A (European) Network of Centres of Excellence for Augmented Digital Culture," *CULTH2: Die Zukunft des Digitalen Kulturellen Erbes, The Future of Digitized Cultural Heritage*, Vienna: MUMOK, Museum Moderner Kunst Stiftung Ludwig Wien, 2002, pp. 43-47.

⁴ Cf. the author's "European Networks of Excellence and Japanese/UNESCO Silk Roads," *Tokyo Symposium for Digital Silk Roads, UNESCO, National Institute of Informatics, National Center of Sciences, Tokyo, 11-13 December, 2001*, Tokyo: National Institute for Informatics, 2002 (in press).

There are further links with UNESCO through the Italian Virtual Heritage Network, which is maintained by one of our members.

See: http://www.mediadigitali.polimi.it/VH_network/.

5 E.g. RAMA, AQUARELLE, MENHIR).

6 For two recent surveys of developments see:

L'avenir de musées, Actes du colloque organisé au musée du Louvre par le service culturel les 23, 24,

25 mars 2000, ed. Jean Galard, Paris: Réunion des Musées Nationaux, 2001; *Museo Contro Museo. Le strategie, gli strumenti, i risultati*, ed. Pietro A. Valentino, Gianfranco Mossetto, Florence: Giunti, 2001.

⁷ See: <http://vlmp.museophile.com/>

⁸ Cf. "Challenges of Virtual and Digital Culture," *Congreso Internacional Culturtec 2002, III European Conference: Employment and Cultural Heritage, Economic Development and New Technologies in the Information and Knowledge Society*, Madrid: Universidad Complutense de Madrid, 2002, pp. 1-10 (in press).

⁹ See: <http://www.pcl-eu.de/indexen.php>

Cf. *Kulturlandschaft. Das begehbbare Buch Österreichs*, Hrsg. Austria Nostra, ed. Arthur Speigler, Klosterneuburg-Wien: Mayer & Comp., 1995.

¹⁰ See: http://parkscanada.pch.gc.ca/aborig/aborig12_e.htm;

Cf. http://parkscanada.pch.gc.ca/aborig/page11L_e.htm

¹¹ See: <http://www.chinavista.com/travel/huangshang/whitecloud.html>

¹² See: <http://www.cineca.it/nume/>

¹³ There are new technologies such as Digiscent for smell and Trisenx for taste.

¹⁴ See: <http://www.simputer.org/>

¹⁵ In the West we are aware of isolated examples of such works in the East such as Mai mai Sze, *The Way of Chinese Painting*, New York: Vintage Books, 1959, but we have no real survey of the theoretical literature of art in the East.

¹⁶ Cf. The author's: "A New Classification for Art," *Die Klassifikation und ihr Umfeld. Proceedings 10. Jahrestagung der Gesellschaft für Klassifikation eV*, eds. P. O. Degens et al., (Frankfurt: Indeks Verlag, 1986), pp.77-84, (Studien sur Klassifikation).

¹⁷ "Goals of Culture and Art," Lecture to the IIC, Kuala Lumpur, September 1999.

See: <http://www.mmi.unimaas.nl> also on the site of the International Institute of Communications, (<http://www.iicom.org>). Published electronically in *TRANS. Internet-Zeitschrift für Kulturwissenschaften*, vol. 1, Vienna.

See: <http://www.adis.at/arlt/institut/trans/ONr/veltman1.htm>.

¹⁷ Cf. Terry Eagleton, *The Ideology of the Aesthetic*, Oxford: Blackwell, 1990.

¹⁸ See: <http://www.unesco.org/culture/history/>

¹⁹ E.g. I.A. Richards, *Principles of Literary Criticism*, London: Routledge and Kegan Paul, 1927; William Empson, *Seven Types of Ambiguity*, London, 1930. Reprint: Harmondsworth: Penguin, 1961.

Cf. <http://www.english.cam.ac.uk/vclass/pracrit.htm>

²⁰ Christopher Norris, *The Truth about Postmodernism*, Oxford: Blackwell, 1993.

²¹ It is instructive to look back on Charles S. Gardner, *Chinese Traditional Historiography*, Cambridge, Mass.: Harvard University Press, 1961.

²² Cf. <http://www.human.toyogakuen-u.ac.jp/~acmuller/Buddhism-Korean.html#Projects>

²³ Cf. <http://www.mmi.unimaas.nl/underprogramme>.

²⁴ Benjamin R. Barber, *Jihad vs. McWorld*, New York: Times Books, 1995.

²⁵ Jacob Kistemaker, Henk Klomp, *Over de oorsprong van het Alfabet*, Leiden: Brill, 1997.

²⁶ See, for instance, the fascinating work of Alfred Schinz, *Cities in China*, Berlin: Gebrüder Borntraeger, 1989 or „Mass und Zahl im altchinesischen Städtebau,“ *Ordo et Mensura IV-V*, ed. Dieter Ahrens, Rolf C. A. Rottländer, St. Katherine: Scripta Mercaturae Verlag, pp. 136-153.

²⁷ C. P. Fitzgerald, *The Chinese View of their Place in the World*, London: Oxford University Press, 1964 (Chatham House Essays 1).

²⁸ Ernst Cassirer, *Substance and Function*, New York: Dover, 1953.

²⁹ *The I Ching or Book of Changes*, translated Richard Wilhelm, Princeton: Princeton University Press, 1950, p. 175: (45. Ts'ui) (Bollingen Series XIX).

³⁰ These themes are further developed in the author's *Augmented Knowledge and Culture*.