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New Media and Copyright from an International Viewpoint

Protecting and Exploiting Copyright in Multimedia, New Problems...New Solutions, Toronto: The Canadian Institute, 1995, section II, pp. 1-10.

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1. Introduction

Copyright conventions vary enormously. When printing was invented in Korea in the early eighth century there was no copyright. By the eleventh century printing was used in China but its role was limited to printing a standard copy of laws for each of the provinces. Printing was a means of control, not an intrument for dissemination of knowledge.[1] It could be argued that not much has changed. In March of 1995, China announced the publication of a CD-ROM version of the People's Daily on 92 discs for $27,900.[2] It is noteworthy that China operates without its own copyright rules and ignores the three chief international copyright conventions: the World Intellectual Property Organization (WIPO), the Berne Convention for the Protection of Literary and Artistic Works (Paris 1971) and the Rome Convention (1951). As a result China is not a very rich publisher and even on the Internet China remains very closed. There are, for instance, no Chinese libraries accessible on the world wide web.

By contrast, in Germany, the home of western publishing, there has from the outset been a commitment to disseminating knowledge through printing, rather than simply using the medium as an instrument of power. Perhaps not co-incidentally there are elaborate arrangements with libraries such that authors, in addition to the usual royalties accruing from books sold, are potentially reimbursed annually on the basis of the number of readers. Some of these monies are collected in a central fund, the equivalent of an author's union (*Verwertungs Gesellschaft Wort*) and used to provide generous subsidies for major books which would otherwise prove too expensive to be economically viable. As a result Germany has one of the richest publishing traditions.

1

A recent report of the Association of Research Libraries[3] in the United States claimed that there are basically only two different legal approaches to copyright: that of the United States and the Anglo-American legal traditions which have copyright systems, whereas countries in the civil law tradition, [notably Europe], view authors' rights as natural human rights or as a part of one's right of personality. This overlooks not only the complexities of China and Germany but also the fact that Canada, influenced as it is by both the Anglo-American and French legal traditions, has its own unique approach.

The polarity of the U.S. approach has other interesting consequences. Persons in Europe, tend to see copyright as referring to a particular edition of a book, a well defined single use of a picture, or some other limited contractual arrangement. In Europe a museum or gallery traditionally grants permission to publish an image from their collection only when one identifies the context, stating whether the prime purpose is research, dissemination or commercial, who the publisher is, and the number of copies being printed. Each further edition or use in some other context requires a new permission. If a work is scholarly, most museums waive copyright fees. By contrast, persons in the U.S. tend to believe that copyright entails owning rights in a more absolute sense. Hence, when a Mr. Gates moves to the European scene and offers President Mitterand two billion dollars for the "rights" to images of French culture, he may think he is making a simple business proposition, but he is in fact challenging a whole range of cultural attitudes. Is culture merely a business proposition? Or is culture part of our common heritage, which should be protected by government, and remain accessible to every individual? The paper that follows reviews some recent trends in different countries, including the tendency to see copyright purely in terms of economics or control. The latter part of the paper focusses on problems of cultural heritage.

2. **Economics**

One recent trend is to see copyright purely as an economic issue. In the United States, for example, copyright is now very much a part of big business. In a February study, the Alliance and Economists Inc. (Washington) calculated that "pirated software, bootlegged videos ...music and other copyright theft costs legitimate companies $15-17 billion (U.S.) per year"[4]. Attitudes to these infringments are changing. What was once tacitly acknowledged as a problem is now being treated with legal action. Some are personal cases. In March 1995 Peter Misko and his son, were charged for making 15,000 copies of two CD-ROM games, Myst and Assault. Others involve international politics as when the United States threatened China with sanctions specifically because it did not follow international copyright conventions.

With respect to the Internet, the legal issues have not yet been resolved. Last year when David La Macchia, an undergraduate at M.I.T. was charged with having distributed millions of dollars of software illegally through the Internet, he was acquitted by Judge Richard Stearns who claimed he had not committed a crime[5]. More recently when the Association of Research Libraries produced a preliminary Draft on Intellectual Property and the NII (National Information Infrastructure), it did not even cover computer programs, noting that:

any form of dissemination in which a material object does not change hands in performances or displays on television for example-is not a publication no matter how many people are exposed to the work....a work only displayed via the NII would not be considered published under the Copyright Act no matter how many people have access to it.[6]

But the climate on the Internet is also changing rapidly. Initially designed for military communication, then expanded to link research institutes around the world, the Internet is rapidly becoming accessible to the public as high speed modems become available and private companies provide access ramps. As the available material increases almost exponentially the need for conceptual navigation is becomimg ever more important. Preliminary tools such as Mosaic home pages are insufficient. Users who prefer new browsers such as Netscape will soon be charged for the privilege. Companies such as Microsoft are planning their own world wide networks with content for which users will pay a monthly or an annual fee. In this arrangement content producers will be given some remuneration while Microsoft receives a portion thereof for acting as a broker. Microsoft is by no means alone in this. The vision of global control of content has loomed seriously for well over a decade.

3. Visions of Control by Intermediaries

In the early eighties there were effectively only three multinational companies who could begin positioning themselves for control because they owned elements across the spectrum of the communications industry, ranging from satellites and television stations to newspapers and publishing houses. These were Reed (based in the U.S.), Thomson (based in England and Canada) and Murdoch (based in Australia). In the latter eighties these corporations extended their webs. Thomson, for example, bought the University of Toronto's Library Automated System (UTLAS). Reed, developed its own electronic retrieval system, Online Services. It also bought the English publishing firm, Butterworth, which then bought the German firm, K.G. Saur, a pioneer in microfiche and electronic publishing. Reed has since bought Elsevier. Murdoch has been making similar moves.[7] Since the popular press is increasingly in the hands of these three players, new moves are almost invariably reported in isolation, such that very few persons have a clear picture of how wide this web has become.

Computer companies became the next major players in this game. Companies such as Digital Equipment Corporation (DEC) have been systematically buying the rights to various collections in North America and Europe. At the University of Rome, for example, the copyright to the contents of various institutes is theoretically owned by DEC. I say theoretically because, for the reasons outlined at the beginning of this paper, there may well be a considerable discrepancy between what the Italians believe that they have sold and what the Americans think that they have bought. In Canada, DEC is working with Kodak to scan in images of the Museum for Civilization in return for their becoming the company to whom all computer needs are outsourced. Microsoft's recent initiatives are an attempt to become part of this scene and not surprisingly Digital and

Microsoft have joined forces. Meanwhile, Kodak also envisaged becoming a central broker of images through an international Kodak Picture Exchange, which would serve as a visual image bank[8]. Following pressure from the cultural community they are working increasingly via third parties, such as Luna in the United States and Advanced Cultural Technologies in Canada.

In this context the vision of IBM has been much more subtle. They have a global plan about to be made public. By way of experiment they have, for instance, scanned in the images of the Edo Museum in Tokyo (10,000,000), samples from the Catalogo de los Indios in Madrid, the Luther Library in Wittemberg (50,000 volumes) and have a pilot project that foresees putting online the whole of the Vatican Library. IBM's vision is not to own the images, but rather to work with the owners in finding economically viable solutions for scanning, recording and disseminating the information. They realize that if they succeed then they will ultimately sell more computers in any case.

Meanwhile, since the early nineties, two new sets of players have entered the scene with respect to controlling content, namely, entertainment providers and communications carriers. Hence IBM and Time-Warner have joined forces, and Time-Warner with the cable company, U.S. West. IBM is also working with Xerox and with Stentor, the Canadian consortium of Bell companies.Viacom has joined with Paramount and Viacom in turn with the cable company, Nynex Corp. Southwestern Bell Corp. has joined with Cox Enterprises Inc.; Bell South Corp. with Prime Management Inc. Bell Atlantic attempted a merger with Tele-Communications Inc. (TCI). Rogers has merged with McLean. Microsoft has merged with Spielberg and Katzenberg's new film company. Disney is attempting to buy CBS. Entertainment is buying out news: phantasy threatens to dominate reality, which takes one stage further the evidence that some of CNN's reports on the Iraq war were actually staged with paid actors.

These large scale mergers and takeovers on the national scene are paralleled by equally dramatic alliances on the international front. ATT, for instance, has allied itself with Deutsche Telekom, while Sprint is combining forces British Telecom. And while Bell and Sprint remain official competitors with respect to telephones, they are working together with respect to digital transmission of images. It is not surprising therefore that Bell, as a telephone company has bought up cable companies on Sprint territory in Britain. Meanwhile Rogers Cable is attempting to secure rights to become a telephone carrier. These initiatives have become the more heated in light of ATT's Carrier Amplitude and Phase (CAP) modulation technology, which allows standard copper phone lines to carry almost as much data as fiber optic cables.[9]

One reason why these developments are particularly important in the Canadian context is because both the Free Trade Association (FTA) and the North American Free Trade Association (NAFTA) prohibit discriminatory treatment relating to "enhanced telecommunications services" or "computer services" but not with respect to "broadcast services". If multimedia services can be defined as falling under the latter, then the CRTC will be able to regulate their (Canadian) content without infringing on Canadian copyright obligations abroad.[10]

A result of all these new takeovers, mergers and alliances is that companies traditionally concerned with disseminating knowledge to other persons are combining with entertainment consortia to gain control over content.

3. Steps of Content Producers

Governments have been putting increasing pressure on museums to find new means of revenue generation, such as through the publication of images in CD-ROM format. In Canada these pressures have been exerted specifically on the Canadian Heritage Information Network (CHIN). In Europe similar pressures have been exerted on the major museum project of the European Community, Remote Access to Museum Archives (RAMA). In a recent paper[11], this group suggested that scholars would need to pay 160 ECU for publishing an image. Traditionally scholars pay only the cost of photography, which ranges from about 5 to 40 ECU and only in rare cases pay some additional fees for use of the image.

At the RAMA price, a book on Leonardo with 1500 images, would cost 240,000 ECU for the images alone. RAMA also proposed [12] that the educational market would need to pay 3 ECU just for image retrieval. A major lecture typically contains 150 images. If it costs a lecturer 450 ECU to review and another 450 ECU to give a single lecture, what incentive is there for them ever to abandon their slide collections? If students are to be encouraged to study the images personally, this would mean that in a class of 30 students who wished to consult a lecture only twice (once on the day of the lecture and once at the time of the exam) would have to pay 27,000 ECU per lecture. Since a typical course here entails 26 lectures, it would cost the teacher 13,400 ECU and the students 702,000 ECU. Part of the argument for electronic methods is the possibility of large classes linked through distance education methods. If the class had 300 students, as is already the case in undergraduate courses in some of the large universities, a single course would cost 7,020,000 ECU. This is hardly a way to encourage the kind of universal access to new comparative methods as outlined in the SUMS demonstration.[13]

Plans are underway to create an International Museum Information Network (IMIN) and some individuals have assumed that the models suggested by RAMA would constitute the basis thereof. Others, not least the French Ministry of Culture, are opposed to this on the grounds that such fees would be excessive. Culture is heritage and must not become a simple camp for economic exploitation. In discussions with the French Ministry of Culture, shared with members of DGXIIIb, the premise has been that viewing of the images will be free, that the costs would come into play if one wishes to download high level images to produce postcards, posters and the like. According to this view, the economic dimensions of the new approach, aside from the obvious questions of pipelining and transmission costs, will come a) in the production of new kinds of facsimiles, including physical copies in the form of statues, holographs and high resolution luxury reprints on demand, and b) in the creation of new interpretations in the form of reconstructions, which will entail the use of new graphics software on a large scale.

Another problem with the RAMA proposal is that it considers images of only 2 Mb per painting. The European standard tends to be 30 Mb per picture. Meanwhile the Uffizi project assumes 200 Mb per painting. This would lead to a quite different set of figures.[14] In discussions of study and research a clear distinction will need to be made between students at a school, for whom an image of 1-2 Mb may be perfectly reasonable; students of art history, for whom images of 10-50 Mb will be necessary, and conservators, for whom images of 200 Mb are often necessary.

With respect to photographs of art and other museum objects there are now a few centralized companies (mainly in the United States and Britain) such as Art Resources (New York), which take care of copyright problems from a given centralized location. Hence, if an author wants to use images from the Louvre (Paris), the Uffizi (Florence) and the Prado (Madrid), instead of having to write for permission to each museum individually, they can simply pay a set fee to Art Resources who will make these arrangements for them. In Canada this principle was discussed as a possible solution for multimedia copyright in the recent Study on new Media and Copyright (1994): "...combinations of previously separate media substantially complicate rights clearance, tracking of rights and their use, and in securing payments for the rights-holders..... Clearing rights at a single source (e.g. through a collective) rather than going to individual rights-holders may be a better approach."[15]

In the United States the Information Infrastructure Task Force recently outlined four possible ownership scenarios to increase management of intellectual property:
1) encouraging authors to retain specific rights for on-campus and interinstitutional use,
2) faculty ownership of copyright,
3) joint faculty/ university ownership of copyright,
4) joint faculty/consortium of universities ownership of copyrights.[16]

The thrust of this report was to "bring the products produced (the articles) back under the control of the producers (the research scholars and their universities)" and have the "university explore ways of providing advice, support and managerial services for handling copyright and permission matters on behalf of their faculty (or association members), perhaps in collaboration with a local university press."[17] These suggestions threaten to erode the traditions of individual copyright from another front and again lead to intermediaries taking over control.

Given the enormous problems of copyright it is fitting that the European Union[18], Sweden and Finland, Japan and Canada have initiated their own studies. The Japanese Institute for Intellectual Property, for instance, while acknowledging that moral rights are non-transferable, has noted in a multimedia study that one either needs to permit the specific waiver of the right of personality or limit its application in the digital world. In Canada questions have been raised about the need for universal access.[19] In the United States some have even raised the question whether copyright will endure given an increasing trend to put things on the Internet.

4. Security

In order to ensure the continued viability of copyright, new mechanisms for security are being introduced. In Europe, for instance, there are initiatives to create appropriate Authors' Rights Management Systems (EARMS).[20] Other projects are developing their own equivalents of tracking and biling systems. For instance, in Ontario, the Intercomm project has a system called IVY for the purposes of Intellectual Property protection.In Florida, the Orlando project has its own equivalent. In the context of its Digital Library project, IBM is developing electronic equivalents of watermarks in order to identify the provenance of any document. These new methods will allow al transactions to be tracked and where appropriate, billed using a smart card.It should also be possible to determine the genealogy of any document, i.e. how many generations removed it is from the original.

These new security measures offer a solution to another problem that presently faces users. In Canada and elesewhere there is a trend to consider browsing as a transaction that should be billed in the way that reading is. Scholars are all too aware of how different these processes are. One browses in searching for a particular quote, phrase, term or name. This activity often entails going through dozens or even hundreds of documents in order to find what one is looking for. It can also potentially be automated. By contrast reading inevitably involves a detailed study of a single document at a time and is an activity which cannot be be fully automated, unless one pretends that one could define a priori the things one will learn from the document being studied. The new security measures allow one to distinguish between these functions and make proportionate or appropriate charges.

5. New Scanning Devices and Recording Methods.

Most discussions of multimedia on the Internet assume that this will mainly involve creating a digital version of existing media in new combinations: i.e. digital books, digital paintings, digital photographs etc. This assumption has two basic flaws. First, the nature of scanning devices and recording methods is undergoing a revolution of its own, with the result that owning the rights to copies in old media will soon become useless as the real challenge becomes obtaining digital copies using these new devices. In Ottawa, for instance, the National Research Council (NRC), has produced an amazing laser camera. This takes three-dimensional images of a new kind which can subsequently be rotated on a two-dimensional computer screen. A Rochester company has produced a new flat panel device which allows one to see a holographic type image without requiring the use of glasses. In Leningrad, a new type of holographic camera reproduces three dimensional holographic images. In New York, Dimensional Media Associates has produced a High Definition Volumetric Display (HDVD) which utilizes a:

> 3D Suspended Image System, in which light rays are collected from any of a variety of possible sources (CD-ROM, laserdisk, standard high-res[olution] monitor, LCD display, digital video or HDTV broadcast), reassembled, and projected into a 3-D aerial image.The resulting image -which can vary in size

from a few inches to 20 feet and have horizontal and vertical fields of view that extend up to 360 degrees- duplicates the light emitted from the original source in minute detail.[21]

The possibilities introduced by these new technologies are marvelous but they mean that our cultural heritage will need to be scanned in anew. A good side of this is the possibility of new jobs.

A second, more subtle flaw in the assumption that it is simply a question of scanning in traditional forms of media, pertains to the treatment of library materials. If older books and articles are simply scanned in, they are found to have poor photographs. Publications prior to 1875 seldom have any photographs. So there is a need to retrospectively to add photographs and other images in order to give publications a richer dimension. Which points to a further aspect of the electronic process. Digitization may initially be about content: it is increasingly about interpretation.

6. Content vs. Interpretation

Scanning in the world's libraries, art galleries, archives and other cultural resources is essentially only a first step in the creation of an electronic highway. In itself, an on-line version of Alberti's *On Painting*, may well be less useful than a traditional printed text. The value of an on-line version comes through the new indexes that can be generated either on-the-fly or through careful planning. The value of on-line paintings comes from the ease with which one can confront the objects it represents with photographs of those objects or reconstruct aspects of its structure with the aid of graphics packages. While there is much discussion of the need for content on the information highway, one could argue that this will be provided almost automatically as the great institutions vie with each other to put their contents on-line.

The presence of this content will generate vast new amounts of interpretation: about the object itself (internal analysis), about related objects (external analysis), about restorations and about reconstructions of those objects. These are the new horizons of copyright to which we need to turn our attention. Trying to possess the contents of the past is a non-issue. It is already owned by the great institutions who are not about to relinquish their rights. The challenge is to help these institutions make accessible these past contents.These will effectively function as new commentaries on old sources and therein lie the new horizons for copyright.

7. Systematic Access

The second value added dimension of electronic versions lies in a more systematic access to materials. In the past a scholar on a given person or topic spent many years learning where the relevant manuscripts and texts were located. They were then faced with laborious journeys to libraries in various centres where these works were located. In the past generation this task has been somewhat alleviated by the advent of microfilm, but even so it has still not been possible to collect everything in one's field conveniently. In

an electronic environment having one's own digital copy of everything in one's specialty, or at least access to all these sources, is fully feasible. New realms of scholarship will open as persons have systematic access not only to the sources but also to the reference works (dictionaries, encyclopaedias, bibliographies, abstracts) usually found only in the halls of major libraries. Some feel that these privileges are something for which we should again be charged.Others feel that access to these materials is our inherent right.

8. Cultural Heritage vs. Business

This brings us to one of the fundamental problems in many of the recent developments concerning copyright. While many business persons are actively promoting the idea that business is culture and indeed speak of the cultural industries as if they were merely another market niche, this overlooks another tradition whereby culture has traditionally been viewed as part of the common good. According to this view, libraries, galleries and museums were for the most part collected with taxpayers' money. Hence they should be open to all taxpayers, nay all persons. Moreover, these institutions reflect something more than the sum of their parts, in that they also convey important dimensions of local and national heritage or culture. The Louvre is more than a Parisian museum: it tells a good deal about the French, just as the Prado does about the Spanish or the National Gallery of Canada about Canadians: what they collected, what they thought valuable, what themes dominated their spirits.

Anyone who has studied culture knows how fragile are these records of our culture. The libraries at Alexandria and Pergamon were burned. The great library at Gundishapur which helped give rise to Arabic culture is no more. Even in the past decades the cultural treasures of Tibet and what was Yugoslavia have been tragically dessimated. Ironically, in spite of all the talk of culture as business, hardly anyone thinks of libraries and museums as our collective investments in heritage. Only a few politicians, the Melinda Mercouris of this world, seem to realize that this heritage is one of the most precious things that governments can protect, and that by doing so, they create a cultured climate which in turn has its economic implications in tourism.

It is important to recognize that while culture has economic implications, it should never be dominated by economic considerations in isolation. If money were the only criterion, we would constantly be selling off our national treasures to the highest bidder, whose financial strength is seldom matched by couth, with the result that there would no longer be coherent collections. Great cultures such as Italy, France or Germany have cultural institutes abroad not simply because of a lingering imperialism, but in order to keep alive an awareness of this collective memory that is so much more than the sum of its parts. Somehow copyright has to take into account this dimension. It is not simply a question of Canadian authors being duly paid, but also a question of a climate where there is such a thing as a Canadian author, a Russian author, an Armenian author, allkinds of authors, all kinds of painters, for somehow in this diversity lies the secret of that which we are trying to protect when we create copyright..

9. Sanctity of the Original

At a personal level there is another essential ingredient underlying the need for copyright. We are happy to be cited as long as we are cited honestly, as long as persons quote us in context, as long as they do not tamper with our basic ideas. Someone who claims to cite us and then takes what we have said out of context without indicating this clearly annoys us, incites our anger, makes us want to have recourse to the power of the law. In traditional printed texts we have developed a careful set of conventions to deal with these problems. Any reporter worth their salt gives the source of their news. A scholar is expected to provide careful footnotes documenting all their sources.

The advent of electronic multimedia has greatly increased our means of altering texts and images: we have word processing and graphics packages, editing devices of all kinds. We need a proportionate growth in new devices to provide the equivalent of fingerprints for original texts and paintings, to document changes made to these and create hyperlinks back to the originals, hypertag versions of footnotes such that we know what was rhe starting point and what was the end product. Here is another new horizon for copyright, not so much to assure that we are amply paid for what we are done, but rather to ensure that we are not misquoted in what we have done or said, protection from what could well become a new kind of libel. We need laws of copying-right, not just copyright.

10. Conclusions

Copyright means many things. The laws governing communication can open our horizons or close them. They are equally the keys to democracy and to totalitarianism. Much more is involved than a simple economic question. There are questions of culture and of the inherent sanctity of individual expression. We have long been aware that the medium is the message: that a poem read silently is much different than a poem declaimed before a great audience, that a libretto is much different than an opera sung. Multimedia has increased the gamut of these transformations. Used wisely they will make us richer. Reduced to a mere economic proposition they will make us poorer in more senses than one. The laws of copyright may require the letters of the law. But equally require they its spirit, for ultimately that which they are trying to protect is something spiritual: the mystery, beauty and the magic of individual expression.

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Notes
[1] Michael Giesecke, *Der Buchdruck in der frühen Neuzeit. Eine historische Fallstudie über die Durchsetzung neuer Informations- und Kommunikationstechnologien*, Frankfurt: Suhrkamp, 1991, p.76.
[2] "People's Daily issued on CD-ROM", *Toronto Star*, 22 March 1995.
[3] Ronald H. Brown, *Information Infrastructure Taskforce*, footnote 3. This is available online at http://arl.cni.org.

[4] David Germain, "High -tech enforcement aims to zap computer game pirates", *Toronto Star*, March 20, 1995, p. B2.

[5] Mike Godwin, "Cops on the I-Way", *Time Special Issue: Welcome to Cyberspace*, Spring 1995, p. 62.

[6] Ronald H. Brown, *Information Infrastructure Taskforce* as in footnote 2.

[7] Michael Leapman, *Arrogant Aussie. The Rupert Murdoch Story*, Secaucus N.J.: Lyle Stuart, 1985.

[8] See: Pira International, *Final report IMSTAND: Open Information Interchange Study on Image/Graphics Standards 41 TCON 1730*, Surrey: Pira International, 1993, p.45.

[9] ITRC link-line 23 March 1995: "A.T.&T. Offers Video over Existing Phone Lines", *Investor's Business Daily*, 15 March 1995, p. A13.

[10] Preliminary Report of the Copyright SubCommittee, *Copyright and the Information Highway*, Ottawa, 1995p. 41. See: http://debra.dgbt.doc.ca/info-highway/ih.html.

[11] Télésystèmes, *Remote Access to Museum Archives, Commercial Service Exploitation Planning. R2043/TS/ID/DS/R/D24/b1*, Nanterre: Télésystèmes, November 1994, p. 23.

[12] Ibid., p. 24.

[13] On this topic see also the author's :"Knowledge Packages", The 12th E.C.O.O. and the 8th I.C.T.E. Joint Conference, Toronto, (May 1991), pp.757-759; "Computers and a new Philosophy of Knowledge", International *Classification*, Frankfurt, vol. 18, (1991), pp. 2-12; "How the information highway can transform education. Reflections on McLuhan's vision", *Multicomm '94*, Vancouver, 1994, 25 pp. (in press); "Elektronische Medien, Die Wiedergeburt der Perspektive und die Fragmentierung der Perspektive": *Illusion und Simulation*, ed. Stefan Iglhaut, Munich: Klaus Boer Verlag, 1994 (in press) and "New Media and New Knowledge", *Proceedings of the Third Canadian Conference on Foundations and Applications of General Science Theory: Universal Knowledge Tools and their Applications*, Ryerson, 5-8 June 1993, Toronto, 1993 (in press).

[14] All of these figures are based on traditional imaging technologies. The new laser camera of the Canadian National Research Council requires only 1 Mb for an image that is greatly superior to most images 10-50 times that size.We need some serious systematic tests using the Canadian camera, the Russian alternative and others before making major commitments in scanning projects.

[15] NGL Nordicity Group, *Study on new Media and Copyright (1994).Final Report*, June 30, 1994, p. 10. Cf. *Information Highway Advisory Council*, *Summary of Meeting*, January 20 , 1995, Chateau Laurier, Ottawa, p. 9: The following recommendation was made:
"The federal government establish a source of information technology inforamtion (or "clearing house") to provide to industry and other interested groups through a single interface access to information on the deployment and use of the information highway and the development and adoption of knowledge-based processes by Canadian business, the research community, the educational sector, the health care sector etc."

[16] Cf. Duane Webster, Jane N. Ryland, Robert C. Heterick, *HEIRAlliance Executive Strategies Report #5*, Boulder, Colorado, December 1994, p. 2.

[17] Gary D. Boyd, Jerry D. Campbell, Stephen A. Cohn, *TRLN, Copyright Policy Task Force*, 1994, copied at:http://arl.cni.org.

[18] For an introductory article see: Dominique Gonthier, "The digital world and intellectual property", *I & T Magazine*, Luxembourg, Winter 1994-1995, pp.21-23. For further literature see: *ESPRIT Project 5469 CITED (Copyright in Translated Electronic Documents)*, Boston Spa: British Library, 1995; P. Bernt Hugenholtz, Dirk J. G. Visser, "A comparative analysis of exemptions and limitations in copyright laws in the EU and EFTA", Amsterdam: Institute for Information Law for European Commission, DG XIII/E-3, Library services and networks, 1995. This study is part of a series commissioned by the Legal Advisory Board, DG, XIII/E-1, Legal Aspects of the Information Market and DG XIII/E-3 which includes: Charles Clark, "Current practices in copyright clearance"; Michel Vivant, "The impact of existing harmonised legislation in intellectual property" and Thomas Hoeren, "Long-term solutions for copyright and multimedia products".

[19] See: Information Highway Advisory Council Secretariat, *Access, Affordability and Universal Service on the Canadian Information Highway*, Ottawa: Ministry of Supply and Services Canada, January1995.

[20] See Dominique Gonthier, as in note 18 above, p. 21.

[21] Diana Phillips Mahoney, "Viewing 3D Images in 3D", *Computer Graphics World*, March 1995, p. 19.